Stock Repurchases as a Long-Term Investment Strategy

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Abstract

Purpose – *This paper investigates the long-term investment strategy in a company following a stock repurchase announcement.*

Method – *The paper uses a long-term event study to measure Cumulative Abnormal Returns (CAR). The empirical analysis combines the buyback announcement and execution level with how companies use repurchased shares in the future. The analysis is based on three post-repurchase corporate events, including mergers & acquisitions (M&A), seasoned equity offerings (SEOs), and fulfillment of stock option grants.*

Findings – *The long-term event study results indicate that complete implementation of the repurchase program followed by the use of the acquired stock to fulfill stock option grants has a significant positive impact on stockholders' wealth over 1-, 2-, and 3-year periods, but the impacts are insignificant for SEOs and M&As.*

Limitations – *Individual shareholder's risk preference can affect their wealth. Hence, risk-taking behavior (risk aversion) may change the individual's investment strategy. As inherent with all long-term studies, the study might not address all the factors that could potentially contribute to abnormal returns.*

Implications – *The result implies that stockholders should monitor and incorporate post-repurchase corporate actions in their investing decisions.*

Originality – *The paper focuses on 3-year long-term returns (CAR) after the repurchase announcement. Specifically, through three corporate events, the study conducts long-term event studies that incorporate companies' actions, from implementing the repurchase program to utilizing acquired stock.*

Keywords: stock repurchase, event study, stock options, mergers and acquisitions, seasoned equity offerings

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Introduction

In recent years, stock repurchases have increased dramatically in the U.S. and other countries like Japan, France, Germany, Canada, Italy, Australia, Korea, and the U.K. (Chen & Liu, 2021). The proliferation of stock buybacks in the U.S. has drawn mixed reactions from stakeholder groups. While proponents of buybacks argue they are an effective mechanism to return excess cash to stockholders in the absence of good investment opportunities, opponents claim that the money could be better used, such as investing in research and development (R&D), worker retraining, and employee wages and benefits. The issue gained political traction when Democratic senators Chuck Schumer and Bernie Sanders published an opinion piece in the New York Times in February 2019 calling for legislation that would set minimum investment requirements for corporations in workers and the company's long-term health before implementing a share repurchase plan. In addition, the senators opined that buybacks contribute to increasing income disparity because larger stockholders constitute only about 10 percent of American households. That is, the post-buyback benefit of increased valuation is limited to wealthy households.

While undervaluation is the most common reason for stock repurchase, Fu and Huang (2016) note that the recent stock repurchases are conducted for business operating reasons such as cash payments for acquisitions and issuing additional stock offerings. In this study, we attempt to connect the dots between the senators' claim that stock repurchases enhance shareholders' wealth who hold on to their stock and Fu and Huang's finding that repurchases are increasingly being used for operating reasons. This attempt leads to the question – *is there a connection between utilizing repurchased stock and stockholder's wealth in the long term?* To answer this question, we narrowed down three possible corporate events that companies could undertake with repurchased stock, i.e., fulfill stock option grants, fund merger and acquisition (M&A) deals, and issue seasoned equity offerings (SEOs). We want to emphasize here that we treat these as ex-post decisions made by the company's executives. In other words, we do not claim that the company's executives are aware of the future utility of the stock at the time of a repurchase announcement or that they announce a repurchase specifically to use the stock for any of these corporate actions.

Additionally, the regulation in the U.S. does not require companies to complete a stock repurchase within a specific period, or indeed, to complete it at all. It is the perfect

setting to examine the impact of corporations' mode of repurchased stock use on shareholder wealth and assess this impact with the degree of actual repurchase. Hence, we first divide the sample into two categories: companies that execute the repurchase plan and companies that do not. Next, we form two sub-samples of the companies that execute that repurchase plan – those that complete the repurchase program and those that only partially complete the repurchase program. After that, we further sub-divide the samples based on the modes of repurchased stock use, including no action, fulfillment of stock options, payment for mergers and acquisitions (M&As), and use of Seasoned Equity Offering (SEO). Finally, we conduct overall short-term and long-term event studies for the whole sample and take a deeper dive into the issue by conducting long-term event studies for each possible combination.

