Shareholders' reaction to dividend cuts: influence of the COVID-19 pandemic

An event study including companies from the NYSE, the AMEX and the NASDAQ

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Abstract

With the emergence of the COVID-19 pandemic affecting the whole world, there are already many studies focusing on the impact of this pandemic. A lot of them focused on the effect of the pandemic on dividend policy changes or on stock prices. This study is the first to look at shareholders' reactions to dividend cuts and omissions during the COVID-19 period and compare these reactions to those in a period before the pandemic. Using an event study, including companies from the NYSE, the AMEX and the NASDAQ, it is possible to calculate the cumulative abnormal returns around the declaration dates of dividend cuts and omissions. The results of my study are unexpected since they show that shareholders react positively to dividend cuts and omission during the COVID-19 pandemic, whereas in the period from 2010 to 2019 a negative reaction can be observed. A different shareholder reaction to dividend cuts and omissions can therefore be observed during the worldwide pandemic. My results contradict the bird-in-hand theory because shareholders seem to value dividend-paying stocks less during the COVID-19 pandemic. This study thus opens new insights beyond specific theories.

Key words: NYSE, AMEX, NASDAQ, dividend cuts, dividend omissions, COVID-19, 2010 to 2019, shareholders' reactions, stock prices, cumulative abnormal returns

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1. INTRODUCTION

This study focuses on the reaction of shareholders on dividends cuts and omissions. It examines two different periods: the period during the COVID-19 pandemic and the period from 2010 to 2019, when people were living without a pandemic or crisis. The research question which is tried to answer is:

"Do shareholders react differently to dividend cuts during the global COVID-19 pandemic?"

Dividends are the part of a company's profit that is shared with their shareholders; therefore, it is an important aspect for both shareholders and companies themselves. Although opinions differ on how important dividends are, it is generally assumed that dividend payments are seen as something positive by investors. Dividend cuts, on the other hand, are seen as something negative, which therefore often leads to a negative shareholder reaction. Dividend cuts are often made because companies are pessimistic about their future profits. For shareholders, this is obviously a 'red flag', which usually results in a sell-off. The dividend policy of a company therefore has an impact on its share price. This is also the reason why managers are usually reluctant to cut dividends.

However, about two years ago, an impactful pandemic entered our lives. In a short period of time, the world changed dramatically in economic, social and societal terms. This had also a big impact on company policies and operations. "Schools were closed, travelling to other countries became complicated and, in several countries, people were even locked down." Meanwhile, the global COVID-19 pandemic has infected more than 500 million people, killed more than 6 million and today these numbers are still adding up (COVID Live, 2022)[1]. However, the COVID-19 pandemic did not only have an impact on people's health. Due to an big amount of uncertainty among people and companies, companies that were (partly) closed and staff that had to work at home, the pandemic also had an enormous effect on national economies and capital markets.

Thus, it is evident that COVID-19 had an impact on business operations and various business policies. As a result, many companies decided to adjust their dividend policies. For instance, a lot of them lowered the amount of their dividend. "Shell, for example, announced a 46% fall in their first-quarter net income: this resulted in a cut in the quarterly dividend by two-thirds, from 47 cents to 16 cents (BBC News, 2020)." In this way, not only Shell, but also their shareholders were heavily affected by the worldwide pandemic of COVID-19. In general, shareholders react to bad news such as dividend cuts by selling their shares, which is why a fall in stock prices is often observed after negative news announcements. Nevertheless, the emergence of a pandemic like COVID-19 could create a different investor sentiment. As a result, shareholder reactions to policy changes such as dividend cuts and omissions might be different than in a period without a pandemic. This study tries to show whether investors react differently to dividend cuts or omissions in times of a global pandemic.

[1] These numbers are up to date on 3 June 2022, from https://www.worldometers.info/coronavirus/

This study uses an event study, including companies from the NYSE, the AMEX and the NASDAQ, to look at shareholder reactions to dividend cuts and omissions. Shareholder reactions are measured by abnormal stock returns in the event window of a dividend cut or omission.

