

Share Repurchase Behavior and Its Impact on Investors: Differences Between the Automotive  
and Retail Industry

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## **Abstract**

The ownership of a publicly traded company is spread amongst the public via the trading of its shares. These share prices are influenced by several factors including simple supply and demand, economic factors, internal company factors, and industry trends. A company can and will try to influence their own share prices, most commonly through a profit motive. Another method is through a share repurchase program whereby a company purchases its own shares from other holders. Since the 2009 low of the stock market, the frequency and size of share repurchases has significantly increased (Abbott, Quintana, & Yardeni, 2018). In 2018, the frequency and size of share repurchase programs hit a record high, and already eighteen repurchase programs have been announced in 2019. Broadly, the announcement of a repurchase program may signal that a firm believes its stock is undervalued. However, the motivations behind, and implications of, share repurchases may differ across industries.

I began my research by conducting a literature review to determine existing studies related to motives behind share repurchases. I analyzed two variables: frequency of repurchases within the retail and automotive industries, and the stock return when repurchases are announced. I chose companies within these industries that announced share repurchase programs and compiled this research to determine how share repurchase behavior, and its implication on share price, differs across industries. Preliminary results indicate that the retail industry engages in more frequent share repurchase programs than the automotive industry. In aggregate, investors perceive that an announcement of a share repurchase program indicates that a share price is undervalued, as recent data reveals an increase in share price following an announcement. Further, most of the automotive firms that engaged in repurchase programs were found to be retailers of automotive

parts, not the automotive manufacturers themselves. This project intends to explain share price movement as a result of repurchase announcements across two unique industries. The observed differences may encourage further research in the share price movement post share repurchase announcement across these and other sectors.

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## I. INTRODUCTION

The ownership of a publicly traded company is spread among the public via the trading of its stock. The stock, or share, prices are influenced by several factors, including simple supply and demand, economic factors (earnings reports, political events, etc.), internal company factors (share repurchase programs, etc.), and industry trends, among others. A company can and will try to influence their own share prices. One method of doing so is through a share repurchase program, whereby a company purchases its own shares from other holders of publicly available shares. Often, a company will announce a share repurchase program when it has a large amount of excess cash on hand and when it has a lack of other compelling investment opportunities. The announcement of a repurchase program does not obligate the company to actually repurchase stock from publicly available shares but creates the option to do so. When a company announces a repurchase program, it can announce the size in terms of a number or a dollar amount of shares. A new repurchase announcement is when a company announces a share repurchase program to the public for the first time. There are occasions when a company announces that it will be buying additional shares on top of the initial amount that it previously announced. The announcing company also has the option to suspend or terminate the share repurchase program at any time, meaning that it will momentarily or indefinitely halt the repurchase of its stock.

The announcement of a repurchase program may signal that a firm believes their stock is undervalued, potentially leading to an increase in the stock price. However, the motivations behind, and implications of, share repurchases may differ across industries. It may be that certain companies place more emphasis on their stock valuation, and therefore react more strongly when they believe their stock prices are undervalued. Repurchases of their own stock may be a way for



them to catch investors' attention and impact their stock prices. Another reason may be that differences in industries make one more interesting to investors, so they inadvertently neglect other industries, causing those stock prices to be undervalued. Companies may try to counteract this by repurchasing their own shares. In this research project, I will compare the share repurchase programs of companies in two disparate industries, the automotive industry and the retail industry. The frequency of repurchase announcements will indicate industry trends regarding share repurchase behavior. Abnormal stock returns on the days surrounding share repurchase announcements will help to determine the opinions of investors regarding these repurchase announcements.

## **II. LITERATURE REVIEW**

Share repurchase behavior has been an active area of study for several years. Previous research looks into the motivations behind share repurchase announcements, the long-term impact on the firm following the announcements, and the price impact of repurchase programs and their ability to signal to the market. However, research that studies how the impact on investors differs between industries is not as abundant.

