

Impact of Share Repurchases and Dividends in 2019-2020: Evidence from the U.S. Markets

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Abstract

The U.S corporations have spent trillions of dollars towards share repurchases since the last financial crisis. When firms undertake these repurchases, they reduce their liquidity which would be required when profits decline during a financial crisis. Dividends, on the other hand, are usually paid at fixed intervals and represent the current payout. However, the flexibility and tax effects associated with share repurchases make them a preferred form of payout policy compared to dividends. Additionally, investors usually react more positively towards share repurchase announcements as they signal that the firm is optimistic about its future. This study aims to understand how the investors react to the share repurchase and dividend announcements for the period of 2019-2020 and the factors responsible for the investor's reaction to share repurchases. Additionally, this study analyses how the share repurchases impact the firm performance.

The results from the event study methodology and regression analysis suggest that investors react more positively towards share repurchase announcements when compared to dividend announcements. This study further checks for the signaling theory and the "announcement effect" for these announcements. Subsequently, this study also identifies the variables that are significant for analyzing share repurchases. Conversely, the results fail to provide support to the criticism that share repurchases hamper future investment opportunities.

Keywords: Share repurchases, Dividends, Event study, Regression analysis, U.S. Markets

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Personal Statement

I, Yukta Muthreja, hereby certify that the work and findings presented in this dissertation is the work of my own and has been composed by me. Where the ideas and finding of others have used, appropriate acknowledgement has been provided through in-text citations and references. I have also read and understood the SoSS Dissertation Courses: Regulations and Procedures. Additionally, I had gained the ethics approval to conduct this study and the Ethics Approval Form was approved by the Chair of the School's Ethics Committee.

Signature:

A handwritten signature in black ink that reads "Yukta Muthreja". The signature is written in a cursive style with a horizontal line crossing through the middle of the name.

Date: 8th April 2021

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List of Abbreviations Used

AARs: Average Abnormal Returns

ARs: Abnormal Returns

CAPEX: Capital Expenditure

CARs: Cumulative Abnormal Returns

LEV: Leverage

MTB: Market to Book Ratio

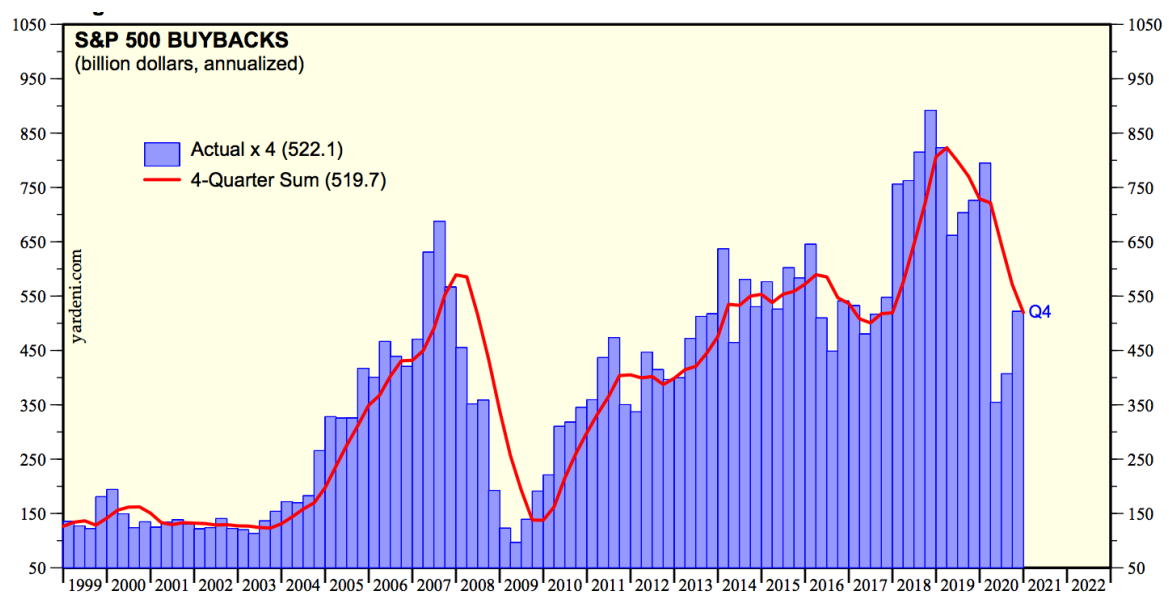
PE: Price-to-earnings Ratio

Chapter 1: Introduction

1.1 Background

Corporate payout policy is considered as the most extensively researched topics in finance literature. If a firm's investment opportunities are limited, it could distribute any excess cash flow to shareholders in order to reduce conflicts of interest between management and shareholders. There are several ways to return cash to shareholders in the form of dividend payouts, share repurchases or both (Zeng and Luk, 2020). While open market share repurchases are the most widely accepted method of share repurchase (Grullon and Ikenberry, 2000), firms can repurchase shares through fixed price tender offer, Dutch-auction tender offer or targeted share repurchases (Hsieh and Wang, 2009). This dissertation widely examines the announcements of open market share repurchases. Since the early 1980s, open market share repurchases have become the principal form among all repurchasing methods in the U.S. due to the 1982 enactment of Rule 10b-18, which provided organizations with a safe harbor for open market share repurchases (Zeng and Luk, 2020). Hsieh and Wang (2009) define open market share repurchases as when the company repurchases a predefined dollar amount of shares (instead of the number of shares) in the open market, within a specified time, usually two to three years.

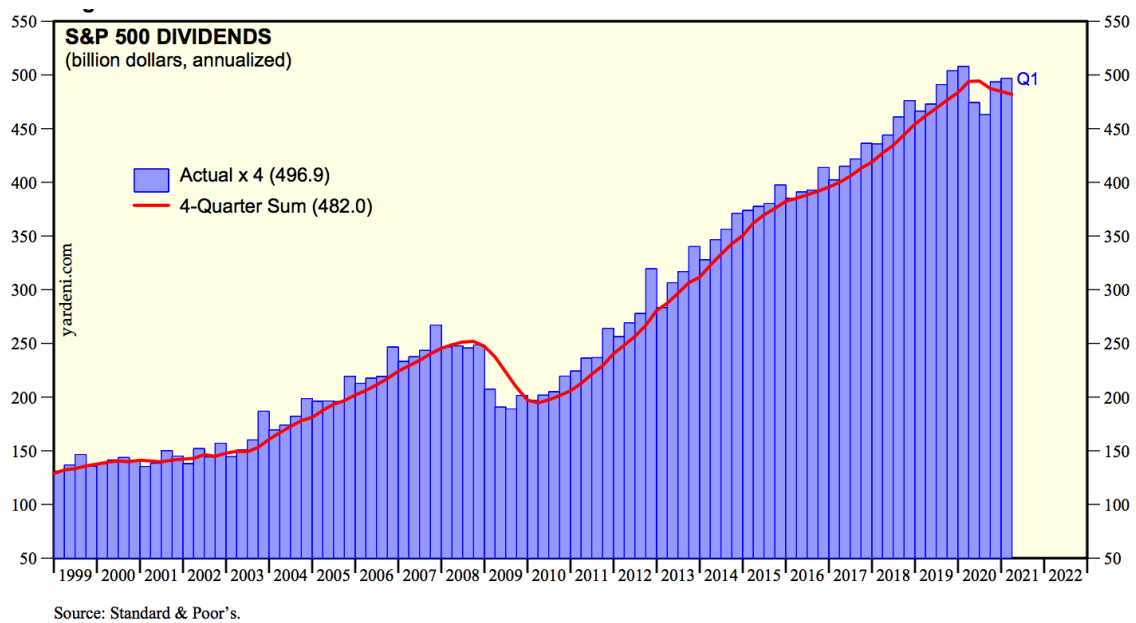
Figure 1.1: Share repurchases conducted by the U.S. firms



Source: Standard & Poor's.

The “buyback wave” has attracted a great deal of attention in the financial news, however, it has been criticized for reducing economic growth as corporations forgo long-term investments to achieve short-term objectives (Economist, 2014; Luce, 2015; Rieder, 2015; Lazonick, 2014). From Figure 1.1, it is evident that the value of the repurchases conducted by firms during the financial crisis in 2020 has surpassed the repurchases conducted by firms during the 2007-2008 financial crisis. Additionally, over the past 5 years the stocks of companies that engaged in increasing volume repurchases have decreased more value for shareholders than companies not engaged in the repurchases (Useem, 2019). In recent months, the debate on the merits and weaknesses of corporate share repurchases and their impact on stock market returns has escalated amid the COVID-19 pandemic and the repurchase activity’s consequences (Useem, 2019).

Figure 1.2: Dividends announced by the U.S. firms



On the other hand, dividends are considered as the dominant payout policy (Zeng and Luk, 2020). However, as it is evident from Figure 1.2, although dividends are seen to have an upward trend, share repurchases have surpassed the dividends over the past years and are now considered as the principal form of payout policy in the U.S. Further, it is identified that the dividend policy decision is crucial for a firm but the impact that the dividend policies have on shareholder’s wealth is still unrecognized (Suwanna, 2012). Although the strong positive market reaction surrounding the dividend

announcements is the most robust empirical finding in the finance literature, the forces behind market reaction are often misunderstood (Ham et al., 2020).

1.2 Previous Research

Past literature on share repurchases and dividends identifies several theories that form the basis for share repurchases and dividends. The most important among them include agency cost theory (Jensen, 1986; Abreu and Gulamhussen, 2013; Kuan et al., 2012), signaling theory (Othchere and Ross, 2002; Baker and Wurgler, 2013; Kale et al., 2012), substitution hypothesis (DeAngelo et al., 2000; Brav et al., 2005; Wesson et al., 2018), trade-off theory (Lewellen and Lewellen, 2006) and flexibility theory (Zeng and Luk, 2020; Pirgaip and Dinçergök, 2019). These theories are further identified as motives for the firms to announce share repurchases.

Over the years, the researchers have found that the investors react positively to the share repurchase announcements (Gan et al., 2017; Bhana, 2007). However, firms through these announcements attempt to signal undervaluation of the company's shares (Gim and Jang, 2020; Bhana, 2007), but fail to take into consideration the long-run performance of the firms (Manconi et al., 2019; Wang et al., 2021). On the other hand, mixed evidence exists on how the market reacts to the dividend announcements (Wu, 2018; Maitra, 2012; Ham et al., 2020).

Additionally, several researchers examine the relationship between the CARs and firm factors (such as ROA, ROE, MTB, Capital expenditures and leverage) that influence the returns on the market around the share repurchase announcements (Almeida et al., 2016; Boudry et al., 2013; Andriosopoulos and Lasfer, 2015; Olasiuk et al., 2020). In order to better understand the impact of share repurchase on firm performance, similar firm factors are measured across the value of the share repurchases announced (Elgouacem and Zago, 2019; Pwc, 2019; Manconi et al., 2019). Their studies indicate that leverage, size, and profitability ratios significantly impact how the market perceives the share repurchase announcements. Additionally, the firms' debt and profitability are impacted when the firms announce share repurchases.

1.3 Research Aims and Objectives

This study aims to critically analyze how the market reacts to the share repurchase and dividend announcements during 2019-2020, the firm factors responsible for the returns around share repurchase announcements and how share repurchases affect firm performance. In order to achieve the aim of this research, the following research objectives are framed:

- To understand the theories affecting share repurchase and dividend announcements.
- To examine the market reaction around the share repurchase and dividend announcements.
- To examine the level of efficiency that exists in the U.S. markets.
- To investigate and examine the variables that impact the abnormal returns gained from the share repurchase announcements.
- To analyze the impact share repurchases have on the firm performance.

1.4 Research Questions

This study answers the following research questions:

- Q1.How does the market react to share repurchases and dividends during 2019-2020?
- Q2.Which firm factors affect the market reaction surrounding the share repurchase announcements?
- Q3.How do share repurchases affect firm performance and investment opportunities?
- Q4.Does the market have an immediate reaction to the dividend announcements?