Event Study

The repurchase transaction incorporates two parties: the company (agent) and the shareholders (principal). In this study, the term "shareholders" refers to current, past, and potential investors. Both parties retain flexibility throughout the process in that the company can choose whether to implement the repurchase program, while shareholders reserve the right to sell back shares to the firm. If the firm proceeds with the repurchase program, it can then choose to complete the transaction by reselling the shares to the market through SEOs, acquiring a company, merging with one through a stock swap (or both stock and cash), or fulfilling stock option grants. The firm's ability to control the reselling mechanism allows us to measure its long-term performance (and, hence, shareholder wealth), conditional on its activities to use the repurchased shares. Thus, we do not treat these corporate actions as independent events but, rather, as extensions of the share repurchase program. We establish this by conducting long-term event studies over 3-year windows, i.e., the contract's estimated life.

We analyze 3-day (short-term) to 3-year (long-term) event windows to measure abnormal returns around corporate actions. Because existing empirical evidence indicates that share repurchase announcements result in positive abnormal returns for the firm (Ikenberry *et al.*, 1995; Peyer & Vermaelen, 2009), completing the transaction could either enhance or reduce (or even eliminate) such gains, depending on the method utilized to do so. The three corporate events by which shares may be resold to the market include SEOs, acquisitions, and stock option exercises. Recall that the company may choose not to execute the repurchase program completely; i.e., we assume the transaction's completion is independent of the actual repurchase program (partial or complete). If the company does complete the transaction, we analyze the impact of the corporate action(s) used for completion. A company may choose a single event or some combination of the three available options. We analyze a total of 16 sub-samples starting from the announcement of the repurchase event up to the resell of the

repurchased equity. This study only reports the results for 10 sub-samples as the number of observations for some combinations is too few (see Table 2 in the Results section). We want to re-emphasize that these are not treated as isolated events.

Mergers and Acquisitions (M&As)

Corporate restructuring strategies, such as M&As, have become increasingly commonplace and are vital to firms' survival in today's competitive global business environment. One of the critical areas in an acquisition is the composition of the acquirer's payment for the target. Generally, such payment includes cash, securities (e.g., common stock, convertible preferred stock, convertible debt), or some combination of both. Donald M. DePamphilis (2019) provides a detailed overview of the payment process in his book.

Although cash is the simplest payment mode, issues such as tax liabilities for the target firm's shareholders and difficulties in the valuation of the target firm drive the use of common equity as a mode of payment. One of the most widely investigated topics has been the performance of acquirer and target firms that surround M&A announcements. Several studies conducted in the 1970s and 1980s document significant positive abnormal returns for acquired firms (Asquith, 1983; Asquith and Kim, 1982; Dodd, 1980; Dennis and McConnell, 1986; Langetieg, 1978; Mandelker, 1974). Most of these studies also detect insignificant abnormal returns for stocks of acquiring firms. In addition, Travlos (1987) detects significant losses for stockholders of acquiring firms when the payment is made through an exchange of common stock. The author ascribes this finding to the signaling effect of negative information, indicating that a bidding firm is overvalued. He finds that part of the negative returns is offset by the positive effect of a takeover announcement. Shleifer and Vishny (2003) support Travlos' (1987) finding and postulates in their acquisition model that firms have an incentive to overvalue their equity in order to fund acquisitions with stock.

Malatesta and Thompson (1985) find evidence of a positive announcement effect and positive economic impact of acquisition attempts. Andrade *et al.* (2001) document that most of the gains in a merger accrue to the target firm and that these gains are due to expectations of improved future cash flows. At the same time, they caution against studies that document negative returns for acquiring firms' stocks due to methodological errors in these studies. They argue that if mergers were sorted on the true underlying motivation, the results for the acquiring firm would be different. For example, motivations such as economies of scale and greater efficiency would lead to positive abnormal returns, while acquisitions for building an empire would lead to negative abnormal returns. The literature on takeovers involving a stock swap (compared to all cash transactions) documents that the acquirer's stock is overvalued in

general (Ang & Cheng; 2006; Dong *et al.*, 2006; Rhodes-Kropf *et al.*, 2005; Shleifer & Vishny, 2003). Thus, based on existing evidence, we posit that the market could move in either direction in response to a share swap for funding acquisitions or takeovers. The result could either add to or reduce/offset stockholder gains resulting from the repurchase.

Seasoned Equity Offering (SEO)

The performance of the stock price of companies that conduct SEOs has generated significant interest among finance researchers. Several studies conducted in the 1990s have found poor stock returns in the years after an SEO (Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995). Loughran and Ritter (1997) document poor post-issue operating performance in a sample of 1,338 SEOs and, along with Hansen and Crutchley (1990), show that SEOs may be used to predict poor operating performance. Spiess and Affleck-Graves (1995) attribute the long-term underperformance to managers' issuing equity when stock is overvalued. Teoh and Wong (1998) attribute the underperformance to pre-issue earnings management and investors' inability to correctly interpret relevant earnings information at the time of an SEO. Rangan (1998) documents evidence of earnings management around the time of an SEO and consequent stock underperformance. Based on these findings, we hypothesize that using repurchased stock to fund SEOs would eliminate or at the very least reduce the gains accrued to stockholders due to the share repurchase.