Much of the literature found is based on the historical belief that the announcement of a share repurchase program functions as a positive economic signal to the market. Oded (2005) studied the impact of an announcement in terms of short-run costs and long-term gains for the announcing firm, with reference to the fact that an announcement is not necessarily a

commitment to repurchase shares. Sonika, Carline, and Shackleton (2014) found that many firms announce open-market repurchase programs because it provides them with the ability to manage excess cash with flexibility. The announcement of a share repurchase program provides “an option to return cash to its shareholders without any commitment to actually doing so,” which is one of many potential motivations behind a share repurchase announcement (Sonika, Carline, & Shackleton, 2014). Chan, Ikenberry, Lee, and Wang (2010) conducted a study to determine whether managers use repurchase announcements as signals to mislead investors, because of the fact that they do not demand an actual commitment.

With knowledge that an announcement of a repurchase program provides firms with an option, research also looks into the actual decision to repurchase shares, and how the use of excess cash to repurchase shares impacts the firm. Larger firms with few investment opportunities as well as temporary changes in cash flow are more likely to conduct share repurchase programs (Jensen, 1986 and Guay & Harford, 2000 as cited in Sonika, Carline, & Shackleton, 2014). Research shows that firms choose to actually conduct the repurchase programs when they have excess cash and are “prone to free cash flow agency problems” (Sonika, Carline, & Shackleton, 2014). Chan, Ikenberry, Lee, and Wang cited the corporate finance theory which suggests the same: that firms use buybacks when they have excess cash in order to “lessen agency problems or react to decreased investment opportunity sets” (Jensen, 1986 and Grullon & Michaely, 2004 as cited in K. Chan, et al., 2010). Oded found that the average abnormal announcement return is 3%, which shows that share repurchase announcements have a positive impact on the firm. However, much of the research found does not show long-term benefits from buyback announcements (K. Chan et al., 2010).

### III. OBJECTIVES AND HYPOTHESES

The goal of this research is to determine if share repurchase behavior and its implications on investors differs across industries. Objectives include:

1. To provide a comprehensive review of current sources pertaining to motivations behind share repurchases.
2. To review current industry trends regarding share repurchases.
3. To analyze stock data after repurchase announcements to determine investors' opinions on repurchase announcements.

The objectives above lead to the following hypotheses:

**Hypothesis 1:** The retail industry will engage in more frequent share repurchase programs than the automotive industry because there are industry changes, such as a decline in the success of brick and mortar retail, that may be less compelling to investors.

**Hypothesis 2:** The automotive industry will engage in more frequent share repurchase programs than the retail industry because industry events cause it to be more volatile, leading investors to be more cautious when purchasing shares from companies within the industry.

**Hypothesis 3:** In aggregate, investors perceive that an announcement of a share repurchase program indicates that the stock is undervalued, and so stock price increases after an announcement.

**Hypothesis 4:** In the automotive industry, investors are more likely to perceive repurchase

announcements as an indication of stock undervaluation, whereas retail industry repurchase announcements are more often perceived as an indication of other factors.

#### **IV. METHODOLOGY**

This research observes two variables: frequency of repurchases within the retail and automotive industries and stock return when repurchases are announced. Frequency of repurchases indicates the behavior of firms within the two industries, and the stock returns of the companies following share repurchase announcements give insight into investors' opinions of the motivations behind share repurchases.

Stock returns will be calculated using historical stock price data from Yahoo Finance and compared with stock return data found on FRED, the Federal Reserve Economic Data maintained by the Federal Reserve Bank of St. Louis. The Russell 3000 index will be used as a proxy for the overall market. The source of the Russell 3000 will also be FRED. In order to adjust for noise due to overall market changes, the market return for each corresponding day will be subtracted from the companies' stock returns on the day of and the day after the announcements. Stock returns will be calculated using adjusted close prices the day before and the day of a share repurchase announcement, and stock returns will be found for the day of and the day after an announcement. This will ensure that abnormal stock returns due to announcements after close of the market will be captured in the data.

## V. DATA ANALYSIS

I began by discerning which companies announced share repurchase programs from 2009 to 2018. MarketBeat provided the list of companies that announced share repurchase programs for these years. I noted their date of announcement and categorized them into the automotive and retail industries in order to determine the frequency of repurchases in each industry. It should be noted that I only included new share repurchase announcements, not additional or suspended programs, to ensure that investors' initial reactions were being captured. Automotive retail companies were included in the retail industry, while automotive manufacturers and manufacturers of automotive parts were included in the automotive industry.