The results from this study show that in the period from 2010-2019, as expected, a negative shareholder reaction is found in the event window of a dividend cut or omission. On the other hand, in the period during the pandemic, a very unexpected result was found. There is a positive shareholder reaction observable after a dividend cut or omission during the COVID-19 pandemic. A significant result for which there are probably several reasons. These possible reasons are discussed later in this thesis. Adding control variables, the positive shareholder reaction change, however, in an insignificant result. Based on a Chow test, it is possible to answer the research question in that shareholders genuinely react differently to dividend cuts and omission during the COVID-19 pandemic. Furthermore, the results found do not support the bird-in-hand theory, while no statements can be made about the other theories due to a lack of available information.

Since the pandemic is an unexpected and historical happening not many studies have been done about the effects of it. Yet the economic and social consequences are so great that it is interesting to see whether the COVID-19 period influenced the shareholders' reactions to companies' policy changes, in this case specifically dividend policy changes. Therefore this study enriches the literature on dividend cuts and omissions because it is focused on a 'unique' period. Thus, this study comes up with findings that have not been found before, and in doing so, it enriches the literature on the COVID-19 pandemic and dividend policy changes.

The results from this study for the period from 2010 to 2019 are in line with various academic studies in that dividend cuts and omissions have a negative impact on shareholders' reactions (Baker et al., 1985; Michaely et al., 1995). However, the results for the period during the pandemic go contrary to these studies since there is a positive shareholder reaction observable in the event window of a dividend cut or omission. In the paper of Jensen et al. (2010) they conclude that dividend cuts can have a positive impact on share prices in the long term. Yet, because the results of my study are focused on the short term, it can still be argued that my findings are an addition to the existing literature.

Since my study shows that shareholders reacted significantly differently to dividend cuts and omissions during the COVID-19 pandemic, my study shows that the pandemic therefore affected investors, and perhaps more specifically investor sentiment. Thus, this could be a step towards other studies on shareholder reactions to, for example, different policy changes within companies. In this way, companies will be able to assess the impact of a corporate policy change during a global (health) crisis. They could then anticipate to this in the future.

2. THEORETICAL BACKGROUND

2.1. Dividend

Dividends are a part of a company's earnings that is allocated to (a part of) the shareholders of the company. Therefore, it is an important aspect when it comes to share value, because it will simply make investors' money. However, opinions differ on this statement. Miller and Modigliani (1961) conduct a study about the dividend policies in perfect markets and rational behavior. Considering several assumptions, they conclude that dividends are not an important factor when a company is valued. There is only one thing that has an impact on the valuation of a firm: earnings (Miller & Modigliani, 1961). Nevertheless, opinions are divided regarding the statement from Miller and Modigliani (1961). According to Gordon (1959), dividend is important for share prices. He comes up with a model to look at the impact from dividend policies on the share prices of firms. Because of the risk aversion from investors, they prefer dividends as they are then assured of a payment of a certain amount. The same opinion is shared and expanded by Lintner (1962) in that dividend is an essential element for investors, considering completely idealized conditions of certainty (Lintner, 1962). The theory that investors prefer stocks with a dividend pay-out is called the "bird-in-hand" theory, which is formed by M.J. Gordon and J. Lintner with their articles between 1959 and 1964. The bird-in-hand theory contradicts the theory that dividends are irrelevant to investors, created by Miller & Modigliani (1961).

Another theory about dividends is the tax preference theory. This means that investors in a higher tax bracket attach less value to shares with a higher dividend yield, because they end up paying more tax on them. Instead, they prefer long-term capital gains, which means they prefer companies to reinvest profits rather than pay out dividends (Litzenberger & Ramaswamy, 1979). When capital market gains are valued the same way as dividends it is noteworthy that companies choose to pay out dividends, which are more heavily taxed, rather than reinvesting capital (Gordon & Bradford, 1980). However, other studies show that tax yield should never be considered when making an investment choice, regardless of the tax bracket in which the investor finds himself (Black & Scholes, 1974; Naranjo et al., 1998; Miller & Scholes, 1982).