1.5 Methodological overview

This dissertation adopts a quantitative research study utilizing deductive research philosophy to obtain empirical findings. This study followed the financial event study methodology and standard regression analysis to analyze the market reactions surrounding the share repurchase and dividend announcements. Regression analysis was conducted using the CARs for share repurchase announcements and share

repurchases as a percentage of total assets as the dependent variables. There are several firm factors across which the dependent variables are regressed and are clearly explained in Chapter 3. The financial data was collected using Yahoo finance, Thomson One and DataStream, comprising the Russell 3000 companies for 30 share repurchasing and 10 dividend-paying companies for the period of 2019-2020 in the U.S markets.

1.6 Contribution and Value of Research

This study contributes to the existing literature for payout policies in several ways. Firstly, this study uses the most recent data set as the prior research conducted in this field typically examined the data only till 2017. Secondly, most of the researchers examine the impact of the 2007-2008 financial crisis, but very few researchers examine the impact of dividends and the recent surge in share repurchases, taking the COVID-19 financial crisis into context. Hence, this study would be among the first to analyze the impact of these announcements for 2019-2020. Lastly, by using a combination of event study methodology and regression analysis, this research complements the prior research and provides insights on the signaling theory as well as the “announcement effect” of the payout policies.

Further, this area of study is essential as the firms have been increasingly spending huge sums of money towards share repurchases and dividends, with share repurchases being the most popular form of payout policy. However, the impact of the increased spending could be short-termed but could significantly impact firm performance in the long-run. Hence by analyzing the impacts of the two primary forms of payout policies, this study provides valuable insights regarding the factors that impact the market reaction around these announcements. Additionally, this study points out the factors that the investors need to take into account while making their investment decisions based on the share repurchase and dividend announcements, as a result they can find a thread between investment, financing and accounting policies.

1.7 Structure of the Dissertation

The dissertation is structured as follows: Chapter 2 provides a critical review of the literature and highlights the empirical findings of the previous researchers. This chapter

also highlights the theories that influence the payout policies and find the gaps in the literature. Chapter 3 explains the methodology adopted and constructed to answer the research questions identified above. Chapter 4 presents the findings of the methodology used and provides a detailed interpretation of the results. Chapter 5 assesses whether the results support the hypothesis constructed, how they are linked with the existing literature and the implications and limitations of the findings. Chapter 6 summarizes the findings and identifies the avenues for future research.

Chapter 2: Literature Review

2.1 Introduction

Share repurchases have become the most preferred form of payout policy when compared to dividend payments. Increasing evidence supporting the positive impact of share repurchase on EPS and market prices is driving the increased prevalence of share repurchases. (Manconi et al., 2014; Hribar et al., 2006; Peyer and Vermaelen, 2009). Over the last 9 years, share repurchases representing \$3.8 trillion worth of company stock investments have surpassed the aggregate investments from all other sources such as, mutual funds, foreign investors, pension funds (Wolf, 2020).

In 2019, U.S. corporations spent around \$806.4 billion towards share repurchases, which is significantly higher than the \$461.8 billion spent towards dividends. (Yardeni Research Inc., 2019). On the other hand, the percentage of U.S. companies paying dividends has decreased. The real value of dividend payments, on the other hand, has increased (DeAngelo et al., 2004; Skinner, 2008). The increase in dividend payments' value indicates an increase in the regular dividend payments, whereas special dividend payments were found to become less frequent (DeAngelo et al., 2004).

This chapter aims to understand how the share repurchase and dividend decisions affect company performance. The following section highlights the theories relating to the share repurchases and dividends. This is followed by analyzing the implications of the payout policies on the stock market and the companies' performance. Lastly, this chapter highlights the findings of the empirical research conducted on share repurchases and dividends.

2.2 Theories based on Share Repurchases and Dividends

2.2.1 Agency Cost Theory of Free Cash Flow

The notion behind the agency cost theory is that the interests of the agent (management) and the principal (shareholders) are not always aligned (Wirtz, 2011). The existence of free cash flows raises the shareholders' concerns as they fear that the managers may be tempted to use the free cash to meet their personal motives (Jensen, 1986). However, Kuan et al. (2012) argue that management can significantly reduce shareholders'

concerns by using surplus. Hence, distributing large amounts of free cash through share repurchase to shareholders could effectively achieve this objective (Gim and Jang, 2020).

On the other hand, authors argue that dividends compensate the need for monitoring despite regulation (Abreu and Gulamhussen, 2013). Additionally, since dividends involve a continuing obligation to pay out cash, they help address the agency costs of free cash flow (Dittmar et al., 2003).

2.2.2 Signaling theory

Signaling theory refers to the positive signal indicated by a firm when it purchases a large number of its own shares to positively influence the investor's expectations and confidence in the firm's future earnings and growth prospects (Otchere and Ross, 2002). This theory is based on the assumption that information asymmetry exists between management and investors (Punwasi and Brijlal, 2016). However, this theory has been contested in recent years due to the market's unsubstantial reaction towards share repurchases. This reaction can be observed from the S&P buyback index, as the return on the major stocks was only 1.8% in 2018 compared to the 3.2% return of the S&P 500 (Levine, 2018). Additionally, Citigroup announced a share repurchase worth more than \$15 million in 2017, however, its stock declined by more than 20% in the following year (Goldberg, 2018).

On the other hand, the forced commitment inbuilt with dividends positively signals managers' confidence in their firm's profitability and financial strength (Baker and Wurgler, 2013). In examining the payout decisions undertaken by newly listed firms, Kale et al. (2012) confirm that information signaling explains the choice of distributing dividends.

2.2.3 Flexibility Theory

This theory is based on the notion that share repurchases are considered to provide more flexibility to the managers, as it is not mandatory to disclose open market share repurchases and investors react more positively towards postponing or abandoning the share repurchases over dividend cuts (Zeng and Luk, 2020). Share repurchases have a pro-cyclical stance as they are not firm commitments (Pirgaip and Dinçergök, 2019),

while dividends are considered as smoothed, stable or even sticky (Brav et al., 2005; Fernau and Hirsch, 2019; Ha et al., 2017). Moreover, share repurchases are correlated with transitional components of earnings (Lee and Rui, 2007), resulting in dividend smoothing as well (Andres et al., 2015). Lastly, share repurchases are considered more sensitive towards the shares' market prices than dividends in terms of both size and likelihood (Brockman et al., 2008; Hillert et al., 2016).

2.2.4. Trade-Off Theory

This theory describes that a firm can profit from debt financing if the borrowing costs are low enough so that the incremental value of the tax shield of debt outweighs the costs associated with the incremental distress of debt financing (Lewellen and Lewellen, 2006). Support exists for this theory as even during high growth opportunities, market reactions to share repurchases announced by firms having low capital intensity or access to readily available external financing options at low cost may be less negative (Gim and Jang, 2020).

2.2.5. Substitution Hypothesis

This hypothesis is based on the perception that share repurchases and dividends are viewed as substitutes. Researchers however, provide mixed evidence for this. They highlight that though special dividends have decreased over time, they have not been replaced by share repurchases (DeAngelo et al., 2000; Brav et al., 2005). Furthermore, the payout policies are affected by other company characteristics and despite being infrequent and discrete events, share repurchases and dividends are not perfect substitutes (Wesson et al., 2018). On the contrary, consistent with the substitution hypothesis, Grullon and Michaely (2002) analyzed that firms distributing less cash as dividends than expected tend to repurchase comparatively more shares.

2.3 Motives for Share Repurchases and Dividends

Several motives have been identified for share repurchases. The most common among them are signaling the undervaluation of the shares, avoiding possible takeovers, distributing cash as repurchases instead of dividends, re-issuance of shares, reaching the target leverage, or distributing cash in the absence of investment opportunities (Lee et al., 2010).

Researchers' arguments regarding the tax effects rely on the fact that share repurchases have tax benefits as they are not subject to double taxation and are considered advantageous compared to dividend payments (Brown et al., 2015; Isa et al., 2017). Jacob and Jacob (2013) provide evidence that tax effects affect payout decisions. When dividend taxes are low, dividend initiations and increases are usually high, while repurchase initiations and increases are usually low.

2.4 Impact on Stock Market Performance

2.4.1 Market reaction around Share Repurchase announcements

There exists a consensus that investors react positively to share repurchase announcements (Gim and Jang, 2020; Gan et al., 2017; Wang et al., 2021; Bhana, 2007). The firms announce share repurchases with the objective to achieve a substantial increase in the company's undervalued stock prices (Gim and Jang, 2020). Share repurchases are usually followed by positive market reactions (Gan et al., 2017; Wang et al., 2021; Reddy et al., 2013) and are perceived as value-increasing, especially in the short-run (Manconi et al., 2019). The positive market reaction to the share repurchase announcements supports the signaling theory as the managers, through share repurchases, attempt to signal that the company is optimistic about its prospects in the market (Bhana, 2007). Additionally, especially for U.S. firms, the greater the tax advantage associated with repurchase announcement for the firm, the more likely it is that the firm will announce a repurchase program (Grullon and Michaely, 2002). Further, when firms announce share repurchases, the investors expect that the firm would complete the share repurchase, resulting in better share performance post announcement (Chang et al., 2010).

Moreover, the existence of prior share repurchases has a significant impact on the valuation of subsequent repurchase announcements (Chang et al., 2010). A similar reaction can be observed in Europe, where subsequent announcements have a substantially higher impact than initial announcements (Andriosopoulos and Lasfer, 2015). Contrary to the positive returns, Hong Kong repurchasing firms fail to experience strong abnormal performance either around the event date or in the long term (Zhang, 2005).

However, knowing that share repurchases may result in a positive market reaction, firms could manipulatively repurchase shares to boost their share prices, hence the investors should be careful when interpreting repurchase behavior as an indication of future stock returns, as the repurchase may come at the expense of long-run firm performance (Wang et al., 2021). Firm insiders could be aware of the negative side-effects associated with the share repurchases and could sell the holdings at a high price followed by the share repurchase announcement (Wang et al., 2021). Further, several factors cause investors to underreact to share repurchase announcements. The manager's market timing ability and the cash spent towards share repurchases greatly impact maximizing the cash-return activities (Gim and Jang, 2020).

2.4.2 Market reaction around Dividend Announcements

The argument that dividend policy positively affects firm value was initially explained by Omran and Pointon (2004). Dividends announcements are found to positively affect the share price reaction as they are considered to be a good indication by investors (Ham et al., 2020) and may signal the managers' information regarding the firm's future prospects (Miller and Modigliani, 1961). Ham et al. (2020) find support for the positive reaction and highlights that dividends increases convey information regarding the future economic income, which persists for three years indicating that dividend increasing firms move to a higher level of permanent earnings.

However, most of the time, the markets are considered efficient, indicating that the markets would adjust to the historical, public, and privately held information as it immediately seizes the information and incorporates it in the current stock prices (Maitra, 2012). As a result, if the public is made aware of the information regarding its present and future earnings, the dividend announcement would be indicating very little information (Maitra, 2012). Additionally, a non-linear relationship exists between the market reaction to the dividend announcement and dividend changes (Baker et al., 2016). As a result, the investors revise their valuation assessments in response to dividend changes, implying that they derive new information from these corporate actions (Ham et al., 2020). However, in most cases, the managers cannot predict future earnings capabilities and communicate them to the investors, resulting in a positive reaction to the dividend announcements (Koch and Sun, 2004; Ham et al., 2020). Conversely, only high-quality firms can signal the market through dividends, as the

poor quality firms cannot do so due to dissipative signaling costs (for e.g., the transaction cost of external financing, dividend taxation, distortion of investment decisions) (Omran and Pointon, 2004).

2.5 Impact on Firm Performance

Share repurchases can positively impact company performance by reducing agency cost of free cash flows, timing the market, and tax savings. On the other hand, they can negatively impact the company performance by manipulating EPS, fighting takeover risk to increase managerial entrenchment or favoring majority shareholders over minority shareholders, primarily when the company is concentrated (Almeida et al., 2016; Hribar et al., 2006; Cheng et al., 2015).

The following sections explain the positive and negative implications of share repurchases and dividends for companies.

2.5.1 Negative implications for companies

The share repurchases are criticized for damaging economic growth, resulting in firms neglecting investment opportunities in the long-run to achieve short-term goals such as EPS (Economist, 2014; Luce, 2015; Rieder, 2015). This implied that companies decrease investments and use repurchases to increase their stock prices at the cost of long-term shareholder value (Manconi et al., 2019). However, this criticism is contradictory to the research on the U.S repurchases, as they are associated with positive long-term excess returns (Peyer and Vermaelen, 2009; Dittmar and Field, 2015). The long-term excess returns can be justified by takeover activities or compensating investors for the additional takeover risk and hence, the repurchases may not create value (Bargeron et al., 2017; Lin et al., 2014).