I used FRED and Yahoo Finance to calculate each company's stock return on the day of and the day after a repurchase announcement using adjusted close prices on the corresponding dates. Initially, I used Yahoo Finance to calculate the stock returns for the dates in question using adjusted close prices, however I quickly realized that there were gaps in the data on occasions that the date of an announcement fell on a holiday. In these cases, I utilized stock return data on FRED, which contained the dates of these holidays and the stock return on the dates surrounding the holidays. In the case that a share repurchase announcement fell on a holiday, I calculated the stock return using adjusted close stock price data for the day before and the day after the holiday. To ensure consistency, I also used FRED to check that the Yahoo Finance adjusted close prices were corroborated.

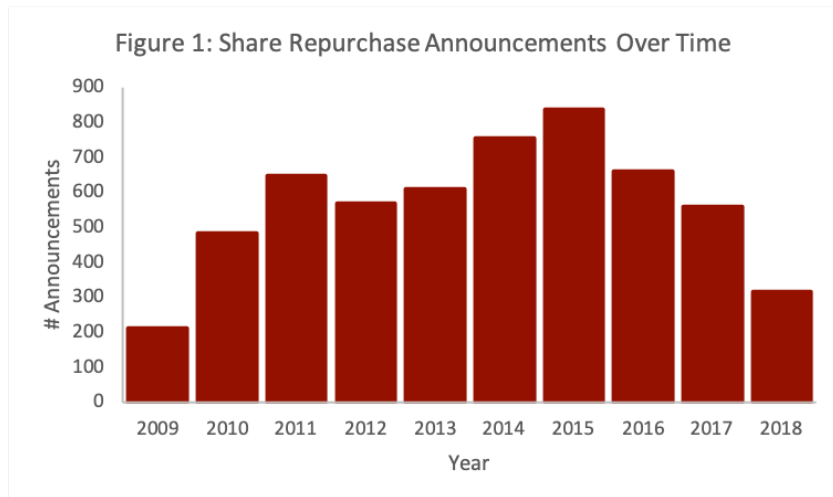
Calculating stock return for the day of and the day after an announcement ensured that investors' reactions to announcements made after the close of the market would be captured in the data. After finding stock return data for the announcing companies, I found the market return

for the days of and the days after each announcement using the Russell 3000 index as a proxy for the entire market. I subtracted this from each company's stock return on the corresponding announcement days to find the abnormal return following a repurchase announcement for each company. This was to adjust for noise due to overall market activity. Using this information, I calculated the mean abnormal stock return for each industry to gauge implications of share repurchase announcements on investors.

## **VI. RESULTS**

### **1. Frequency of share repurchases among all industries from 2009 to 2018**

The early stages of my research found that 2018 was the record high year for the size (dollar amount) of share repurchase announcements. Figure 1 illustrates the frequency of repurchase announcements per year from 2009 to 2018. While there was a lower frequency of announcements in 2018, the dollar amount surpassed \$1 trillion by mid-December. In fact, nearly half of the \$1.08 trillion worth of share repurchases was concentrated in nineteen companies (Racanelli, 2018).



## 2. Frequency of share repurchases in the retail and automotive industries

Figure 2 shows the number of share repurchase announcements that took place from 2009 to 2018. The retail and automotive industries follow a very similar trend as the overall market in terms of the frequency of share repurchases. The fourth-quarter drop of the market in 2018 seems to have spurred the onset of repurchase announcements (Racanelli, 2018).