Stock Option Exercises

Compensation in stock options rewards executives for maximizing the difference between the option's stock price and the exercise price. Any price increase above the exercise price results in gains for these executives. The objective is to align shareholder interest with that of executives to reduce the agency problem. The validity of this argument has been examined through research on the effect of option grants on stock returns. Several studies have connected excess stock returns to long-term compensation plans granted to executives.

Yermack (1997) finds evidence of more than 2% cumulative abnormal returns in the 50-day event window following CEO option awards, although the award announcement is not made public until several months later. The author discusses the possibility of options granted shortly in advance of favorable corporate news. Chauvin and Shenoy (2001) find cumulative negative abnormal returns 10 days before option grants. They posit that executives could be manipulating the timing of information such

that they release bad news before the option grant date while delaying the release of good news until after options have been granted. Aboody (1996) shows a negative correlation between outstanding executive option value and share price.

Overall, the literature on stock option grants shows negative abnormal returns before option grants and positive abnormal returns later. Heron and Lie (2007) attribute this finding to the practice of option backdating that existed prior to the reporting requirements mandated by the Sarbanes-Oxley Act of 2002. The authors report evidence of continued backdating after 2002, post-Sarbanes-Oxley, albeit to a much smaller extent. In addition, Kahle (2002) reports evidence of firms' announcing stock repurchases when large numbers of employee option grants become exercisable. Given these findings, we argue that using repurchased stock for managing stock option grant exercises may draw mixed reactions from the market.

Data, Hypotheses, and Methodology

We start with a sample of the stock repurchases between 1992 and 2010 from the Securities Data Corporation (SDC). Next, we use this sample to check which firms engaged in stock options grants, M&As, or SEOs in the three years following the stock repurchase announcement. We collect the data on stock options grants from Execucomp and the data on M&As and SEOs from the SDC. Next, we use the CRSP database to obtain the stock prices. We match these variables and divide them into subsamples (as outlined in the introduction), and analyze the various possibilities by conducting event studies for each subsample. Broadly, we analyze short-term event windows and several cases for the long-term event study.

For the short-term event study reported in Table 1, we use the market model to compute cumulative abnormal returns over the following event windows using daily returns: (-30, -2), (-1, 0), (0, +1), and (0, +30), where 0, the event date, is the date of repurchase announcement. The market model adjusts the event date return to remove the overall market's influence (Corrado, 2010). Evidence of positive abnormal returns surrounding share repurchase announcements has been documented by Comment and Jarrell (1991), Ikenberry *et al.* (1995, 2000), Mitchell and Stafford (2000), Grullon and Michaely (2002, 2004), and Zhang (2005) among others. These findings are consistent with the information-signaling hypothesis that a firm's current and future stock is undervalued (Jagannathan & Stephens, 2003) and the free cash flow hypothesis that repurchases help in alleviating agency costs by distributing cash to stockholders that otherwise could be spent by management on unprofitable ventures (Jensen, 1986).

For the long-term event study, we use the calendar-time portfolio approach in which excess returns of the event portfolio are regressed on the Fama-French 3-factor

model. This model includes two other risk factors in addition to beta: size and book-to-market factors. We compute abnormal returns over three event windows using monthly returns: (0, 12), (0, 24), and (0, 36), where the repurchase event is announced in month 0 and each of the following three post-repurchase events that occur in months 12, 24, and 36: fulfillment of stock option grants, merger & acquisition deals, and secondary stock offerings. Kothari and Warner (2007) discuss in detail the importance of risk adjustment and issues associated with long-term event studies. The authors conduct a comprehensive survey of event study methodologies and conclude that while problems with power and specification issues continue to persist in long-horizon studies, the Fama and French (1993) three-factor model along with the Carhart (1997) specification incorporating the momentum factor is widely accepted in the event study literature. Moreover, they point to forming subsamples with common characteristics related to abnormal performance levels as a measure to resolve variance shift issues that lead to misspecifications. Thus, this study forms and analyzes ten subsamples for each event window to help mitigate the misspecification issues.