More recent arguments against share repurchases highlight that companies are manipulating their stock prices through share repurchases in order to report ever-high quarterly EPS (Manconi et al., 2019). In the comprehensive study on share repurchases, Lazonick (2016) and Useem (2019) illustrate that since investors are increasingly using EPS to evaluate firm performance, companies may undertake share repurchases even

in the absence of increased revenue or profits to increase EPS. For instance, in 2018, Applied Materials experienced a 3.5% decline in revenue, yet the company managed to increase its EPS by 1.9%. However, when a repurchase reduces the earnings in a percentage higher than it reduces the shares, it could negatively affect the EPS (Shilon, 2020). Further, companies spending increased amounts on dividends could negatively affect their long-term investments and the addition of share repurchases to dividends could worsen the negative implication (Manconi et al., 2019).

Researchers argue that significant sums of money that could have been utilized towards innovation, employment (Manconi et al., 2019), or towards productive capacities of the companies that they manage (Lazonick, 2016, Denning, 2018) have instead been used to repurchase shares to manipulate stock prices. Additionally, share repurchase programs are an expensive method for compensating the shareholders as they involve consuming large amounts of internal cash and could require paying premiums over and above the market prices (Wrońska-Bukalska, 2014).

The usefulness of share repurchases is further questioned as the top American corporations frequently distribute more than 100% of their net income to shareholders by cutting cash reserves, increasing debt or laying off employees (Lazonick, 2016). The manipulated increase in EPS could result in employees demanding increased wages and becoming tough bargainers (Chen et al., 2015). The negative impacts pertaining to the share repurchases can be demonstrated over the past 5 years. In 2017, the buybacks-to-free cash flow ratio was 82%. However, in 2019, the buybacks-to-free cash flow ratio rose to 104%. A double-digit percentage increase in such a short period of time is significant (Lazonick, 2016). Further, it was the first time that buybacks-to-free cash flow had crossed over 100% since 2009 (Cox, 2019). This significant increase illustrated the extent to which share repurchases can affect capital reinvestment and the speed at which companies are spending their free cash flow towards share repurchases (Wolf, 2020).

On the other hand, lenders are also interested in understanding the amount of dividends declared by the company, as a dividend increase announcement could imply that the firm has less cash to pay off their obligation (Masum, 2014). Further, since dividends are paid from permanent earnings and share repurchases from temporary earnings,

analysts are more likely to react positively to a dividend announcement as it may signal improved prospects for the firm (Dickson, 2018).

2.5.2 Positive implications for companies

On the contrary, Fried and Wang (2018) argue that there is little evidence that share repurchases and dividends negatively impact the firms' growth opportunities by increasing the payout ratios, which otherwise would be used to finance long-term projects. The authors support this view with the fact that capital flowing to the shareholders is reinvested in growing companies, thereby having a positive impact on the economy. In fact researchers prove that share repurchases tend to have positive implications on the firm's long-term excess return if the repurchase was due to a tremendous decline in stock price during the past six months, which is better predictor of undervaluation as compared to other measures such as P/E ratio or Book-to-Market ratio (Peyer and Vermaelen, 2009).

Ezekoye et al. (2016) further argues that there is no change in value in share repurchases versus dividends as their payout policy. If the company pays out dividends, shareholders receive cash and retain their shares. Conversely, if the shares are repurchased, the selling shareholders receive cash, and the remaining shareholders retain shares with a higher value.

Further for dividend payment decisions, a positive and significant correlation of earned equity to total equity exists for dividend announcements. Additionally, dividends announcements result in controlling agency problems, as retaining profit would give the managers more control to invest in future investment opportunities in the absence of monitoring (DeAngelo et al., 2004).

2.6 Empirical Evidence

2.6.1 Stock Returns

Several researchers have identified the existence of positive abnormal and cumulative returns around the share repurchase announcement dates. The increased positive impact a day before the share repurchase could be explained as a potential information leakage before the announcement (Gim and Jang, 2020). Additionally, Gim and Jang (2020),

while examining the repurchases for the restaurant firms in the U.S., found that the significant CARs exist until 5 days after the event date. However, by restricting the study only to restaurant firms, the authors fail to provide a holistic view regarding the impact of share repurchase on the market. Conversely, for Chinese firms, the post-announcement returns are insignificant, thereby indicating that the positive market reaction to the share repurchase announcements would not persist in the long run (Gan et al., 2017).

Further, for South African firms (Bhana, 2007), the share repurchase announcements are not fully incorporated in the share prices, thus explaining the increased positive market reaction of the share repurchase announcement. While examining the U.S. repurchases between 1990-2007, Chen and Wang (2012) identify that the initial, long-run and post repurchase market returns are significantly less for financially constrained than unconstrained firms. The firms announcing repurchases in U.K. exhibit strong signaling power as the 5-day and 11-day abnormal returns are found to be positive and significant (Padgett and Wang, 2007). Similarly, in Malaysia, the effects of share prices are found to be positive and significant during and post repurchase announcements as compared to the pre-announcement period (Ramakrishnan et al., 2007; Isa et al., 2017).

Comparing the impact of repurchase announcement between the U.S. and the rest of the world, it is found that the U.S. has a higher abnormal return (2.2%) over the 3-day window (-1,+1) as compared to the rest of the world (1.3%) (Manconi et al., 2014). Thus, indicating that the share repurchases are considered to be value-maximizing, at least in the short run. Further, while examining the impact of share repurchases, positive CARs were observed throughout the event period of -20 to +20 trading days (Isa et al, 2017; Lin et al., 2011; Punwasi and Brijlal, 2016). The existence of the positive effect after the repurchase announcement throughout, indicates that the markets are inefficient (Isa et al., 2017).

Further, Table 1.1 provides an overview of the CARs around the share repurchase windows across the world for different time periods.

Table 1.1: Share repurchases around the world

Country	Author	CAR (window)	Number of announcements	Year
Australia	Ekanayake (2004)	2.73% (-1,+1)	206	2000-2003
	Brown (2007)	3.67% (-1,+1)	28	1966-2003
Canada	Li and McNally (2007)	0.73% (-1,+2)	901	1987-2000
	Mishra et al. (2011)	1.79% (-2,+2)	2,228	1994-2005
Germany	Seifert and Stehle (2003)	4.80% (-1,+1)	188	1998-2003
	Hackethal and Zdantchouk (2006)	2.53% (-1,+1)	224	1998-2003
	Lee et al. (2010)	3.58% (-1,+1)	115	1990-2005
	Andriosopoulos and Lasfer (2015)	2.32% (-1,+11)	194	1997-2006
India	Bhargava and Agrawal (2015)	1.00% (-1,+1)	42	2010-2014
	Chatterjee and Dutta (2015)	1.81% (-1,+1)	95	2009-2013
	Thirumalvalavan and Sunitha (2006)	3.2% (-1,+1)	22	2002-2004
Belgium	Van Holder and Van de Kerckhove (2015)	1.20% (-1,+1)	38	2011-2014
China	Gan et al. (2017)	2.84% (-1,+1)	417	2000-2012
UK	Lee et al. (2010)	0.80% (-1,+1)	126	1990-2005
	Andriosopoulos and Lasfer (2015)	1.68% (-1,+1)	513	1997-2006
United States	Manconi et al. (2014)	2.2% (-1,+1)	10,093	1998-2008
	Grullon and Michaley (2002)	2.7% (-1,+1)	4,443	1980-1997
	Gim and Jang (2020)	4.22% (-1,+1)	124	1996-2018

On the other hand, following the event study methodology it can be identified that the dividend change announcements indicate that firms observe a higher level of permanent earnings and provide information about the permanent changes in future earnings (Ham et al., 2020). Contrary to this, the findings of the CARs for the U.S. firms announcing dividend increases are found to be insignificant (Wu, 2018). Further, supporting the dividend signaling theory, negative abnormal returns are identified in the pre-announcement period, however, no negative CAAR returns are observed post-dividend

announcements for firms in India (Maitra, 2012) and Thailand (Suwanna, 2012). Based on these findings, markets like India fail to capture the information regarding the dividends immediately (Maitra, 2012), while the insignificant returns in the U.S. markets provide support for efficient markets (Wu, 2018).

2.6.2 Investment and Growth Opportunities

Researchers provide evidence that share repurchases result in decreased investment and economic growth. Share repurchases undertaken to meet the EPS forecasts result in reduced employment, investment and cash holdings, implying that some repurchases may crowd out investment (Almeida et al., 2016). Evidence that firms cut on R&D to meet analyst forecasts can be observed as the U.S GDP growth and the consumption declined by 0.1% and \$50 billion per year respectively (Terry, 2017). Additionally, Pwc (2019) found evidence that at a 10% level of significance, firms that were marginally below their EPS target before repurchasing, repurchased more than firms that had just met their EPS target before repurchasing. Overall, there is evidence that pressure to meet analyst earnings expectations can cause firms to reduce investments as well as lead firms to conduct repurchases (Pwc, 2019). Similarly, the existence of poor investment opportunities result in increased share repurchases, justifying the negative relationship between share repurchases and investment opportunities (Boudry et al., 2013).

Market-to-book ratio (MTB) is used to identify a firm's undervaluation, which is an important motive for companies to repurchase shares (Dittmar, 2000; Hackethal and Zdantchouk, 2006; Boudry et al., 2013). A negative relationship between MTB ratio and CAR is expected (Hackethal and Zdantchouk, 2006), as companies with low MTB ratio are more likely to outperform their competitors as compared to companies with high MTB ratios (Ikenberry et al., 1995), by signaling the undervaluation of a company (Dittmar, 2000; Boudry et al., 2013). However, no evidence of a significant relationship between MTB ratio and CAR was found in Europe by Andriosopoulos and Lasfer (2015), indicating that the company's MTB ratio fails to affect the share price performance for the firms around the announcement date. As a result, undervaluation may not be seen as a motive for share repurchases in these studies.

The price-to-earnings (P/E) ratio is also used as a metric to identify the undervaluation of a company's shares, higher P/E ratio implies overvaluation of the shares and hence would be accompanied by low CARs when the firm announces the share repurchases (Gan et al., 2017).

2.6.3 Profitability

ROE and ROA are the most commonly used profitability measures to capture the firms' future earnings ability (Gan et al., 2017, Wang et al., 2021). Higher profits would provide increased confidence to the firms regarding their future and may serve as an incentive to repurchase their shares (Olasiuk et al., 2020), hence a positive relationship between the profitability measures and the market reaction to the share repurchases would be expected (Wang et al., 2021).

However, the study on the Chinese share repurchasing firms fails to provide evidence to support the positive and significant relationship between ROE and CAR, indicating that increased profitability does not send a positive signal to the market (Gan et al., 2017). On the other hand, Wang et al. (2021), while examining the impact of share repurchases post-legalization highlight a positive and significant relationship between ROA and CAR. This finding is in line with the expected relationship between profitability and CAR. However, while examining the impact of the legalization of share repurchase across the world, a negative relationship is highlighted between ROA and share repurchases (Wang et al., 2021).

2.6.4 Leverage

Repurchasing shares would increase the leverage ratios for the firms, as a result, firms having high leverage ratios are less likely to undertake a share repurchase, as it could potentially increase the bankruptcy costs, hence a negative relationship between the two is expected (Boudry et al., 2013). However, firms could be motivated to undertake share repurchases to attain the target leverage ratio, hence, the market could react positively to the share repurchases (Andriosopoulos and Lasfer, 2015).

Researchers provide mixed evidence for the relationship between leverage and share repurchases. In line with the expectations, a negative and significant relationship can be identified between leverage and share repurchases for the real-estate companies in the U.S. (Boudry et al., 2013). Contrary to the expectations, Elgouacem and Zago (2019), through their extensive examination of the S&P 500 and the I/B/E/S data, find that debt and cost of debt significantly affect a manager's share repurchase decision, thereby indicating a positive relationship between the two variables.

On the other hand, Manconi et al. (2019) find a positive but insignificant relationship between CARs and leverage for share repurchase announcements worldwide. A similar finding of an insignificant relationship between leverage and the market reaction for the share repurchases in Europe can be justified as firms may not announce share repurchases to increase their debt or to use the tax shield at their advantage (Andriosopoulos and Lasfer, 2015).