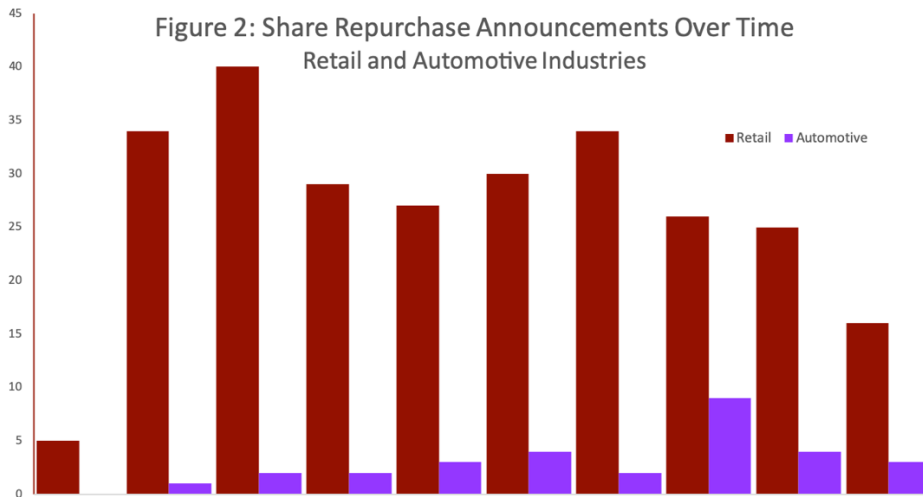


Figure 3 shows the frequency of repurchase announcements in the retail and automotive industries from 2009 to 2018. I found that retail companies announced over eight times more share repurchase programs than the automotive industry, at 266 total announcements between the

years of 2009 and 2018. This includes automotive retailers, which made up 23 of the retail industry's repurchase announcements in this time frame. Firms in the automotive industry announced 30 share repurchase programs in this time frame. Note again that retail companies include automotive retailers, while automotive companies encompass automotive manufacturers and manufacturers of automotive parts.

Figure 3: Company Buybacks 2009 - 2018	
Retail Companies	266
Automotive Companies	30

### 3. Mean abnormal stock returns within each industry

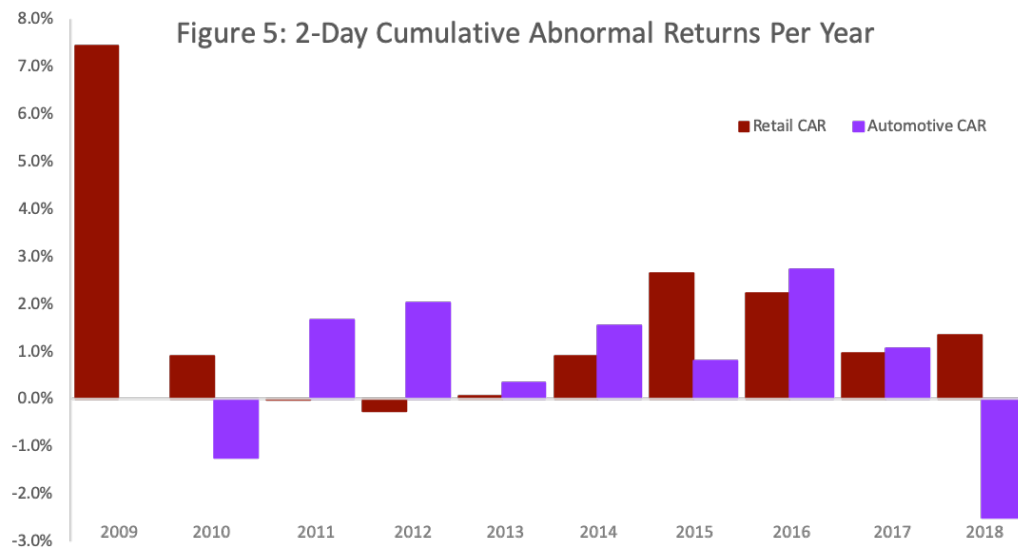
Figure 4 shows the mean abnormal stock returns for companies in each industry on the days surrounding repurchase announcements. On the day of a repurchase announcement, companies in the retail industry averaged an abnormal stock return of 0.54%, while companies in the automotive industry averaged an abnormal stock return of 1.78%. On the day after a repurchase announcement, companies in the retail industry averaged an abnormal stock return of 1.64%, while companies in the automotive industry averaged an abnormal stock return of 0.64%.

Figure 4: Mean Abnormal Stock Return	
Day of Announcement	
Retail Companies	0.54%
Automotive Companies	1.78%
Day After Announcement	
Retail Companies	1.64%
Automotive Companies	0.64%



#### 4. Cumulative abnormal returns per year on the days surrounding repurchase announcements

Figure 5 illustrates mean abnormal returns per year on the day of and the day after repurchase announcements in the two industries. Added together, these translate to the two-day cumulative abnormal returns (CAR) in each industry. The cumulative abnormal returns were calculated by adding the abnormal return from the day of the announcement to the abnormal return on the day after the announcement. Figure 5 compares these returns to the mean cumulative abnormal returns for both industries across all announcement days. Certain companies within the retail industry in 2009 had an outsized market return, causing the CAR for that year to be larger than normal. The exhibit shows that companies in the automotive industry, on average, experienced greater price changes yearly than companies in the retail industry.