Then there are some other dividend policy theories that are based on the information asymmetry that exists between the owners of dividend-paying stocks and managers. The agency cost theory, the dividend signaling theory and the free cash flow theory are the most important ones (Frankfurter & Wood, 2002). The agency cost theory derives from the agency theory in which there is a difference of interest between shareholders and managers which leads to agency costs and a decline in shareholder value (Jensen, 1999; Chang et al., 2014). Dividends are used to keep these agency costs low, as the dividends can be seen as managerial perquisites, so managers benefit from good business performance (Bokpin et al., 2011). Another way in which dividends work well against agency conflicts is because they cause companies to raise more capital in the capital market (debt or equity) to replenish the funds used for dividend payments to meet investment needs (Easterbrook, 1994; Bathala & Rao, 1995).

The dividend signaling theory refers to the fact that managers know more about a business' real value compared to its investors. Due to this information asymmetry firms use the payments of dividends to convey investors and third parties with inside information (Li & Zhao, 2008). Studies about the support for the dividend signaling

theory show mixed results. Baker et al. (2011) their findings from a U.S. survey on cash dividends shows that the dividend signaling theory appeared as the most supportive theory out of the "big three market imperfections (taxes, asymmetric information, and agency costs)". Their survey including non-U.S. studies show that the dividend signaling theory has the most support, although there was no clear evidence that had ubiquitous support (Baker et al., 2011). On the other hand, there are also several studies that do not support the dividend signaling theory. By having two measures of information asymmetry, Li and Zhao (2008) look at the relationship between share repurchases and those two measures. However, the results show a negative relationship, which can be translated into a deficiency of support for the dividend signaling theory (Li & Zhao, 2008). According to Farre-Mensa et al. (2014) the idea of spreading inside information to investors and third parties became increasingly unpopular because several studies found little or no support for the dividend signaling theory. Allen and Michaely (2003) also find weak support for the dividend signaling theory because changes in dividend payout policies are usually not made with the aim of disseminating valuable inside information to the market.

The last dividend policy theory that is based on the information asymmetry between managers and shareholders is the free cash flow theory. Companies with excess cash flows tend to invest this excess cash in projects with a negative net present value (Richardson, 2006; Jensen, 1986). When managers are overinvesting, a dividend increase will reduce the degree of over-investment. In time, this will lead to a rise in the market value of a company (Jensen, 1986). Lang & Litzenberger (1989) suggest that the free cash flow theory is also a form of signaling as they stated that when an overinvesting company changes its dividend policies, this is a signal from that company to third parties about their investment policies. Frankfurter and Wood (2002) also considered the free cash flow theory as a combination between the agency cost theory and the dividend signaling theory because the increase in dividends would lead to a decrease in cash flows and in the investments in new projects as well as a decrease in managers' perquisites.

2.2 Reactions on changes in dividend policies

Dividends cuts or omissions are noticeable major changes in a company its corporate policies. These changes lead to reactions from investors. It would have a highly significant effect on share prices (Baker et al., 1985; Michaely et al., 1995). However, the effect on institutional ownership and trading volume would be negligible (Michaely et al., 1995). Managers are normally very reluctant to cut dividends because cutting dividends would be a sign of pessimism about future profits (Jensen et al., 2010; Pettit, 1972). Pessimism regarding future profits, which can lead to a cut in dividends, could lead to negative investors' reactions on the capital markets (Pettit, 1972). However, according to Jensen et al. (2010), dividend cuts do not always have to have a negative impact on share prices. Studies show that earnings are boosted after a dividend cut. In this case, therefore, a dividend cut could result in a positive share price movement in the longer term (Jensen et al., 2010).