2.6.5 Other Firm Performance Indicators

Previous studies have found that the firm's size also plays a crucial role in the market reactions following the share repurchases. Markets such as Malaysia (Isa et al., 2017), Hong Kong (Zhang, 2005), U.S. (Boudry et al., 2013) have found that the market reacts more positive towards the share repurchases announced by small firms (Ikenberry et al., 1995; Grullon and Michaely, 2002), while for the Chinese Markets (Gan et al., 2017) no significant relationship can be identified between size and the CARs.

Table 1.2: Overview of the literature analyzing the impact of share repurchase

Variable	Author	Gap	Results with the variable
Leverage	Boudry et al. (2013)	Analyses only the real estate companies in the U.S.	Negative relationship between CARs and Leverage
	Andriosopoulos and Lasfer (2015)	Inconsistency of data and use of back dated data (ending 2006).	Positive relationship between CARs and Leverage
	Elgouacem and Zago (2019)	Fails to account for insider ownership or explain the undervaluation of the share repurchases.	Positive relationship between share repurchase and Leverage
	Manconi et al. (2019)	Fails to include profitability measures while analyzing the long term impact of repurchases.	Positive but insignificant relationship between CARs and Leverage
Profitability	Gan et al. (2017)	Firms included in the study are highly intervened by the government.	Insignificant relationship between ROE and CARs
	Wang et al. (2021)	The period used to measure the results could cause differences in results.	Positive and significant relationship between ROA and CARs
			Negative relationship between ROA and repurchases
	Almeida et al. (2016)	Findings for signaling theory and undervaluation are ignored.	Negative relationship between share repurchases and investment
Investment and growth opportunities	Pwc (2019)	Results from one single model cannot be interpreted individually, results from all the models need to be understood.	No significant relationship share repurchases and investment

	Boudry et al. (2013)	Analyses only the real estate companies in the U.S	Negative relationship between share repurchases and investment
	Hackethal and Zdantchouk (2006)	Fails to take into account other motivations for share repurchases	Negative relationship between MTB and CARs
	Andriosopoulos and Lasfer (2015)	Inconsistency of data and use of back dated data (ending 2006)	No evidence of the relationship between MTB and CARs
	Gim and Jang, (2020)	Analyses the impact of firms only in the restaurant industry	Negative relationship between MTB ratio and CARs
Size	Zhang (2005)	Fails to analyze important firm factors and measures results around MTB ratios and size for firm performance	Positive relationship between size and CARs
	Isa et al. (2017)	Period of the study coincided with the 1997-98 financial crisis.	Positive relationship between size and CARs
	Gan et al. (2017)	Firms are highly intervened by the government	No significant relationship between size and CARs

2.7 Conclusion

Clearly, the above studies provide mixed evidence regarding the impact of share repurchases and dividends on the market prices and how the share repurchases impact firm performance. Further, their findings provide evidence by analyzing the data until 2017. Historical studies analyze the impact of share repurchases and dividends across several markets such as Chinese, Malaysian, Indian and U.S markets. However, very little evidence exists as to how the market reacts to the payout policies in 2019-2020 in the U.S markets. Considering the recent surge in repurchases following the COVID-19 pandemic, further research is necessary to understand the impact of payout policies on the markets. As a result, this study answers the following research questions:

- Q1. How does the market react to share repurchases and dividends during 2019-2020?
- Q2. Which firm factors affect the market reaction surrounding the share repurchase announcements?
- Q3. How do share repurchases affect firm performance and investment opportunities?
- Q4. Does the market have an immediate reaction to the dividend announcements?

To overcome the above research gaps and answer the questions highlighted, this study analyses the market's reaction to share repurchase and dividend announcements across different industries using event study methodology. This study also aims to identify the firm factors responsible for the market reaction to share repurchase announcements and how share repurchases impact the firms' performance using regression analysis and comparing it across variables such as debt, capital expenditure, size, leverage and other profitability and valuation measures.

Based on prior research conducted, the following hypothesis are tested in this study:

- H1: There is a positive and significant relationship between stock market returns and share repurchase announcements.
- H2: There is a positive and significant relationship between stock market returns and dividend announcements.
- H3: There is a positive and significant relationship between CARs by share repurchasing firms and profitability.

H4: There is a positive and significant relationship between CARs by share repurchasing firms and leverage.

H5: There is a positive and significant relationship between CARs by share repurchasing firms and investment opportunities.

H6: There is a positive and significant relationship between the share repurchases and profitability.

H7: There is a positive and significant relationship between the share repurchases and leverage.

H8: There is a positive and significant relationship between the share repurchases and investment opportunities.

Chapter 3: Research Methodology

3.1. Introduction

The previous section critically analyzes how share repurchases and dividends can significantly impact a firm's performance around investment opportunities, profitability and leverage. This chapter aims to underpin the methodology that would be applied to analyze the impact of share repurchases and dividends on the stock market and how share repurchases can impact firm performance.

3.2 Research Philosophy

The research philosophy of a study is determined by epistemology and ontology. They form the foundation of the research study and both are acknowledged to develop the most appropriate strategy for this study.

3.2.1 Epistemology

Epistemology explores the relationship between knowledge and reality (Kivunja and Kuyini, 2017). In other words, it describes what is considered as knowledge in the world (Cooksey and McDonald, 2011). Epistemology can be categorized as positivist or interpretivist. Positivism indicates the value of what is "posited," that is "given." It focuses on adopting a purely scientific empiricist approach to generate pure evidence and facts that are free from human interpretation or prejudice. On the other hand, interpretivism highlights that humans are distinct from physical phenomena as they generate meanings (Saunders et al., 2016).

This study follows a positivist epistemology. This research examines the relationship between different payout policies, such as share repurchases and dividends and stock market reaction as well as different indicators on firm performance. This approach is adequate to validate the research results and analyze the data based on evidence and statistics (Johnson and Onwuegbuzie, 2004).

3.2.2 Ontology

Ontology is the branch of philosophy that deals with making assumptions in order to suggest that the conclusion makes sense or is true (Scotland, 2012). Ontology can either be subjective or objective and refers to whether reality is viewed from an objective or a subjective stance (Paterson et al., 2016). Objectivism is based on the assumption that the social reality that is researched is independent of the social actors. While, subjectivism assumes that the social reality is made from social actors' actions (Saunders et al., 2016).

Objectivism is deduced as the appropriate approach, as this study examines the research question using experimental research, which is followed by statistical analysis of data. Hence, the research would be independent of the social actors.

3.3 Research Approach

The research approach can either be quantitative or qualitative. The quantitative approach uses secondary data, which helps undertake statistical analysis and provide comparative results (Saunders et al., 2016). The quantitative approach is considered to best suit the analysis.

Quantitative research would help understand the relationship between dependent and independent variables that is examined using numerical data and several statistical techniques. It also includes control variables to ensure data validity in an experimental design (Saunders et al., 2016). Further, to examine the impact of the payout policies, a deductive approach would be followed throughout the study. A set of hypothesis is formulated in a deductive approach, which are then tested by the researcher using the relevant methodology (Zalaghi and Khazaei, 2016).

Deductive reasoning would be appropriate for this study and also reflect positivism epistemology and objective ontology. The primary motive for adopting this approach is that a vast majority of the studies examining the impact of share repurchases and dividends have adopted the same approach (Reddy et al., 2013; Suwanna, 2012; Zhang, 2005; Ham et al., 2020).

3.4 Research Design

While examining the impact of share repurchases and dividends, researchers have adopted different methodologies, such as the RATS methodology and calendar-time approach (Manconi et al., 2019). However, those models assign equal weights even to the months with very few repurchase announcements (Loughran and Ritter, 2000). Further, panel regression is another widely used model to capture the impact of share repurchases and dividends (Almeida et al., 2016, Wang et al., 2021; Pwc, 2019). However, the event study methodology is found to be appropriate to capture the information content around the announcements (Ham et al., 2020; Punwasi and Brijlal, 2016).

The event study methodology is widely used in accounting and finance research to analyze the stock market reactions (McWilliams and Siegel, 1997). This methodology will help examine the returns derived from the stock prices of the share repurchasing and dividend paying firms before and after the announcement (Zhang, 2005; Liargovas and Repousis, 2011; Chang et al., 2010; Lin et al., 2011; Isa et al., 2017). The event examined in this study is the share repurchase and dividend announcements between 2019-2020 for the U.S. firms listed on Russell 3000. The Russell 3000, maintained by the FTSE Russell, seeks to provide the benchmark for the U.S. stock market (Bloomberg.com).

The event study methodology allows for adjustments in specific aspects of the analysis, such as the estimation window and event window. Following other researchers' methodology in this field, the estimation window of -273 to -22 days (252 days) is used (Suwanna, 2012; Zhang, 2005; Gim and Jang, 2020). This window was considered appropriate as it covers the average trading days in a calendar year and is advocated as it covers all the possible cycles that a firm may go through (Anderson-Weir, 2010). Having such an estimation window would also help ensure that the expected returns are calculated without coinciding with the event period.

Consistent with prior researchers, an event window of 41 trading days, that is 20 days before and after the share repurchase and dividend announcement, is taken into consideration to analyze the short term impact of the price-performance around the

event date (0) (Reddy et al., 2013; Lin et al., 2011; Punwasi and Brijlal, 2016). The cumulative abnormal returns are measured across several windows; (-1,+1), (0,1), (0,2), (-2,2), (-3,+3), (-10,10) and (-20,+20) (Zhang, 2005; Reddy et al., 2013; Punwasi and Brijlal, 2016). This event window will help capture the initial and the medium-term reaction to the announcements, as the event window is approximately equivalent to one calendar month (Zhang, 2005).

A t-test is used to examine the efficiency of the estimation window. The test helps to identify if any statistically significant differences exist between the means of two groups of data. The test is essentially used to draw comparisons between two randomly assigned groups, for instance, for a pretest or a post-test in an experimental design (Cohen et al., 2011). Hence, if the modulus of the t-statistic value is less than the t-critical value, then it is indicative that the estimation window avoids noise. All the companies included in the event study had a t-statistic value less than the t-critical value.

The one-way analysis of variance (ANOVA) analyses the variance and is used to examine the spread of data values between and within the data groups (Saunders et al., 2016; Reddy et al., 2013). Further, Saunders et al. (2016) indicate that this test helps examine that the data values are independent of each other and it does not relate to each other. If the F value for the rows is greater than the F-critical value, it would indicate that the event days have a significant impact on the study. Whereas, if the F value for the columns is less than the F-critical value, it would indicate that the stock returns and the market are independent of each other. The ANOVA analysis would thereby provide the proof of concept for the event window.

However, event study like the other methodologies, is subject to several limitations such as the abnormal returns calculations. There are several external factors such as economics and politics that can be influential to the firms' stock market movement. Hence, these factors could influence the returns considered to be abnormal (McWilliams and Siegel, 1997).

The event study methodology is followed by a standard cross-sectional regression analysis to analyze the nature of the market reactions with several control variables that

are known to impact the share repurchase announcements and analyze the impact of share repurchases on firm performance (Gim and Jang, 2020; Manconi et al., 2019; Wang et al., 2021; Pwc, 2019; Gan et al., 2017). Studies such as Zhang (2005), Gan et al. (2017), Gim and Jang (2020), and Manconi et al. (2019) have used cross-sectional analysis along with the event study methodology. The framework of the data analysis techniques is clearly described in the following sections.

3.5 Data Collection

This study constructs two data sets: one for share repurchase announcements and the other for dividend announcements. Following a similar sample size used by Maitra (2012), Thirumalvalavan and Sunitha (2006), Bhargava and Agrawal (2015) and Van Holder et al. (2015), this study analyzes 30 share repurchase announcements and 10 dividend announcements between 2019-2020 that were collected for the event study methodology. The announcements were included in the sample only if consistent data was available for at least one year preceding the announcement and if they were listed on the Russell 3000 index (considered as the benchmark for the event study methodology). Firms across different industries were included in the sample.