#### 5. Confidence interval for retail and automotive industry means

Finally, I calculated a confidence interval for both industries. The following steps described were conducted for each industry separately. For the sample mean, I calculated the

mean of the cumulative abnormal returns (day of and day after repurchase announcements). To find the population standard deviation, denoted as “population std. dev.” in Figure 6, I subtracted the sample mean from each abnormal return. I squared each of these results, calculated the mean of these squared differences, and calculated the square root of this mean to determine the population standard deviation. I used the number of cumulative abnormal returns for each industry as the sample size. The central limit theorem (CLT) states that if the sample size is greater than 30, then the sample means are approximately normally distributed, regardless of whether the population is normal or skewed. As a result, I was able to assume a normal distribution of the population and utilize 1.96 as my  $z^*$  value. This is the value used to calculate an interval with 95% confidence. Figure 6 below shows the result of each of these calculations, and the confidence interval for each industry. After these calculations, I can say with 95% confidence that the true mean abnormal return of the retail industry is between 0.55% and 1.63%, and that the true mean abnormal return of the automotive industry is between 0.73% and 1.69%.

Figure 6: Confidence Interval Calculation	
Retail Industry Confidence Interval:	Automotive Industry Confidence Interval:
<b>Variables:</b>	<b>Variables:</b>
Sample Mean = 1.0904%	Sample Mean = 1.2109%
Population Std. Dev. = 6.3032%	Population Std. Dev. = 1.8784%
Sample Size = 532	Sample Size = 60
$z^* = 1.96$	$z^* = 1.96$
<b>Confidence Interval</b>	<b>Confidence Interval</b>
<b>1.09% ± 0.5356%</b>	<b>1.21% ± 0.4753%</b>
Upper end = 1.63%	Upper end = 1.69%
Lower end = 0.55%	Lower end = 0.73%

## VII. DISCUSSION

Share repurchase behavior is currently a large and active area of study, and most research that I found refers to the impact of the announcements and not the actual implementation of buybacks. My project focused on investor reactions to new announcements as indicated by abnormal returns on the day of and the day after announcements. Preliminary results suggest that there is room for further research regarding the actual implementation of the buybacks.

Due to the decline of brick-and-mortar retail and the shift to e-commerce in recent years, I would expect that companies in the retail industry may take time to adjust to these changes, leading to investors overlooking investments in these companies. This may lead to undervaluation of their stock, causing management to announce more share repurchase programs. Thus, it is not surprising that eight times more repurchase programs were announced in the retail industry than in the automotive industry. The data suggests that investor reactions are stronger on the day after the announcement in the retail industry, but it should be noted that this could be due to repurchase announcements that may have been made after the close of the market. Additionally, other news that emerged on the days surrounding repurchase announcements could be contributing to a greater abnormal stock return on those days.

Even though the automotive industry is on the cusp of the innovation of autonomous vehicles, I believe that the automotive industry is more stable than the retail industry. Even as the industry is innovating, the demand for transportation is stable. Many automobile manufacturers have both luxury and economy lines of vehicles, which helps them to diversify revenue sources and provide options for all economic classes. For these reasons, I believe the automotive industry

may appear less volatile to investors. This may lead to less undervaluation of their stock, thus requiring a lower frequency of share repurchase program announcements.

Research shows that there are more firms in the retail industry than in the automotive industry. After conducting further research, I found that it was straight forward to find the number of firms in the retail industry simply by searching them by SIC code. There are approximately 2.89 million firms in the retail industry. However, it proves much more challenging to find the number of firms in the automotive industry. This is because manufacturers of automotive parts commonly manufacture parts for other industries. As a result, it is difficult to find the exact number of firms included in the automotive industry. Extensions of this research might include increasing the depth to determine exactly how many firms participate in manufacturing automotive parts, which would allow for greater understanding of the number of firms in the automotive industry.

The observed differences between these two industries suggest that the impact of share repurchase behavior on investors, as well as the motivations behind these programs, may call for further research of share repurchase behavior across these and other industries. Additionally, the result of this project may provide opportunities for research in arbitrage to take advantage of the abnormal returns resulting from repurchase announcements in these and other industries.

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