There are already many studies about the effects of a dividend policy changes. Akhigbe and Madura (1996) find that companies that start paying dividends perceive positive share price effects in the long-term. This share price performance in the long-term can already be predicted by looking at the share price reaction during the announcement period of the dividend initiation examining the significance and the sign

of the share price reaction (Boehme & Sorescu, 2000; Akhigbe & Madura, 1996). When looking at the long-term consequences of dividend omissions, the results show the opposite. It can be concluded that dividend omissions lead to negative share price performance. Furthermore, the long-term share price performance for dividend omissions cannot be predicted from share price reactions in the announcement period (Akhigbe & Madura, 1996). When looking at the earnings of companies, a reaction is already visible in the year before dividend is initiated or omitted. Significant earnings increases are already visible at least a year before dividend is initiated. The opposite is true for the year before dividends are omitted. In this case, significant earnings decreases are visible (Healy & Palepu, 1988).

2.3. COVID-19 pandemic

The emergence of the worldwide COVID-19 pandemic had a huge impact on everyone's daily life. Countries were lock downed, businesses were closed, and people had to work from home due to social distancing. Those things had a big impact on the global economy. The social distancing policy made it more difficult to carry out economic activities, which led to a worsening of the economy within countries (Ozili & Arun, 2020). Leaders of countries had to choose between the health of the people or the national economy. Many of them went for the first option. This also had its advantages as the pandemic led to new insights, technological changes and reformations within the healthcare sector because it made many countries realize the deficiencies of their health systems and the urge to improve these deficiencies as soon as possible (Shah et al., 2020; Kaye et al., 2021; Ozili & Arun, 2020).
There are already several literature studies focused on the impact of the COVID-19 pandemic. The study from (Anh & Gan, 2021) focuses on the impact of the pandemic on the stock market from Vietnam. They find a negative stock market return in the period before the lockdowns, but a positive stock market return in the period during the lockdowns. Also, in other emerging markets there is a significant and negative impact from the COVID-19 pandemic on those emerging (stock) markets (Topcu & Gulal, 2020). The U.S. stock market has also been hit hard by global pandemic, which is considered to be the pandemic that had the most impact on the stock market of any pandemic in the past. Most of the reactions on the U.S. stock market in the beginning period of the COVID-19 pandemic are based on new regulations or news about the evolution of the pandemic (Baker et al., 2020).

2.4. COVID-19 and dividend cuts and omissions

That the COVID-19 pandemic had a major impact on companies and their stakeholders was obvious. However, the effect on dividend policies could not be determined in advance. In the article of Krieger et al. (2021) the authors try to find out more about the impact of the pandemic on dividends. They find that, out of nearly 1,400 U.S. dividend paying firms, more than 20% of these companies cut or omit dividends (Krieger et al., 2021)." A large decrease in dividends will lead to a greater increase in the level of subjection to market risk (Cejnek et al., 2021). Eugster et al. (2021) find that, during the COVID-19 pandemic, the decrease in dividend-paying companies has resulted in a significant return in the period around the ex-dividend day. It can be observed that investors during that period attached considerable value to companies that did not change their dividend policies (Eugster et al., 2021).

In complete contrast to the findings of Krieger et al. (2021), Mazar et al. (2020) conclude that a large part of the S&P1500 companies actually maintain or even

increase dividends during the first months of the COVID-19 pandemic. This is a unexpected finding given the deteriorating earnings reports and collapsed share prices (Mazar et al., 2020). On average, firms in the Indonesia Stock Exchange also increased or maintained their dividend payout ratio during the emergence of the COVID-19 pandemic. This way they created a more positive 'signal' to investors during a period when the situation on the stock market was unpleasant (Tinungki et al., 2022).

The COVID-19 pandemic, in the worst case even results in dividend omissions. Many companies state in quarterly reports or news items that they are mainly doing this because of restrictions belonging to the governmental "support program", to strengthen cash positions and to preserve capital and liquidity (SkyWest Airlines, 2020).