In a recent study, Sorescu *et al.* (2017) recommend the Fama and French (1993) methodology for measuring stock performance over longer-term windows. In addition, the authors point to the necessity of more precise risk adjustment in long-horizon event studies, making them more sensitive to the asset pricing model used to estimate the abnormal returns. Two recent studies implementing this long-term event study procedure include Liu (2018) and Yook (2010). Liu (2018) investigates post-earnings announcement drift over a 1-3-year period for a sample of U.S. firms and offers suggestions for building an implementable portfolio based on the results. Yook (2010) examines a sample of repurchase program announcements and finds evidence of long-term abnormal returns for firms that announce repurchase programs infrequently. Other studies that have used this methodology include Mitchell and Stafford (2000), Boehme and Sorescu (2002), and Bradford (2008).

Thus, following existing literature, we use the Fama-French's (1993) 3-Factor Model incorporating beta, size, and book-to-market:

$$R_{jt} = \propto_j + \beta_j R_{mt} + S_j SMB_t + h_j HML_t + e_{jt} \quad (1)$$

$$A_{jt} = R_{jt} - (\hat{\propto}_j + \hat{\beta}_j R_{mt} + S_j SMB_t + h_j HML_t) \quad (2)$$

$$AAR_t = \frac{\sum_{j=1}^{N} A_{jt}}{N} \quad (3)$$

$$CAR_{T_1,T_2} = \frac{1}{N} \sum_{j=1}^{N} \sum_{t=T_1}^{T_2} A_{jt} \quad (4)$$

where:

R is the return for company *j* at time *t* (note this is a calendar month time);

A is the abnormal return;

AAR is the average abnormal return;

CAR is the cumulative average abnormal return.

Results

Table 1 provides the results of the short-term event study. We consider four event windows measured in days: (-30, -2), (-1, 0), (0, +1), and (0, +30), where 0, the event date, is the date of the repurchase announcement. Our results for all event windows are statistically and economically significant and consistent across both value-weighted and equally-weighted indices. For the (-30, -2) event window, we observe negative CARs of 5.65% and 6.22% for equally-weighted and value-weighted indices, respectively. This finding supports the premise that repurchase announcements are generally preceded by significant stock undervaluation. We detect positive CARs of 2.83% (2.81%) for the (0, +1) window and 4.32% (4.26%) for the (0, +30) window, using the equally- weighted (value-weighted) index. These results agree with the literature that positive abnormal returns follow repurchase announcements. We also note a significantly positive CAR in the (-1, 0) window, i.e., the day before the repurchase announcement. We attribute this to possible information leakage in the market. The investing strategy takeaway from this is that if a company has an approved repurchase program in place and the stock is undervalued, it would behoove investors to buy the stock about a month before the repurchase announcement and hold on to the stock for a month following the announcement.

Short-Term Event Study

Table 1 reports the results of the short-term event study for a window of one month before and one month after the announcement event. The table reports the equally-weighted and value-weighted cumulative abnormal return (CAR) for that period. We divide the time period into smaller windows in days (-30, -2), (-1, 0), (0, +1), and (0, +30), where 0 is the announcement date.

Table 1: Statistics from the Short-Term Event Study

	Event Window = (-30, -2)			Event Window = (-1, 0)		
Portfolio Weighting	No. Obs.	Mean CAR	Portfolio t-statistic	No. Obs.	Mean CAR	Portfolio t-statistic

Equally Weighted	5180	-5.63%	-19.60***	5177	1.66%	21.98***
Value Weighted	5180	-6.20%	-20.50***	5177	1.62%	20.44***
	Event Window = (0, +1)			Event Window = (0, +30)		
Portfolio Weighting	No. Obs.	Mean CAR	Portfolio t-statistic	No. Obs.	Mean CAR	Portfolio t-statistic
Equally Weighted	5177	2.83%	37.55***	5181	4.32%	14.55***
Value Weighted	5177	2.81%	35.41***	5181	4.26%	13.61***