The Thomson One database was used to collect the share repurchase announcement dates between 2019-2020 for the companies across different industries in the U.S. as well as the value of the shares repurchased. Further, DataStream (Eikon) was used to collect the dividend announcement dates for the U.S. firms across different industries. The dividend announcement dates that are considered in the study are the dates when a change in the dividends were announced. The data for the independent variables were also collected using the DataStream database. Further, Yahoo Finance was used to download the adjusted closing prices for all the firms taken into consideration as well as the market index prices.

3.6 Framework for Data Analysis

3.6.1. Analysis tools

Event study analysis requires the calculation of the observed and expected returns. For this study, excel was used to conduct the event study methodology and the regression analysis for each of the share repurchasing and dividend announcing companies.

3.6.2. Event Study Methodology

The methodology used in this study closely follows the methodology used in Gan et al. (2017), Gim and Jang (2020), Suwanna (2012), Maitra (2012) and Zhang (2005). Firstly, to calculate the firm's expected return, the intercept and the slope calculated from the regression between the return on the stock and the market return were used (Gan et al., 2017). The expected return of the firm ($E(R_{it})$) is calculated using the market model, first developed by Brown and Warner (1985). The market model regresses the returns of the stock with the returns on the market using OLS regression to calculate the expected return given by the equation below:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \varepsilon_i \quad (\text{Equation 1})$$

Where, R_{it} refers to the adjusted rate of returns for the company i on day t , R_{mt} is the adjusted market rate of return (in this study Russell 3000) on day t , α_i is the intercept, β_i refers to the estimated risk of the share and $E(R_{it})$ is the expected return of the stock.

The abnormal returns for the period can be calculated as the difference between the returns of stock (R_{it}) and the expected returns of the stock ($E(R_{it})$)(Corhay and Rad, 2000). This is given by the equation:

$$AR_{it} = R_{it} - E(R_{it}) \quad (\text{Equation 2})$$

Following this, the average abnormal returns (AAR) are calculated using equation 3. This is defined as the average of excess returns for all the repurchasing and dividend paying companies.

$$AAR_t = \frac{1}{N} \sum_{i=1}^n AR_{it} \quad (\text{Equation 3})$$

Cumulative average abnormal returns are also calculated across several event windows to understand the impact of the share repurchases and dividend announcement on the stock prices in the short term (Refer equation 4). Lastly, the significance of the CAR is calculated using the t-statistic value (Refer equation 5) (Corhay and Rad, 2000).

$$CAR_{(t1,t2)} = \sum_{i=1}^n AR_{it} \quad (\text{Equation 4})$$

$$t - \text{statistic} = \frac{CAR_{it}}{\sqrt{N} * \sigma_{AR}} \quad (\text{Equation 5})$$

Where, σ is the standard deviation of the abnormal return calculated from the clean window. The CAR is considered to be significant at 10% if t-statistic > 1.68, at 5% if t-statistic > 1.97 and at 1% if t-statistic > 2.57.

The event study methodology is based on several assumptions highlighted by Brown and Warner (1980). Firstly, the stock returns in the event window of a specific event study analysis accurately reflects the event's economic impact. Secondly, the event was unexpected, and the stock price has not yet reflected it. Thirdly, no other events are occurring during the event window, thus explaining the stock price change.

3.6.3. Regression Analysis

This study further investigates the relationship between the stock returns around the share repurchase announcements and several other control variables that could affect the abnormal returns during the event period through cross-sectional regression analysis.

The cumulative abnormal returns (CAR), measured as the sum of the abnormal returns for the event window of -1 to +1 trading days, has been used as the dependent variable in the analysis (Van Holder et al., 2015; Gim and Jang, 2020). A short event period helps avoid the confounding effects of other firm-specific variables (Hatakeda and Isagawa, 2004). Additionally, by including one day before the event, the study ensures that any potential leakage of information prior to the event is captured (Qing, 2016). Further, following the event study methodology, the event windows, (-1,1), (0,2), (-1,3) and (-1,5) indicated strong significant returns, thereby suggesting that CARs for the

event window of 3 days (-1,1) statistically qualifies as the dependent variable for this regression.

The study also included several control variables used by prior researchers to examine the factors affecting the share repurchase announcements (Gim and Jang, 2020; Manconi et al., 2019; Wang et al., 2021; Pwc, 2019; Gan et al., 2017). $SIZE_{it}$ (measured as the log of total assets) is found to negatively impact the CARs (Isa et al., 2017). The abnormal returns for the small firms should be greater as compared to the large firms as the small firm's repurchase announcements are found to contain more information (Isa et al., 2017; Boudry et al., 2013). LEV_{it} (measured as total debt divided by total assets) is found to have a significant influence on the market reaction for share repurchases (Wang et al., 2021; Ghan et al., 2017). While Le (2014) argues that share repurchase accompanied with leverage send a positive signal to the investors as it indicates the managers are confident about the firm's future, Minnick and Zhao (2006) indicate that investors consider leveraged repurchases as risky because the costs associated with increased debt outweigh the benefits of share repurchases. The undervaluation of a company is measured by its Market to Book ratio (MTB_{it}) (Boudry et al., 2013; Andriosopoulos and Lasfer, 2015). Further, the investment opportunity is measured using $CAPEX_{it}$, therefore any regression equation measuring investment must include it (Pwc, 2019; Almeida et al., 2016). This study also includes ROE_{it} and ROA_{it} , as they are the most commonly used variables to measure profitability (Wang et al., 2021; Le, 2014; Gim and Jang, 2020; Ghan et al., 2017). Lastly, the price-to-earnings (PE_{it}) is also used to measure undervaluation or overvaluation. The ratio helps to measure divergence between the firm's market value and its intrinsic value (Grullon and Ikenberry, 2000). Further, Grullon and Michaely (2004) explain that higher the PE ratio, higher the overvaluation of the shares. Therefore, in order to test the hypothesis developed in the previous chapter, the following regression models are constructed:

$$CAR_{(-1,+1)} = \alpha + \beta_1 MTB_{it} + \beta_2 LEV_{it} + \beta_3 ROE_{it} + \beta_4 ROA_{it} + \beta_5 PE_{it} + e_{it}$$

(Model 1)

$$CAR_{(-1,+1)} = \alpha + \beta_1 CAPEX_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROE_{it} + \beta_5 ROA_{it} + e_{it}$$

(Model 2)

Additionally, this study also analyses the relationship between share repurchases conducted by the firms and other firm-specific variables. For this model, the dependent variable used is share repurchases divided by total assets (SRP_{it}) (Pwc, 2019; Almeida et al., 2016; Wang et al., 2021). The independent variable used in this model would be similar to the ones used in Equation 5. However, a novel approach would be followed to convert the MTB_{it} to a dummy variable (1 if the MTB outperforms the Index that is Russell 3000, 0 otherwise). Although there is no preceding evidence of the use of dummy variables for these two variables, the existence of dummy variables in a regression helps improve interpretation (Hardy, 1993). Hence, the following regression model is constructed to examine the relationship between share repurchases and firm performance:

$$SRP_{it} = \alpha + \beta_1 MTB_{it} + \beta_2 CAPEX_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 ROE_{it} + \beta_6 ROA_{it} + \beta_5 PE_{it} + e_{it}$$

(Model 3)

Table 3.1 provides an overview of the variables used in the study, their definitions and their expected relationship based on previous research conducted in this field.

Table 3.1 Overview of the variables used

Variables	Definition	Expected Relationship
<u>Dependent Variables</u>		
Share Repurchases	Share repurchase conducted by the firm divided by total assets	
CAR	Cumulative abnormal returns calculated using the event study methodology	
<u>Independent Variables</u>		
<u>Financial Performance:</u>		
Leverage	Total Debt divided by total assets	Mixed
<u>Investment Opportunity:</u>		
Capex	Capital expenditure divided by total assets	Mixed
<u>Profitability measures:</u>		
ROE	Return on Equity, Net Income divided by shareholder's equity	+
ROA	Return on Assets, Net Income divided by total assets	+
<u>Undervaluation:</u>		
MTB	Market value divided by Book value of total assets	-
PE	Share price divided by earnings per share	-
<u>Other variables:</u>		
Size	Log of total assets	-

3.7 Research Limitations

There are certain limitations associated with the methodology applied for this study. Firstly, the sample size is relatively smaller compared to the sample used by prior researchers. Secondly, the cross-sectional analysis fails to analyze a sector-wise impact or measure the impact for each year. Thirdly, for robustness check, all the financial performance measures were matched with the data available online, however, for situations where the ratios varied, the values obtained from the DataStream database were used. As a result, this could have impacted the results obtained in the following section. Lastly, due to the limited access to Worldscope data, certain variables could not be included in the study.

3.8 Research Ethics

This study makes use of secondary data. The data is collected from the databases provided by the university, such as ThomsonOne and DataStream. For stock prices, the data is downloaded from Yahoo Finance. All the information is available in the public domain and there has been no breach of confidentiality while gathering data. Additionally, ethical approval was taken by the university prior to the data collection. As a result, this study ensures that there is no ethical constraint.

3.9 Conclusion

The chapter outlines the research approach and methodology that is adopted for this study. A deductive approach using quantitative data is adopted for this study. The research design succinctly outlines the tests and analysis that would be conducted to answer the research questions. The data analysis framework and how they have been conducted alongside the variables chosen have been clearly explained. The next chapter presents the findings and the results obtained by using the methodology outlined in this chapter.

Chapter 4: Research Findings and Results

4.1 Introduction

This chapter outlines the empirical findings obtained after adopting the methodology highlighted in Chapter 3. The event study results help understand how the market reacts to the share repurchase and dividend announcements. The findings from the regression model extends the event study findings by explaining the relationship between the firm factors and the returns on the market as well as the impact of share repurchases on firm performance along with their significance level.

4.2. Event Study Findings

Appendix 1 and 2 explicitly indicates the companies included in the financial event study for share repurchasing and dividend-paying firms. The table highlights the market reaction around the announcements for each year. Evidently, as compared to 2019, 2020 showed more positive and significant CARs in the pre-post and post-event windows for the share repurchase announcements. Thus, during the financial crisis, firms announced share repurchases to signal the investors that the firm is optimistic about the firms' future. On the other hand, the dividend announcements do not show any significant returns in 2019 or 2020 except for one energy company in 2020.

As indicated in Figure 4.1, the AAR_i fluctuates throughout the event window. The firms announcing share repurchases experienced negative abnormal returns for 4 days prior to the event (day 0). On the event day, the firm started experiencing positive abnormal returns, which lasted until 4 days after the event date. Following that, the AAR_i of the firms starts declining. The study also reports lesser or even negative abnormal returns after the announcement date. The existence of the negative AAR_i after 4 days of the event explains the short-termism of the impact of the share repurchases. Additionally, the findings also indicate the signaling theory of the share repurchasing firms. The existence of positive returns immediately after the announcement date suggests that managers make share repurchase announcements with the intention to send positive signals to the market.

Further, our findings for the AAR_i of the dividend-paying firms do not support the dividend signaling theory. This can be stated as the firms experience positive returns both prior to and after the dividend announcements. However, as indicated in Figure 4.2, it can be clearly identified that the market reacts positively to a dividend announcement.