2.5. Impact from COVID-19 on investor reactions

Investors sentiment is defined by Baker and Wurgler (2007) as "a belief about future cash flows and investment risks that is not justified by the facts at hand." Sentiment is an important aspect when investigating stock markets. The sentiment of investors influences not only stock markets, but also businesses and the economy as a whole. Shares that are more difficult to value, for example due to the limited amount of information available, are generally the most susceptible to investor sentiment (Baker & Wurgler, 2007). Zouaoui et al. (2011) find that fluctuations in investor sentiment can continue for long periods of time, during which they influence share prices. Ultimately, investor sentiment may even be the trigger for a crisis, which directly makes it a good indicator for predicting a financial crisis (Zouaoui et al., 2011).

In the research paper of Naseem et al. (2021) the effect of the COVID-19 pandemic on investor psychology and stock market behavior is being investigated. They look at the Dow Jones (U.S.), Shanghai and the Nikkei 225 (Tokyo Stock Exchange) stock markets. Their results show that the COVID-19 pandemic has led to an unpredictable and uncertain economic situation. An immense downtrend in the financial markets has been pointed out. The downtrend is caused by the negative investors sentiment that was created by the pandemic (Naseem et al., 2021). Huynh et al. (2021) construct a *Feverish Sentiment Index (FSI)* based on different indicators of sentiment. When the value of the FSI is high it "implies high levels of fear that has implications for financial uncertainty" (Huynh et al, 2021). In a study focusing on the period from the COVID-19 outbreak, they find that the FSI value was positively correlated with market volatility, meaning that a higher degree of fear on the stock market led to more market volatility. The higher level of fear in the financial markets means that investors are likely to overreact to bad news. However, they will then quickly adjust their thoughts, meaning that their sentiment improves again a few days after the news (Huynh et al., 2021). In a study about capital market reaction to dividend cuts due to growth concerns, Ghosh and Woolridge (1989) find that regardless of the motivation for the dividend cut, investors will always be averse to dividend cuts because it simply does not provide short-term benefits. This causes overreactions to dividend cut announcements as well.

In the article from Ortmann et al. (2020) the authors find that the trading intensity of investors increased during the worldwide pandemic. They also found an increase in the number of investors that opened a broker account for the first time. This resulted in an increase in beginning, non-professional, investors. Especially less-active investors between 18 and 35 years old increased their financial positions in the equity markets (Priem, 2021). Those type of investors are more likely to focus on the short

term: “get rich quick” (Sithraputhran, 2021). It is likely that this type of investor reacts more intensely to news (such as dividend cuts) than long-term investors would. This is because long-term investors are less likely to buy/sell in response to news, as they have most likely done extensive research on the company and believe in its core values and competences.

2.6. Hypothesis development

In this section I will formulate and substantiate my hypotheses. Based on all the information gained from the literature in the previous sections, it is quite evident that opinions differ regarding the relevance of dividends. However, it can be ascertained that there are different types of theories about dividends, and each theory has its own reasons why the use of dividends brings benefits to both managers and shareholders.

When it comes to changes in dividend policies, many studies agree that these changes trigger reactions in the stock markets. Dividend payments generally have a positive impact on share price performance, whereas cutting or even omitting dividends sends negative signals to investors, leading to a negative impact on share prices. My first hypothesis is therefore as follows:

H1: *There is a negative stock price reaction to dividend cuts and omissions in a period without a crisis or pandemic (2010-2019).*

In times of a pandemic, I expect this to be not different. The emergence of the COVID-19 pandemic also caused a stir. Not only on the financial markets, but also entire economies were affected. This led to stock markets being affected by uncertainty among investors and companies. In a short period of time, this resulted in a lot of dividend cuts and omissions and negative returns on those markets. And I also expect a negative shareholder reaction to dividend cuts and omissions as a result of the pandemic. This results in the second hypothesis:

H2: *There is a negative stock price reaction to dividend cuts and omissions during the COVID-19 pandemic.*