Long-Term Event Study

Table 2 presents the results for the long-term event study using Fama-French Calendar month returns. We consider three event-windows measured in months: (0, 12), (0, 24), and (0, 36). In the following paragraphs, we analyze each case and the relevant trading strategy. We note monthly positive abnormal returns of 0.54%, 0.46%, and 0.34% (at the 5% level of significance) respectively over 1-, 2-, and 3-year horizons when the firm completes the repurchase program but before any of the repurchased shares are returned to the market. This result shows that shareholders attach a premium to stock prices post-repurchase, not just in the short term but over the long term as well. Next, we examine the market reaction to a set of consecutive events over the long term: The company completes the repurchase program *and* sells back the shares to the market using different mechanisms. The first such mechanism is to fulfill stock option grants. Per our prediction, the market reacts positively when the company sells the repurchased shares for this purpose. Specifically, we note statistically significant (at the 0.1% level) positive monthly CARs of 0.66%, 0.57%, and 0.6% over 1-, 2-, and 3-year horizons, respectively. Economically, these translate to a 7.92% annual excess return over the 1-year horizon, 6.84% annual excess return over the 2-year horizon, and 7.2% over the 3-year horizon. These returns are significantly higher (both statistically and economically) than would be the case if the company simply implements the repurchase program but does not complete the full transaction. Thus, the dilution effect of vesting stock options is offset and rewarded when the company uses repurchased shares to fulfill the grants. Hence, we argue that shareholders are better off when the company completes the entire transaction, i.e., fully implementing the repurchase program and reselling the equity to fulfill stock option grants.

In Table 2, we divide the sample into sub-samples based on Figure 2 outcomes. The Exhibit is divided into three parts; 3-year (0, 36), 2-year (0, 24) and 1-year (0, 12) horizons.

Table 2: Statistics from the Long-Term Event Study

Event	No. Obs.	Abnormal Return (monthly)	Beta	Size	Book-to-Market	Adj. R-squared
Horizon = 3 years (0, 36)						
Exercise – Complete - Don't Sell	645	0.0034 (1.84)* [1.89]*	0.8864 (21.49)*** [17.57]***	0.6786 (11.88)*** [6.86]***	0.4861 (8.11)*** [6.07]***	75.24%
Exercise – Complete - Sell – Stock Options	722	0.006 (3.96)*** [4.09]***	1.0336 (30.49)*** [26.07]***	0.4600 (9.80)*** [5.84]***	0.4606 (9.35)*** [6.96]***	83.25%
Exercise – Complete - Sell – M&As	48	0.0117 (2.81)** [2.71]**	0.777 (7.09)*** [6.69]***	0.4466 (3.52)*** [3.15]***	0.4823 (3.15)*** [3.04]**	24.44%
Exercise – Complete - Sell – SEOs	27	0.0021 (0.37) [0.38]	0.8935 (7.33)*** [6.94]***	0.9781 (5.85)*** [6.55]***	0.7104 (4.04)*** [4.04]***	32.79%
Exercise – Complete - Sell – Stock Options, M&As, SEOs	103	0.0037 (1.45) [1.50]	1.0713 (19.06)*** [16.76]***	0.5078 (6.58)*** [4.72]***	0.4101 (5.06)*** [4.51]***	67.27%
Exercise – Partial - Don't Sell	1489	0.0091 (4.85)*** [5.00]***	0.9627 (22.80)*** [22.77]***	0.7623 (13.07)*** [10.42]***	0.2584 (4.23)*** [3.71]***	78.82%
Exercise – Partial - Sell – Stock Options	1372	0.0054 (4.01)*** [4.16]***	1.0913 (36.02)*** [33.93]***	0.5238 (12.48)*** [8.38]***	0.3590 (8.16)*** [6.79]***	87.72%
Exercise – Partial - Sell – M&As	120	0.0012 (0.31) [0.33]	1.0322 (12.56)*** [12.99]***	0.8304 (7.33)*** [7.67]***	0.1917 (1.61)* [1.70]*	54.69%
Exercise – Partial - Sell – SEOs	91	0.0129 (2.53)** [2.54]**	0.9998 (8.85)*** [10.85]***	0.6921 (4.46)*** [4.89]***	0.5060 (3.11)** [3.23]***	33.99%
Exercise – Partial - Sell – Stock Options, M&As, SEOs	278	0.0067 (3.55)*** [3.50]***	1.0901 (25.79)*** [24.41]***	0.4636 (7.96)*** [5.88]***	0.3043 (4.98)*** [3.89]***	78.42%
Horizon = 2 years (0, 24)						
Exercise – Complete - Don't Sell	645	0.0046 (2.29)* [2.33]*	0.8792 (19.65)*** [17.71]***	0.6181 (10.05)*** [6.91]***	0.4759 (7.38)*** [6.35]***	71.91%
Exercise – Complete - Sell – Stock Options	722	0.0057 (3.51)*** [3.63]***	1.0126 (27.75)*** [25.14]***	0.4769 (9.52)*** [6.20]***	0.477 (9.07)*** [7.22]***	81.49%
Exercise – Complete - Sell – M&As	48	0.0064 (1.14) [1.12]	0.7245 (5.03)*** [5.35]***	0.5535 (3.40)*** [3.77]***	0.7611 (3.77)*** [3.96]***	16.37%
Exercise – Complete - Sell – SEOs	27	0.0014 (0.19)	1.2146 (7.46)***	1.1692 (5.40)***	0.9467 (4.15)***	32.73%