Figure 4.1

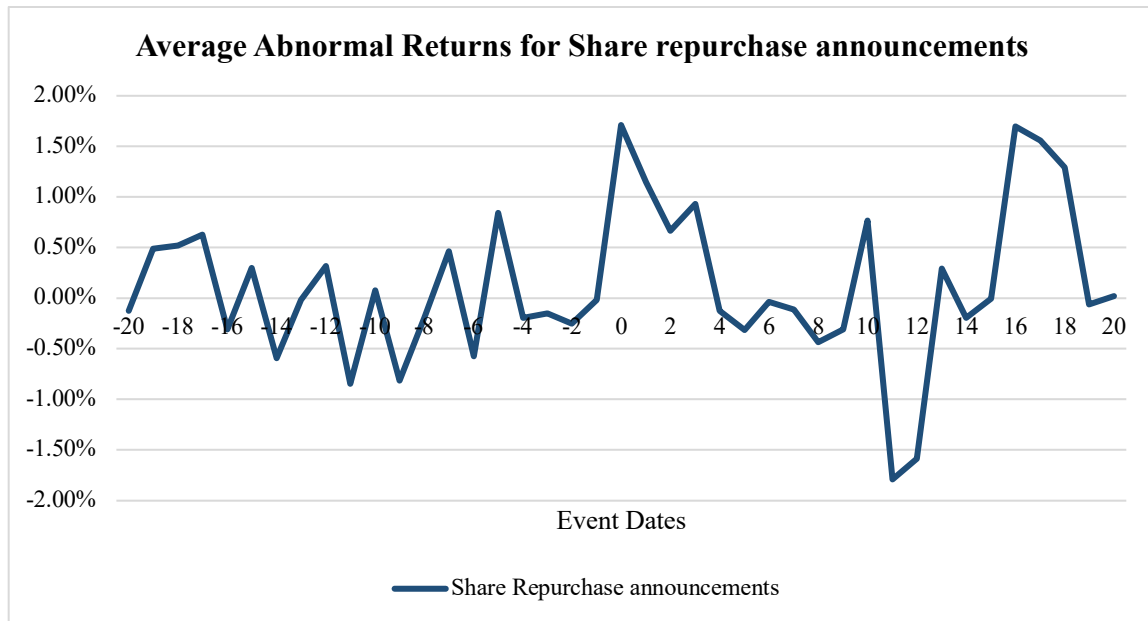


Figure 4.2

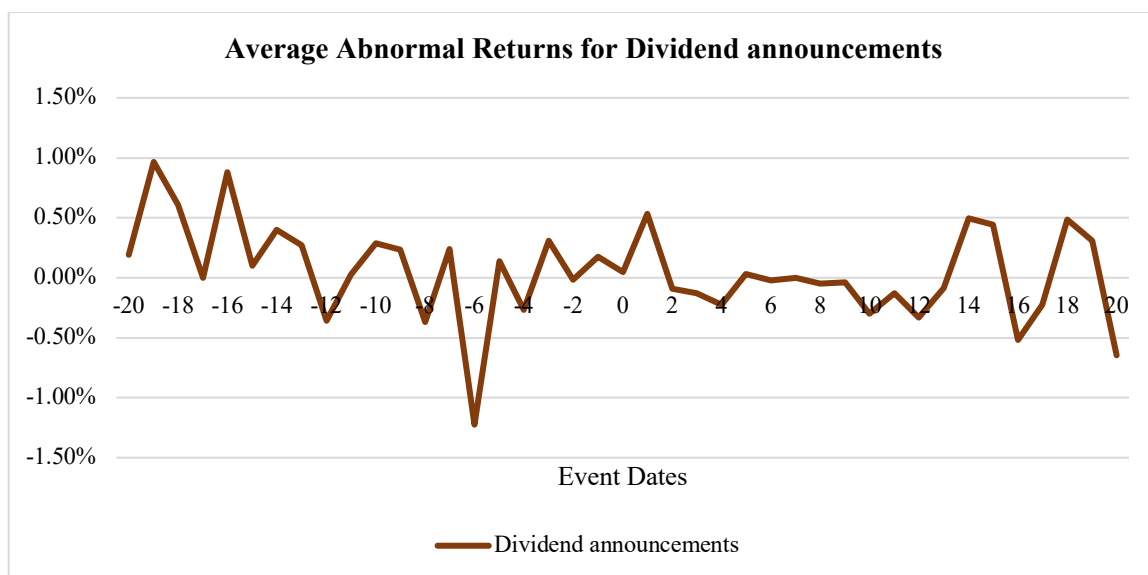


Table 4.1 highlights the CARs experienced by the 30 firms announcing share repurchases across different event windows, that includes pre-event windows, post-event windows and pre-post event windows, along with their significance measured using the t-statistic. Analyzing the CARs across different event windows, it is evident that the event periods of -1 to +1, -2 to +2, -10 to +10, -1 to +3, -1 to +5, 0 to +2, 0 to +1, 0 to +3, 0 to +5, 0 to +10 and 0 to +20 showed the strongest significant results (at 1%). This indicates that firms make share repurchase announcements to indicate the undervaluation of the shares and signal the investors that the firms have the financial ability to undertake the costs of debt associated with the share repurchases without impacting the firms performance. This has the impact of driving the share price upwards. This statement can be supported as the pre-event windows depict insignificant or even negative CARs. Hence, further supporting the signaling theory of the share repurchasing firms.

Additionally, the existence of positive and significant CAR for the event window of -1 to +1 suggests that the returns statistically qualify as the dependent variable for the cross-sectional analysis. The CARs are found to be positive and significant until 5 days after the share repurchase announcement, after which the returns tend to decline. However, the existence of positive CAR in the post-event windows indicates that at least in the short run the market tends to react positively to share repurchase announcements. Conversely, the existence of significant abnormal returns around the event date indicates the inefficiency of the market and highlights that the market is not weak-form efficient. As a result, the investors can benefit by making abnormal gains around the share repurchase announcements.

Table 4.1 CARs across different event windows for Share Repurchase Announcements

Event windows	CAR	T-statistic
Pre-post event windows		
(-1,1)	2.84%	3.95283***
(-2,+2)	3.25%	3.50923***
(-3,+3)	4.04%	0.46639
(-10,10)	3.08%	2.24132**
(-20,+20)	4.68%	1.76229*
(-1,3)	4.44%	4.78497***
(-1,5)	4.00%	3.64621***
Pre-event windows		
(-20,-1)	-0.44%	-0.23659
(-10,-1)	-0.81%	-0.61644
(-5,-1)	0.23%	0.25332
(-3,-1)	-0.42%	-0.58134
Post-event windows		
(0,2)	3.52%	4.90535***
(0,1)	2.86%	4.87219***
(0,3)	4.45%	5.37167***
(0,5)	4.02%	3.95625***
(0,10)	3.89%	2.82907***
(0,20)	5.12%	2.69330***

* Significance at 10%

**Significance at 5%

***Significance at 1%

Further, Table 4.2 highlights the CARs experienced by the 10 firms announcing dividend payments across different event windows, that includes pre-event windows, post-event windows and pre-post event windows, along with their significance measured using the t-statistic. The findings fail to indicate any significant impact of the dividend announcements. Further, the market's insignificant returns around the dividend announcements indicate that the prices have already adjusted for the dividend announcements suggesting weak-form market efficiency. As a result, due to the efficient market, the investors will be unable to make any potential gains. The insignificant returns imply that the U.S. market captures the information almost immediately after the announcement, portrayed by the existence of insignificant returns in the post-event window.

Table 4.2 CARs across different event windows for Dividend Announcements

Event windows	CAR	T-statistic
Pre-post event windows		
(-1,1)	0.76%	0.89661
(-2,+2)	0.65%	0.59248
(-3,+3)	0.83%	0.19697
(-10,10)	-0.74%	-0.45676
(-20,+20)	2.13%	0.68168
(-1,3)	0.54%	0.49065
(-1,5)	0.34%	0.26629
Pre-event windows		
(-20,-1)	2.58%	1.18084
(-10,-1)	-0.50%	-0.32205
(-5,-1)	0.34%	0.30850
(-3,-1)	0.47%	0.55282
Post-event windows		
(0,2)	0.49%	0.57965
(0,1)	0.58%	0.84424
(0,3)	0.36%	0.36905
(0,5)	0.17%	0.14105
(0,10)	-0.24%	-0.14969
(0,20)	-0.45%	-0.19990

*Significance at 10%

**Significance at 5%

***Significance at 1%

Comparing the returns from the firms announcing share repurchases and dividends, it can be identified that the returns gained from the share repurchase announcements are significantly higher than the dividend announcements. Further, the CARs for dividend announcing firms are more consistent as compared to the fluctuating and short-term returns observed by the firms announcing share repurchases.

4.3 Findings from Regression Analysis

4.3.1 Descriptive Statistics

Table 4.3, highlights the descriptive statistics of the independent and dependent variables used across the three regression models analyzing the impact of share repurchases for the period 2019-2020, explained in Chapter 3. Descriptive statistics succinctly outlines the quantitative summary of the data set used in the regression models. Quantitative measures utilized in this study include the mean which is the

central value of the data set and the standard deviation that indicated the level of variation in the data set values.

The mean surrounding the data indicates that, on average, all the financial indicators tend to increase for the year in which the share repurchases are announced, except the MTB. Additionally, according to the descriptive statistics, the profitability measures of ROE and ROA increase by an average of 16.61% and 2.56% respectively. However, the MTB decreases by 1.003 units for the year in which the share repurchase is announced. Lastly, the skewness for the variables is varied implying that they are not symmetrical around the mean.

Table 4.3 Descriptive statistics for the Regression Models

	$CAR_{(-1,+1)}$	SRP_{it}	MTB_{it}	PE_{it}	LEV_{it}	ROE_{it}	ROA_{it}	$SIZE_{it}$	$CAPEX_{it}$
Mean	0.028380	0.125282	-1.003667	36.414000	0.373239	0.166130	0.025597	6.883661	0.025512
Standard Error	0.013940	0.039611	2.464407	16.782484	0.095713	0.276557	0.025399	0.187745	0.004120
Median	0.019315	0.036785	1.845000	15.500000	0.297093	0.111400	0.041530	6.887952	0.020631
Standard Deviation	0.076354	0.216957	13.498111	91.921450	0.524243	1.514764	0.139118	1.028323	0.022567
Sample Variance	0.005830	0.047070	182.199003	8449.553052	0.274831	2.294510	0.019354	1.057449	0.000509
Kurtosis	5.436666	6.165359	10.513481	26.061611	23.401300	17.956561	14.830657	-0.565398	1.553194
Skewness	1.769491	2.592072	-3.083728	4.993062	4.579754	3.042307	-3.052682	0.464006	1.244973
Range	0.409475	0.862506	72.520000	507.900000	2.998828	10.847600	0.892970	3.672623	0.094109
Minimum	-0.100312	0.002258	-56.280000	0.000000	0.000000	-3.665300	-0.600910	5.376595	0.000000
Maximum	0.309163	0.864765	16.240000	507.900000	2.998828	7.182300	0.292060	9.049218	0.094109
Sum	0.851400	3.758462	-30.110000	1092.420000	11.197177	4.983900	0.767920	206.509844	0.765366
Count	30	30	30	30	30	30	30	30	30

4.3.2 Interpretation of the Regression Analysis

Cross-sectional regression analysis was conducted to analyze the relationship between CARs and various firm performance indicators. Two models were framed to capture the impact of profitability, investment opportunities and leverage on the market returns. Table 4.3 indicates the findings of the regression analysis from the two models along with their significance levels.

The negative and significant (at 5%) co-efficient of $SIZE_{it}$, indicates that the size of the firms plays a significant role in conveying information to the market. The negative sign indicates that smaller firms are more likely to send positive signals to the market through share repurchase announcements. As a result, the market seems to favor the share repurchases when small firms announce them. Further, as indicated in Chapter 3, a positive relationship is expected between leverage and the share repurchase announcements, the positive sign across both the models and a 10% significance in one suggests that managers attempt to intentionally increase their debt level through share repurchases. By doing this, they try to send signals to the investors that the firms have the financial capability to bear the costs of debt associated with the share repurchases.

However, the insignificant co-efficient for ROE_{it} indicates that the firms' financial performance fails to impact the market reaction around the share repurchases announcements. However, the negative and significant (at 1%) relationship between ROA_{it} and CARs indicates higher profitability sends negative signals to the market when the firm repurchases its shares. The investors are concerned that the profitability is short-termed and may decline in the future. Additionally, the expected negative relationship between the MTB_{it} and the CARs finds no evidence in this study. Further, this study fails to identify any significant relationship between how the market perceives the share repurchase announcements and the existence of investment opportunities.

Table 4.3 Regression results for Model 1 and 2

Dependent Variable: CAR	Coefficients/ T-Statistic	
<i>Independent Variables:</i>	Model 1	Model 2
Intercept	0.022759 (1.517794)	0.188940 (2.478761)
MTB _{it}	0.001123 (1.258144)	
CAPEX _{it}		-0.238776264 (0.446991)
ROE _{it}	-0.001159 (-0.144506)	-0.001426224 (0.193789)
ROA _{it}	-0.354957 (3.9820004)**	-0.340849094 (3.965768)**
LEV _{it}	0.042334 (1.818732)*	0.035397 (1.557247)
SIZE _{it}		-0.023057 (2.089954)**
PE _{it}	0.000006 (0.0491323)	

* Significance at 10%

**Significance at 5%

***Significance at 1%

Table 4.4 provides the findings for the regression model constructed to analyze the impact of share repurchases on firm performance.