On top of that, the pandemic has also negatively affected investor sentiment. A negative investor sentiment can cause a financial crisis in the long run. Additionally, studies show that investors are already averse to dividend cuts, but due to the pandemic they are also likely to ‘overreact’ to news items and policy changes. A cut in or omission of dividends could lead therefore to more intense reactions during the pandemic. Moreover, many new investors have joined with the mindset to “get rich quick”. Because those investors just focus on the short-term and, on average, do little research into companies, they are keen to react vehemently to news items or policy changes impacting the companies in which they own shares. This could also affect stock price reactions to dividend cuts and omissions. This leads to the third hypothesis:

H3: *There is a more negative stock price reaction to dividend cuts and omissions during the COVID-19 pandemic compared to the period before the pandemic.*

3. METHODOLOGY & DATA

3.1. Method

In this study I investigate whether stock price returns are affected by dividend cuts and omissions in the period during COVID-19 and a period preceding COVID-19. An empirical analysis using an event study can be used to test the two hypotheses that have been formulated.

An event study is the most obvious method to use for my research. “An event study examines the impact of an event on the financial performance of a security, such as company stock (Hayes, 2020).” The dividend cut and omission announcements can be considered as ‘event’ in my study as I look at the effect of the announcements on the reactions of shareholders and do this for a period during the pandemic, and for a period preceding the pandemic. When conducting an event study, there is a choice of using different models, with my choice being the "Market Model". When using the Market Model, an estimation period and an event window must be used. The normal returns of the Market Model are predicted based on the estimation period. I have chosen an estimation period of 60 days, from -90 days to -30 days towards the event date. My event window on the other hand is set at -2 to +4 days with respect to the event date (see *figure 1*). The total period I use for my study during the COVID-19 pandemic is from 1 January 2020 to 31 December 2020. For the period preceding the pandemic, the total period I investigate is determined to be from 1 January 2010 to 31 December 2019.
Since I look at stock prices around the dividend declaration dates from companies, I use quantitative data for my research. Obtaining this quantitative data is made possible by available databases such as the Center for Research in Security Prices (CRSP). This can hence be described as secondary data because it is obtained from a database and is not self-collected. More information is provided in the following section.

To answer my third hypothesis, which is also the answer to my research question, I use a Chow test. The Chow test is suitable for my study because it compares two different linear regressions in two different time periods. In my study it can compare the regression from the period from 2010-2019 to the regression prepared for the period during the COVID-19 pandemic. Using the Chow test, the coefficients from the two linear regressions are compared to each other and it will be checked whether there is equality between the models. In this way, it is possible to check whether the results of the period from 2010-2019 are statistically different from the results during the pandemic (Beatty & Zajac, 1987).

Figure 1: Timeline Event Study

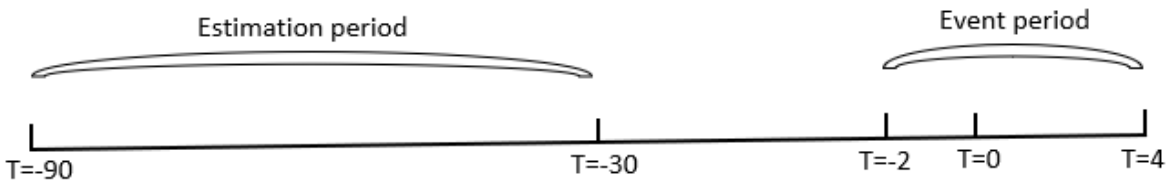

Figure 1 shows the timeline of the event study. The estimation period consists of 60 days: from 90 days to 60 days before the event. The event window, with T=0 as event day, consists of 7 days: from 2 days before the event to 4 days after the event.

3.2. Sample Data

Because this event study focuses on comparing the results of two different time periods, two different samples must be used. As these samples must comply with the fact that a dividend cut or omission has occurred, this sample is unfortunately not randomly selected. Nevertheless, this 'selection bias' cannot be avoided when performing my study. I need one sample containing companies that cut or omitted dividend during the pandemic and one sample consisting of companies that cut or omitted dividend in the period from 2010-2019.