		[0.18]	[6.82]***	[5.03]***	[3.49]***	
Exercise – Complete - Sell – Stock Options, M&As, SEOs	103	0.0033 (1.09) [1.10]	0.9583 (14.51)*** [12.70]***	0.5169 (5.73)*** [4.33]***	0.3497 (3.67)*** [3.03]**	56.68%
Exercise – Partial - Don't Sell	1489	0.0100 (4.95)*** [5.12]***	0.9476 (21.28)*** [20.54]***	0.7578 (12.42)*** [10.62]***	0.2550 (3.99)*** [3.50]***	77.55%
Exercise – Partial - Sell – Stock Options	1372	0.0055 (3.85)*** [3.98]***	1.0675 (33.60)*** [31.33]***	0.5319 (12.18)*** [8.55]***	0.3537 (7.72)*** [6.42]***	86.90%
Exercise – Partial - Sell – M&As	120	0.0042 (1.01) [1.03]	0.9997 (10.88)*** [10.61]***	0.8601 (6.83)*** [7.32]***	0.1168 (0.88) [0.96]	50.50%
Exercise – Partial - Sell – SEOs	91	0.01 (1.77)* [1.79]*	0.9843 (7.91)*** [9.36]***	0.7220 (4.26)*** [4.78]***	0.5706 (3.20)*** [3.30]***	30.79%
Exercise – Partial - Sell – Stock Options, M&As, SEOs	278	0.0066 (3.08)** [3.07]**	1.1183 (23.54)*** [20.60]***	0.4652 (7.16)*** [5.70]***	0.2971 (4.35)*** [3.69]***	76.09%
Horizon = 1 years (0, 12)						
Exercise – Complete - Don't Sell	645	0.0054 (1.99)* [2.03]*	0.8997 (15.16)*** [16.22]***	0.5045 (6.23)*** [5.40]***	0.4846 (5.69)*** [5.67]***	59.30%
Exercise – Complete - Sell – Stock Options	722	0.0066 (3.44)*** [3.53]***	1.0085 (23.83)*** [21.17]***	0.4443 (7.70)*** [5.49]***	0.4679 (7.70)*** [6.44]***	77.10%
Exercise – Complete - Sell – M&As	48	0.003 (0.51) [0.49]	0.6882 (4.55)*** [4.62]***	0.5678 (3.46)*** [3.47]***	0.8407 (4.10)*** [3.79]***	16.23%
Exercise – Complete - Sell – SEOs	27	-0.0051 (-0.56) [-0.55]	1.3558 (7.08)*** [7.01]***	1.3352 (5.26)*** [5.47]***	1.0786 (4.06)*** [3.66]***	38.67%
Exercise – Complete - Sell – Stock Options, M&As, SEOs	103	0.0014 (0.36) [0.36]	0.9348 (11.21)*** [10.68]***	0.3266 (2.97)** [2.34]*	0.2492 (2.13)* [2.04]*	42.72%
Exercise – Partial - Don't Sell	1489	0.0132 (5.78)*** [5.93]***	0.9627 (19.28)*** [18.57]***	0.7296 (10.75)*** [8.71]***	0.306 (4.29)*** [4.09]***	74.23%
Exercise – Partial - Sell – Stock Options	1372	0.0065 (4.03)*** [4.10]***	1.0373 (29.08)*** [27.46]***	0.5524 (11.35)*** [9.30]***	0.3073 (6.01)*** [4.63]***	84.42%
Exercise – Partial - Sell – M&As	120	0.0074 (1.39) [1.44]	1.1307 (9.83)*** [9.95]***	0.7351 (4.82)*** [4.48]***	0.0586 (0.36) [0.37]	45.50%
Exercise – Partial - Sell – SEOs	91	0.0154 (2.43)** [2.41]**	1.0215 (7.51)*** [8.74]***	0.7439 (4.09)*** [4.25]***	0.4054 (2.12)* [2.12]*	30.29%
Exercise – Partial -	278	0.0078	1.0411	0.4214	0.2304	65.41%

Sell – Stock Options, M&As, SEOs		(2.90)** [2.90]**	(17.64)*** [15.63]***	(5.26)*** [4.45]***	(2.73)** [2.40]**	

Note: t-statistics are parenthesized; standard errors are braced; *$p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$.