Share repurchases positively and significantly impact the performance indicators measuring leverage (LEV_{it}) and profitability (ROA_{it}). This finding indicates that share repurchases help improve the return on assets by 0.056 units and hence increase the firm's profitability. Additionally, the positive and significant(at 1%) impact between SRP and LEV_{it} indicates that most of the share repurchases are conducted by the firms to achieve the target leverage ratios. However, the managers must take into consideration their increasing debt levels as this could significantly impact the firm's future performance and ability to generate profits. Further, the cash would increasingly be spent towards paying off the debt undertaken to conduct the share repurchase, which could have been spent towards increasing the firm's growth prospects and profitability.

This in turn would result in decreased shareholder wealth and hence the firm would fail to achieve its wealth maximization objective. However, the study identifies that the relationship between share repurchases and ROE_{it} is insignificant, indicating that share repurchases fail to impact the firm's financial performance.

Similarly, no significant relationship exists between share repurchases and investment opportunities (measured by $CAPEX_{it}$) or MTB_{it} , thereby indicating that share repurchases do not affect the firm's future investment opportunities.

Table 4.4 Regression results for Model 3

Dependent Variable: SRP	Coefficients/ T-Statistic
<i>Independent Variables:</i>	
Intercept	0.711008 (3.0185)***
MTB_{it}	-0.070721 (0.832525)
$CAPEX_{it}$	-1.038878 (0.689952)
ROE_{it}	-0.006128 (0.29949657)
ROA_{it}	0.489305 (2.014723)**
LEV_{it}	0.195229 (3.073912)***
$SIZE_{it}$	-0.090710 (2.776751)**
PE_{it}	-0.000203 (0.601198)

The complete regression results for all three models are included in the Appendices. Additionally, while conducting the analysis of the dependent variables, the same models were tried using the CAR for 0 to +2 as the dependent variable, the results of which are also included in the Appendices. However, due to the relevant significance found in the models explained above, these results were considered for this study.

4.4 Conclusion

This chapter provides the results and findings from the data analysis conducted and the significance level for each finding is specified. Relevant graphs and figures that provide support to the research questions are reported, several other models that were tested are included in the Appendices. The findings are also justified and interpreted to explain the relationship between the variables. The following chapter discusses the findings in more detail.

Chapter 5: Discussion

5.1 Introduction

This chapter discusses the findings and results reported from the previous chapter. Accordingly, the hypothesis derived in chapter 2 is tested. This chapter also explains how this study's findings support previous literature and areas where the findings are different. The implications and limitations associated with this study are also explained.

5.2 Testing the Hypothesis

The findings from the event study analysis clearly indicate that the CARs during the share repurchase announcement are positive and significant at 1% for the event windows (-1,1), (-2,2), (-1,3) and (-1,5) and for all the post-event windows included in the study. As a result, we reject the null hypothesis (1), as the data favors the alternative hypothesis that a positive and significant relationship exists between the market returns and share repurchase announcements. Conversely, the market reaction around the dividend announcements fails to indicate any significant returns during the event window. Hence, the study fails to reject the null hypothesis (2) as the finding does not provide support for any significant relationship between the stock market and dividend announcements.

Analyzing the regression results from models (1) and (2), the data fails to provide support that higher profitability sends a positive signal to the market during repurchase announcements. Hence, we fail to reject the null hypothesis (3), as the study fails to identify a positive relationship between profitability and CAR and instead indicates a negative relationship between the two variables. Further, the regression results from model (1) indicate that the increase in leverage significantly affects how the market reacts to the repurchase announcements. Based on this finding we reject the null hypothesis (4), as the data shows that there exists a positive and significant relationship between CAR and leverage. While considering the investment opportunities, the results fail to indicate any impact that investment opportunities could have on the market prices. Hence, we fail to reject the null hypothesis (5), as the study fails to identify a positive relationship between capital expenditures and CARs.

Lastly, the study analyzes the relationship between share repurchases and firm performance. Based on the results from model (3), share repurchases have a positive and significant impact on ROA, while it does not significantly impact ROE. As a result, we fail to reject the null hypothesis (6) as the findings fail to provide a positive and significant relationship between share repurchases and both the profitability measures. Further, we find that increased leverages result in increased share repurchase for the firms. Based on this finding, we reject the null hypothesis (7) as the data provides support for the alternative hypothesis indicating that there exists a positive and significant relationship between share repurchases and leverage. Additionally, the findings fail to indicate that share repurchases have a significant impact on the firm's investment opportunities. Hence, we fail to reject the null hypothesis (8), as the data fails to find support for any positive and significant relationship between investment opportunities and share repurchases.

5.3 Analysis of the Results

Consistent with the findings of previous literature on share repurchases (Elgouacem and Zago, 2019; Punwasi and Brijlal, 2016; Wu, 2018; Gan et al., 2017; Chen and Wang, 2012; Bhana, 2007; Padgett and Wang, 2007; Isa et al., 2017; Lin et al., 2011; Reddy et al., 2013), this study also finds positive and significant CARs around the repurchase announcements for the U.S. firms. Further, similar to the returns observed by Manconi et al. (2014), we find that the event window -1 to +1 shows a high abnormal return of 2.84%. Additionally, like the Malaysian firms (Ramakrishnan et al., 2007; Isa et al., 2017), the data provides support for positive and significant returns in the pre-post event windows and post event windows but fails to provide any significant returns in the pre-event windows. Hence, this finding confirms the signaling theory of the managers announcing the share repurchases and the “announcement effect” of the firms for the event window of -20 to +20 trading days (Isa et al., 2017; Lin et al., 2011). Additionally, the existence of significant CARs during the event window confirms that the markets are inefficient (Isa et al., 2017) and the investors can make potential gains around the share repurchases announcements.

On the other hand, this study fails to provide support for any positive and significant abnormal returns around the dividend announcements which supports the finding of (Wu, 2018) but contradicts the findings of Maitra (2012), Ham et al. (2020) and Suwanna (2012). This finding can be justified as unlike the developing markets such as India (Maitra, 2012) and Thailand (Suwanna, 2012), the U.S markets are found to more efficient in this study, as the dividend announcements are immediately reflected in the stock prices thereby preventing the investor from making abnormal gains through abnormal returns during the event window.

Further, the findings fail to provide support that the investment opportunities impact the returns on the market or the firms' share repurchase decisions, which is in line with the findings of Pwc (2019), who also fails to identify a relationship between share repurchases and investment opportunities. Additionally, this study tries to capture the undervaluation of the shares, thus overcoming the gap in the study of Almedia et al. (2016), however, this study like Andriosopoulos and Lasfer (2015), fails to identify undervaluation of shares as a motive for the companies to announce share repurchases as no significant relationship can be identified between CARs and MTB or P/E, and hence is inconsistent with the previous findings in this area (Dittmar, 2000; Hackethal and Zdantchouk, 2006; Boudry et al., 2013).

While examining the impact of the profitability measures, the findings are consistent with Gan et al. (2017), as they too fail to support for a significant relationship between ROE and CAR. However, unlike Wang et al. (2021), the findings suggest a positive relationship between repurchases and ROA, hence indicating that the firms can increase their ROA through repurchases. Further, leverage has been found to have a positive and significant impact on the CARs and the repurchases indicating the achieving the target leverage ratio is a significant motive behind share repurchase announcements, which supports the finding of Andriosopoulos and Lasfer (2015) and Elgouacem and Zago (2019), but is inconsistent with the findings of Boudry et al. (2013) who finds a negative relationship between leverage and share repurchases. Lastly, we find strong support to the findings of Isa et al. (2017), Zhang (2005) and Boudry et al. (2013) that size of the firm has an influence on how the market perceives a share repurchase announcement and on the firms' decisions to repurchase. Thus, indicating that smaller firms send

stronger signals to the market share repurchases and are more likely to conduct a share repurchase.

This study also proves that the substitution hypothesis does not hold true, as if dividends and share repurchases were exact substitutes, the market would react to the announcements in a similar manner. The findings indicate that market reacts differently towards share repurchase and dividend announcements. Hence, similar to the findings of Wesson et al. (2018) this study highlights that dividends and share repurchases are not perfect substitutes.

5.4 Implications of the Findings

The findings of this dissertation surpass the traditional view regarding payout policies and their impact on the market. This study includes recent data and takes into account the recent COVID-19 financial crisis while interpreting the market reaction. Hence, the findings of this research would benefit the investors and help them better interpret the share repurchase and dividend announcements.

This study has the following practical implications. Firstly, the existence of the high abnormal returns on the event date highlights the existence of information leak and insider trading. As a result, the market needs increased supervision to control this. If the high stock return following the share repurchases is at the cost of the long-run performance, the firm insiders would be aware of this and be inclined to sell their holdings at the high cost. It is important that investors take this into account while interpreting the share repurchase announcements. Secondly, the insignificant returns around the dividend announcements could be perceived as increased market efficiency. Although investors are found to react more positively towards the share repurchase announcements, it is important that they take into consideration that dividends represent current payout while the repurchases represent future payout implying that the firm may not complete the repurchase given the flexibility associated with this payout policy. Thirdly, it is important that the firms take into consideration the increased bankruptcy cost associated with increased leverage while repurchasing shares, given that the 2020 financial crisis had a substantial impact on business operations across the world. Lastly, the investors should keep an eye on the companies that announce subsequent

repurchases with the primary motive to offset the dilution caused by their employees exercising their employee stock options.

5.5 Limitations of the analysis

Firstly, while analyzing the market reaction around the announcement, there may be factors apart from the announcement itself, which could affect the market reaction observed. Further, the announcement dates are not confirmed with certainty. Despite obtaining the dates from the financial databases and selecting the event windows to avoid the confounding effects, it cannot be validated that information was not available to the investors through insider trading. Hence, this must be taken into account while interpreting the results. Secondly, due to the small sample size used in this study, the findings may not be successful in capturing the overall impact, hence the statistical rigor may be challenged. Thirdly, due to specific differences in values between the ratios obtained online and the university database, the results may differ. Lastly, since this study follows a standard regression model, it fails to examine the year-wise or sector-wise impact of the announcements, which could be interpreted using a panel regression model.

5.6 Conclusion

This chapter explains the basis of testing the hypothesis and the extent to which the findings replicate previous empirical findings in this area. Additionally, the practical implications and limitations associated with this study are also clearly explained. The following chapter provides the conclusion for the study conducted.

Chapter 6: Conclusion

6.1 Introduction

By taking into account the most recent data for share repurchases and dividend announcements and examining the relationship across several firm factors, this study overcomes the gap as to how the market reacts to the payout policies in the U.S. for the period of 2019-2020. The study further examines its impact on firm performance. The following sections outline the findings and the results of the study conducted and areas for future research.

6.2 Findings

The statistical analysis used in this study clearly identify a significant (at 1%) and positive market reaction to the share repurchase announcements, implying that the investors react positively in the post-event windows. On the other hand, no significant returns are observed for the dividend announcements, indicating that the market immediately adjusts for the dividend announcements and is weak-form efficient, which is expected in an efficient market like the U.S.

Further, the most significant variables that impact the share repurchase returns on the market include size and leverage. Investors are more likely to react positively to the share repurchase announcements made by smaller firms and these firms are more likely to announce a repurchase program as compared to larger firms. Moreover, the results indicate that reaching the target leverage ratio is a significant motive behind the share repurchase announcements. The study however finds mixed evidence when it analyses the relationship between share repurchases and profitability. The results suggest that high profitability fails to send positive signals to the market. Lastly, the study fails to support to the ongoing criticism that share repurchases impact future investment opportunities of the firm, as the relationship between share repurchases and capital expenditures are found to be insignificant.

6.3 Results of the Study

The research conducted helps address the gap identified from the review of previous literature on payout policies. The statistical models used and the results gathered from following the methodology help achieve the aim of the research by analyzing the impact share repurchase and dividend announcements on the stock prices. These findings provide insights on how the investors react to these announcements and the form of market efficiency that exists. Additionally, the findings help achieve the objectives by examining the factors responsible for the investors reaction. The findings also indicate which firm performance measures are impacted the most by the share repurchases conducted and if they have any significant influence on the potential investment opportunities.