3.2.1 COVID-19 sample

For the sample of companies that cut or omitted dividends during the pandemic I look at the period between 1 January 2020 and 31 December 2020. “Donald Trump, at the time president of the United States, declared the COVID-19 outbreak as a National Emergency on March 13 (Staff, 2021).” However, in January 2020, the first people died from COVID-19 and the number of infections increased significantly. "The World Health Organization also declared a global health emergency in January 2020 (Taylor, 2021)." Since the severity of the virus was already recognized by the world in January 2020, I take this as the starting month of my study looking at the effects of dividend cuts and omission during the COVID-19 period. I expect that since January 2020 companies have started to anticipate the possible consequences of the pandemic, possibly resulting in dividend cuts.

To obtain my final sample I use the Center for Research in Security Prices (CRSP) database, what is vendor from the Wharton Research Data Services. “CRSP maintains the most comprehensive collection of security price, return, and volume data for the NYSE, AMEX and NASDAQ stock markets (CRSP, n.d.).” So, the companies that I include in my sample are all listed on one of these stock markets. As it is possible to obtain the dividend declaration dates via CRSP, this database is very suitable for my study. The dividend declaration date is the day when a company publicly announce its upcoming dividend payment (Cummans, n.d.). So, this is the moment when shareholders are informed about when and how much the next dividend payment will be. Shareholders react to this, leading to changes in share prices. Therefore, I take the dividend declaration dates as ‘event’ in my study to investigate the effect of dividend cuts and omissions on shareholder reactions. When selecting the right companies for my sample, it is therefore important that the dividend declaration date is available via CRSP.

In addition, my focus is on companies classified with distribution code 1232, where each digit has a particular meaning. Within CRSP this means that the event type is ‘ordinary dividend’, the payment method is ‘cash’ (U.S. dollars), the dividend frequency is ‘quarterly’, and the tax status is ‘normal taxable’. If a company does not comply with this distribution code, I will remove it from my sample. Another output variable I use from CRSP is "dividend cash amount". This allows me to see if dividends have been cut at all on the additional declaration date. A company that omits dividend can be recognized by the fact that no dividend is paid after a quarter in which it was paid. In CRSP it can be recognized because after a certain quarter with a dividend payment, suddenly no dividend is paid in the next quarter. For the exact dates on which the dividends are omitted I look at the news articles and quarterly reports from the respective companies. In these reports they announce that they will suspend their dividend payments.

In the end, it is important that all companies in the final sample also have available Compustat-CRSP data. This is necessary for the control variables that are added to the study. A sample size of 137 companies (described as PERMNOs) remains after taking the above aspects into account (*Appendix A*). *Table 1* provides a clear overview of the establishment of the final sample size.

3.2.2. Pre-COVID-19 sample

The other sample that I need for my study should consist of companies that cut or omitted dividends in a period without a pandemic or crisis. This way I am be able to compare the results obtained during the COVID-19 pandemic to the results obtained from an period before the pandemic. I decide to focus on the period from 1 January 2010 to 31 December 2019. The market is not affected by (financial) crises and pandemics in this period, so shareholder reactions will most likely be more due to company results and choices.
Again, I use CRSP to obtain all the necessary data. All companies that cut or omitted dividends at least once in the period between 2010-2019, classified with distribution code 1232, with a declaration date available and where the stock prices are also available via CRSP will be included in the final sample. See *table 1* again to see how the final sample is derived.

Table 1: Sample selection

	Number of PERMNOs	
	COVID-19 period	***2010-2019***
Number of PERMNOs with a dividend cut or omission in the respective period.	296	1105
PERMNOs missing the merged Compustat – CRSP data	(159)	(448)
Total sample size	137	657

Table 1 shows the sample selection. “A PERMNO is a unique stock (share class) level identifier (Research Sources & Guides, n.d.).” In fact, it is another word for ‘company’. Table 1 shows that the total sample sizes of both periods consist of the number of PERMNOs for which it is clear that they have cut or omitted dividends in the respective period minus the PERMNOs for which no data is available in Compustat.