Next, we turn to the situation where the company chooses M&As to resell repurchased stock. In this case, we observe positive but insignificant monthly CARs over the 1- and 2-year horizons. However, the 3-year horizon yields statistically and economically significant annual positive excess returns of 14.04%. Given the conclusions drawn by Andrade *et al.* (2001), we argue that a 3-year horizon gives the market enough time to assess the true motivation of the acquisition. Thus, we conclude that completing the transaction for funding M&As adds to shareholder wealth over the 3-year time horizon. Hence, we suggest shareholders allow at least 3 years to derive the benefits of favorable M&A deals. This finding also raises the question: how successful is a company in sharing information effectively with its stockholders? We advocate that if the company could reduce information asymmetry by disseminating knowledge regarding its true motives in a timely and efficient manner, shareholders could benefit sooner from good management decisions.

The third mode of completing the transaction is by selling shares through SEO. Masulis and Korwar (1986) and Mikkelson and Partch (1985) have documented that SEOs are associated with stock underperformance. However, when investigated as an extension of the repurchase program, the market remains neutral to an SEO. We note insignificance statistically on both negative excess returns over the 1-year horizon and positive excess returns over the 2- and 3-year horizons. Thus, we argue that if a stock repurchase precedes an SEO, the market is more forgiving and is willing to price the stock at its fair value.

In the final step, we examine a combination of the three modes: stock options, M&As, and SEOs. Here, we observe statistically insignificant CARs over the 1- and 2-year horizons. However, a positive monthly CAR of 0.37%, significant at the 10% level, is noted over the 3-year horizon. Thus, it is evident that shareholders accrue larger gains when the company completes the transaction, using a single mechanism of fulfilling stock option grants or funding an M&A deal instead of employing a combination of events. Nevertheless, one could argue that a completed transaction mitigates any negative abnormal returns around corporate events that could otherwise have accumulated were these events to have taken place in isolation.

We continue our analysis by repeating the empirics for a repurchase program that is implemented partially. We detect some noticeable differences in the results when compared with a completed repurchase program. To start with, when a repurchase program is implemented partially without completing the resell transaction, we note positive monthly CARs of 1.32%, 1.0%, and 0.91% over the 1-, 2-, and 3-year horizons, respectively. These returns are statistically significant at the 0.1% level and

economically significant at annual rates of 15.84%, 12%, and 10.92% over 1-, 2-, and 3-year horizons, respectively. Thus, the highest excess returns accrue over the 1-year horizon, followed by declining returns over the 2- and 3-year horizons. Although the completion of the resell transaction for fulfilling stock option obligations continues to generate significant and positive abnormal returns, we observe that the magnitude of the returns is smaller than it would be if the company does not complete the transaction, unlike the case of the completed repurchase program. Specifically, the annual returns are 7.8% over a 1-year horizon, 6.6% over a 2-year horizon, and 6.48% over a 3-year horizon.

We note that in the case of partial repurchase program implementation, shareholders benefit more if the resell transaction is not completed. This observation is extended to contract completion via funding of M&As. The significant positive excess returns over a 3-year horizon observed in a completed repurchase implementation may disappear entirely if the repurchase program implementation is partial. The logic of this observation can be derived from Jensen's (1986) free cash flow hypothesis. In the case of a partial repurchase, the market is willing to add a more significant premium to the expectation that the company will hold on to the free cash flow to complete the repurchase in the future. If the company completes the resell part of the transaction by engaging in corporate restructuring, the market may be skeptical of its future motives.

The story changes when firms select the SEO route for completing the resell transaction. Here, we observe positive and significant abnormal annual returns of 18.48% over a 1-year horizon, 12% over a 2-year horizon, and 15.48% over a 3-year horizon. If the market believes that the company cannot complete the repurchase due to a cash shortage, an SEO confirms this belief. This result reveals an interesting phenomenon; namely, an SEO considered independently would normally decrease stock price, but combining it with a partial repurchase may result in positive excess returns. A possible reason is that the market now expects the company to complete the repurchase with the new cash raised from the SEO.