6.4 Avenues for future research

When analyzing the impact of payout policies, historical studies have not analyzed the impact of the other types of share repurchases, such as Dutch auction tender offer, fixed price tender offers or targeted repurchases during the COVID-19 financial crises. Additionally, this area could be researched for a more extensive set of data and other variables such as research and development, employment, changes in earning per share or even forward variables. Due to the inconsistency and insufficient data for these variables as well as due to time restraints, these had to be disregarded from this study. It would also be beneficial for the investors to gain insight on the impact share repurchases have on their wealth when the companies announce subsequent repurchases to offset the dilution effect when the employees exercise their employee stock options.

Further, apart from the novel approach followed in this study to examine the relationship between share repurchases (as the dependent variable) and MTB (as independent variable), a future empirical study could be conducted using more statistically efficient methods to compare the MTB to the market index. Lastly, future research would also benefit they take into account the dividend earnings while analyzing the impact of share repurchases. Finally, in order to check for market

efficiency, future research can examine the impact that insider trading has on payout policy decisions.

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Appendices

Appendix 1: Firms included in the sample to analyze the share repurchase announcements.

Year	Name Of Company	CARs					
		(-3,-1)	t-stat	(-1,1)	t-stat	(0,2)	t-stat
2020	Turning Point Brands Inc	5.83%	1.02867	11.45%	2.02116***	14.33%	2.52984***
2020	Insight Enterprises Inc	4.00%	1.60699	2.34%	0.93962	6.46%	2.59422***
2020	Lattice Semiconductor Corp	-3.37%	-0.60078	5.00%	0.89104	8.04%	1.43291
2020	Verso Corp	-3.47%	-0.72647	5.41%	1.13128	1.83%	0.38347
2020	Amerisourcebergen Corp	-1.86%	-0.49369	-1.99%	-0.52820	3.24%	0.85866
2020	Limoneira Co	-2.62%	-0.82563	1.14%	0.35807	-4.92%	-1.54690
2020	AT&T Inc	0.75%	0.43994	4.60%	2.69864***	1.23%	0.71940
2020	Taylor Morrison Home Corp	-10.75%	-3.59018***	-0.73%	-0.24252	-0.66%	-0.22146
2020	Dell Technologies Inc	-0.68%	-0.20865	-3.84%	-1.17334	-5.97%	-1.82050*
2020	DaVita Inc	1.94%	0.56908	-1.44%	-0.42090	-1.95%	-0.57101
2020	Zumiez Inc	1.18%	0.18492	-2.82%	-0.44408	-2.52%	-0.39641
2020	Emerald Holding Inc	11.93%	1.12947	30.92%	2.92626***	24.68%	2.33599**
2020	Dominion Energy Inc	0.09%	0.02188	1.05%	0.25095	2.00%	0.47613
2020	Spark Energy Inc	-6.49%	-1.14833	3.02%	0.53339	3.85%	0.68101
2020	AvalonBay Communities Inc	2.19%	0.53184	0.81%	0.19706	-1.74%	-0.42154
2020	Eagle Pharmaceuticals Inc	-2.96%	-0.81912	14.18%	3.92627***	20.81%	5.75926
2020	Prologis Inc	-3.52%	-1.96335	-10.03%	-5.59610***	2.99%	1.66584
2020	Hanesbrands Inc	4.54%	1.16661	-5.66%	-1.45175	-0.75%	-0.19183
2019	Natus Medical Inc	-1.77%	-0.56993	3.81%	1.22813	3.78%	1.21652
2019	Gray Television Inc	-0.97%	-0.24550	14.10%	3.57085***	17.15%	4.34382***
2019	Neenah Inc	0.88%	0.29559	5.41%	1.80933*	1.14%	0.38083
2019	Park Hotels & Resorts Inc	-1.19%	-0.57564	-1.05%	-0.50592	0.02%	0.01050
2019	HollyFrontier Corp	-2.61%	-0.85507	-3.73%	-1.22134	0.39%	0.12711
2019	Domino's Pizza Inc	-0.89%	-0.28748	3.61%	1.16506	5.50%	1.77479*
2019	ConocoPhillips	-3.16%	-1.30414	1.52%	0.62885	4.30%	1.77532*
2019	MetLife Inc	-0.94%	-0.41491	-3.82%	-1.68268*	-4.76%	-2.09752**
2019	Morgan Stanley	1.36%	0.34868	5.21%	1.33094	3.77%	0.96427
2019	Regeneron Pharmaceuticals Inc	-0.80%	-0.28941	4.76%	1.71562*	5.27%	1.90128*
2019	Masco Corp	-0.92%	-0.33769	-4.05%	-1.49359	-4.13%	-1.52465
2019	Tapestry Inc	1.76%	0.53877	5.96%	1.82764*	2.27%	0.69576

Appendix 2: Firms included in the sample to analyze the dividend announcements.

Year	Name Of Company	CARs					
		(-3,-1)	t-stat	(-1,1)	t-stat	(0,2)	t-stat
2020	Waste Management	-0.80%	-0.290751	-1.90%	-0.68924	-0.96%	-0.34731
2020	Qualcomm	2.21%	0.523653	0.78%	0.18428	2.92%	0.69191
2019	Marriott Intl.'A'	-1.01%	-0.473086	2.90%	1.35738	2.33%	1.08920
2019	Mcdonalds	0.64%	0.391109	-0.25%	-0.15561	-1.13%	-0.69323
2019	Lockheed Martin	0.88%	0.508653	0.33%	0.19287	-0.74%	-0.42962
2019	Martin Mrls.Mats.	0.87%	0.314688	-1.26%	-0.45785	-2.02%	-0.73469
2020	Nrg Energy	3.96%	1.200193	6.68%	2.02486**	5.63%	1.70583*
2019	Bank Of America	0.87%	0.451426	-0.08%	-0.03944	-0.54%	-0.27959
2020	Bristol Myers Squibb	-1.48%	-0.593122	0.18%	0.07073	0.97%	0.39077
2020	Compass Mrls.Intl.	-1.44%	-0.319963	0.22%	0.04796	-1.55%	-0.34315

Appendix 3: Complete regression results for Model 1

<i>Regression Statistics</i>	
Multiple R	0.672114088
R Square	0.451737347
Adjusted R Square	0.337515961
Standard Error	0.062146809
Observations	30

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.076374125	0.015274825	3.954927901	0.009307423
Residual	24	0.092693421	0.003862226		
Total	29	0.169067546			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.02275878	0.014994643	1.517793986	0.142129915	-0.008188643	0.053706203	-0.008188643	0.0537062
MTB _{it}	0.001123472	0.00089296	1.258143671	0.220442955	-0.000719507	0.002966451	-0.000719507	0.00296645
PE _{it}	6.22004E-06	0.000126597	0.049132643	0.961220195	-0.000255063	0.000267503	-0.000255063	0.0002675
LEV _{it}	0.042334162	0.02327674	1.818732389	0.081453672	-0.005706669	0.090374993	-0.005706669	0.09037499
ROE _{it}	-0.00115889	0.008019669	-0.144505856	0.886307677	-0.017710672	0.015392894	-0.017710672	0.01539289
ROA _{it}	-0.35495662	0.089140279	-3.98200037	0.00055142	-0.538933117	-0.17098013	-0.538933117	-0.17098013

Appendix 4: Complete regression results for Model 2

<i>Regression Statistics</i>	
Multiple R	0.721641612
R Square	0.520766616
Adjusted R Square	0.420926327
Standard Error	0.05810293
Observations	30

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.088044734	0.01760895	5.21599671	0.00221911
Residual	24	0.081022812	0.00337595		
Total	29	0.169067546			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.188940	0.076223462	2.47876099	0.02060406	0.03162225	0.346257239	0.03162225	0.34625724
LEV _{it}	0.035397	0.022730216	1.55724693	0.13250182	-0.0115163	0.08230942	-0.0115163	0.08230942
CAPEX _{it}	-0.238776	0.534185838	-0.446991	0.65888939	-1.3412816	0.863729118	-1.3412816	0.86372912
SIZE _{it}	-0.023057	0.011032378	-2.0899536	0.04739361	-0.0458269	-0.00028745	-0.0458269	-0.0002874
ROE _{it}	-0.001426	0.007359664	-0.1937893	0.84797172	-0.0166158	0.013763375	-0.0166158	0.01376338
ROA _{it}	-0.340849	0.085947811	-3.9657682	0.00057449	-0.5182367	-0.16346153	-0.5182367	-0.1634615

Appendix 5: Complete regression results for Model 3

<i>Regression Statistics</i>	
Multiple R	0.761432636
R Square	0.579779659
Adjusted R Square	0.446073186
Standard Error	0.161472911
Observations	30

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	7	0.79142166	0.11306024	4.33621237	0.00374174
Residual	22	0.57361702	0.0260735		
Total	29	1.36503868			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.711007665	0.23555001	3.01849985	0.00631763	0.22250685	1.199508483	0.22250685	1.19950848
MTB _{it}	-0.070721448	0.08494818	-0.8325246	0.41405947	-0.2468932	0.105450293	-0.2468932	0.10545029
LEV _{it}	0.195229369	0.06351169	3.07391238	0.00555332	0.06351419	0.326944551	0.06351419	0.32694455
ROE _{it}	-0.006128307	0.02046203	-0.2994966	0.76737242	-0.048564	0.036307337	-0.048564	0.03630734
ROA _{it}	0.489305461	0.24286492	2.01472271	0.05631687	-0.0143655	0.99297647	-0.0143655	0.99297647
SIZE _{it}	-0.090709555	0.03266752	-2.7767507	0.01100052	-0.1584578	-0.022961269	-0.1584578	-0.0229613
CAPEX _{it}	-1.038878393	1.50572529	-0.6899521	0.49743863	-4.1615615	2.083804728	-4.1615615	2.08380473
PE _{it}	-0.000203076	0.00033779	-0.601198	0.55385285	-0.0009036	0.00049745	-0.0009036	0.00049745

Appendix 6: Complete regression results for Model 1 (Using CAR (0,2) dependent variable)

<i>Regression Statistics</i>	
Multiple R	0.570415219
R Square	0.325373523
Adjusted R Square	0.18482634
Standard Error	0.065884933
Observations	30

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.050246091	0.010049218	2.315048342	0.075125629
Residual	24	0.104179784	0.004340824		
Total	29	0.154425875			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.029316419	0.01589657	1.844197849	0.077534257	-0.003492488	0.062125326	-0.003492488	0.06212533
MTB _{it}	0.001294667	0.000946672	1.367598905	0.184109104	-0.000659167	0.003248501	-0.000659167	0.0032485
PE _{it}	1.57504E-05	0.000134212	0.117354602	0.907555651	-0.000261249	0.00029275	-0.000261249	0.00029275
LEV _{it}	0.036860289	0.024676834	1.493720348	0.148280538	-0.014070193	0.08779077	-0.014070193	0.08779077
ROE _{it}	-0.00686377	0.008502051	-0.807307376	0.427418363	-0.02441114	0.010683602	-0.02441114	0.0106836
MTB _{it}	-0.23397557	0.094502056	-2.475878069	0.02073623	-0.429018226	-0.038932911	-0.429018226	-0.03893291

Appendix 7: Complete regression results for Model 2 (Using CAR (0,2) dependent variable)

<i>Regression Statistics</i>	
Multiple R	0.608083203
R Square	0.369765182
Adjusted R Square	0.238466261
Standard Error	0.063680375
Observations	30

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.057101312	0.01142026	2.81620885	0.03868071
Residual	24	0.097324563	0.00405519		
Total	29	0.154425875			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.181131186	0.083540342	2.16818824	0.04028238	0.0087124	0.353549977	0.0087124	0.35354998
LEV _{it}	0.030419812	0.024912146	1.22108356	0.23391497	-0.0209963	0.081835954	-0.0209963	0.08183595
CAPEX _{it}	-0.26690132	0.585463662	-0.4558803	0.65257431	-1.4752389	0.941436287	-1.4752389	0.94143629
SIZE _{it}	-0.02085172	0.012091403	-1.7245075	0.09747457	-0.0458071	0.004103714	-0.0458071	0.00410371
ROE _{it}	-0.00773572	0.008066136	-0.9590362	0.34710307	-0.0243834	0.00891197	-0.0243834	0.00891197
ROA _{it}	-0.22016768	0.094198155	-2.3372823	0.02809606	-0.4145831	-0.02575224	-0.4145831	-0.0257522