Finally, we examine a combination of the three modes of transaction completion: stock options, M&As, and SEOs. Unlike the case of a completed repurchase program, we find evidence of significant positive abnormal returns over the three different time horizons. Specifically, when companies partially fulfill a repurchase program but complete the resell transaction, using a mix of the three available strategies, we observe monthly CARs of 0.78%, 0.66%, and 0.67% over 1-, 2-, and 3-year event horizons, respectively. The CARs are significant at least at the 1% level and translate into economically significant annual excess returns of 9.36%, 7.92%, and 8.04% over 1-, 2-, and 3-year event horizons, respectively. There are two possible interpretations of these results. One is that an incomplete repurchase program solicits an incomplete reaction from the market; i.e., the market does not have sufficient information to predict whether a company will complete the repurchase in the future and, hence, rewards the stock as

long as the resell transaction is completed by methods acceptable to stockholders. The other is that the company is aware that the market is closely monitoring the company to predict its future course of action. Hence, the company signals its motives by completing the full transaction via activities that may increase shareholder wealth and alleviate agency concerns. The results mentioned above may raise the issue of why a contract completion for funding M&As exclusively does not result in positive returns, whereas a mix of events that includes M&As does. A likely reason is that the mixed sample is dominated by the other two corporate activities: SEOs and stock option fulfillment. We conducted event studies with sub-samples of two event combinations, but the sample sizes were too small to generate reasonable values of $R2$.

Limitations and Future Research

We recognize that this study has some limitations. First, we acknowledge that individual shareholder's risk preference can affect their wealth. Using an experimental setup, Garling *et al.* (2020) find that increasing motivation to compete for performance increases risk-taking behavior. However, they also find that risk-taking behavior is not as high as expected when the competition is high. They attribute this to the fear of an increased probability of loss. Other scholars (Fang *et al.*, 2017; Kirchler *et al.*, 2019) have also studied individual risk-taking. Noussair and Tucker (2013), Palan (2013), and Powell and Shestakova (2016) recognize individual risk preference to be a significant determinant of differences in trading behavior in experimental asset market setups. Thus, investors' individual trading choices could influence the detection of abnormal returns (or lack thereof). For future research, various utility functions may be incorporated to reflect the differences in individual shareholder's risk preferences.

Second, multiple factors could potentially contribute to abnormal returns in long-term event studies. However, no methodology can account for every possible contributing factor, including for event windows of 30 days. Oler, Harrison, and Allen (2007) state that the choice of event window length is 5 days for 67.7% of studies but caution against the exclusive use of short-term returns as predictors of long-term performance. The authors argue that although long-term event studies are susceptible to confounding events, they nevertheless reveal important information in the presence of significant and positive/negative abnormal returns and should therefore be included alongside short-term event studies to obtain a complete picture.

Some seminal studies involving long-horizon stock performance following corporate events include Fama (1998), Kothari and Warner (1997), Schwert (2001), and Kothari (2001). A detailed analysis of issues surrounding such long-term event studies is provided by Kothari and Warner (2007). The authors recommend using a combination of methodologies such as buy-and-hold and calendar time along with

forming subsamples to mitigate shortcomings related to power and specification. A more recent study by Dutta *et al.* (2018) proposes a new method that involves standardized returns to test for long-horizon abnormal stock returns and considers cross-sectional autocorrelation and heteroskedasticity of stock returns. Although it is beyond this research's scope, future studies can conduct long-horizon studies with the methodologies proposed by Kothari and Warner (2007) and Dutta *et al.* (2018).

Summary and Recommendation

In this study, we investigate the repurchase event in two phases: (I) Announcement of the program; and (II) Degree of implementation. First, we design the complete transaction, whereby the company starts with a repurchase announcement in Phase I and implements the program in Phase II. Then, we analyze each stage's process to evaluate its impact on long-term shareholder value and the consequent possible trading strategies.

In Phase I, a short-term event study confirms the extant literature's findings that significant positive abnormal returns follow the repurchase program's announcement. In Phase II, we conduct long-term event studies on incorporate companies' actions, from implementing the repurchase program to utilizing the acquired stock. In this phase, we divide the sample into several subgroups based on the repurchase program's degree of implementation and the acquired stock's reselling mechanism. Our results for this phase show that a fully implemented repurchase program, followed by using the acquired stock to fulfill stock option grants, has the maximum positive impact on shareholder wealth in terms of both statistical and economic significance. In the case of M&As, shareholder gains are positive and significant for a fully implemented repurchase program over a 3-year period only. Further, we find that when SEOs follow repurchase programs (complete or partial implementation), the effect on shareholder wealth is either insignificant or positive. This result is fascinating because SEOs are generally associated with negative returns (Brav *et al.,* 2000; Wang & Zhen, 2003; Carlson *et al.*, 2006).

Thus, although shareholders that keep their stock following a repurchase announcement gain over the short-term, future corporate actions can significantly affect shareholder wealth in the long-term. Hence, we recommend shareholders continue to monitor companies' actions following a repurchase program implementation.

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