3.3. Research Design

3.3.1. Formula’s

For my research I need data of three specific aspects: market returns, stock prices and declaration dates. I use the declaration dates as ‘event’, where I will look at the cumulative abnormal returns from 2 days prior to the event to 4 days after the event. In total, my event window will therefore be 7 days. This 7-day event window consists only of days on which stock exchanges are open, thus excluding weekends. For calculating the abnormal returns, I use *formula (1)*. For this I need the actual returns and the expected returns. The actual returns can be obtained from my 'stock prices' dataset which I can retrieve from CRSP. To calculate the actual returns I use the formula specified under formula (2). To obtain the expected returns I choose to use the "Market Model", as the Market Model has a big advantage over the Constant Mean

Return Model because the variation of the abnormal returns will be minimized (MacKinlay, 1997). The Market Model is formulated in *formula (3)*.

Formula (1): Abnormal returns

$AR_{it} = R_{it} – E(R_{it}|X_t)$

Formule (1) presents the formula to calculate the abnormal returns. In fact, the abnormal returns are calculated as the actual returns minus the expected returns.

The abnormal returns from stock i on day t can be calculated by subtracting the expected return from stock i on day t from the actual return from the same stock on the same day.

Formula (2): Calculating the actual returns

$R_{it} = (Price_t – Price_{t-1}) / Price_{t-1}$

Formula (2) presents the formula to calculate the actual returns. In fact, the actual returns are calculated by subtracting the price from day t-1 from day t, and dividing the result by the price of day t-1.

The actual return from stock i on day t can be calculated by taking the difference between the stock price on day t and the stock price on day t-1 and dividing by the stock price on day t-1. In order to calculate the actual returns, I use the stock prices that I can obtain from the Center for Research in Security Prices (CRSP).

Formula (3): The Market Model

$R_i = \alpha_i + \beta_i * R_{mt} + \varepsilon_i$, where:

R_i = return of stock i
α_i = alpha (return from stock that is independent from the market returns)
β_i = beta (the systematic risk of a specific stock relative to the market)
R_{mt} = market return on day t
ε_i = error term (is expected to be equal to 0)

Formula (3) presents the formula to calculate the Market Model. It is a regression that requires the market returns of each day in the estimation period. The market returns are regressed on the stock returns in the estimation period. In this way, the beta can be obtained.

In order to calculate the Market Model, I need the market returns for every day of my estimation period. I regress the market returns on the stock returns in the estimation period. This way, I can obtain the beta with which I can calculate the expected returns. Finally, by using the Market Model and the formula to calculate the actual returns, I can calculate the abnormal returns.

Ultimately, my goal is to calculate the cumulative abnormal returns of all the companies in my sample for my event window of -2 days to +4 days to see what effect dividend cuts have on stock returns. I can calculate the abnormal returns by using *formula (4).*

Formula (4): Cumulative abnormal returns

$CAR_i = \sum AR_{it}$

Formula (4) presents the formula to calculate the cumulative abnormal returns (CAR). In fact, the CAR can be calculated as the sum of all abnormal returns of stock$_i$.

The cumulative abnormal return for stock i is equal to the sum of abnormal returns for stock i on day $t_1 + t_2 + t_3$, etc. So, in fact it is the sum of all abnormal returns for a given stock.

In order to find an answer to my research question I need to test if the results from my study about shareholders' reaction to dividend cuts and omissions in the period during the COVID-19 pandemic are statistically different from the results from the period 2010-2019. For this I use a Chow test. *Formula (5)* is used to conduct the Chow test.

Formula (5): Chow test

$$\frac{(RSS_p - (RSS_1+RSS_2)) / k}{(RSS_1+RSS_2) / (N_1+N_2-2k)}$$

RSS_p = sum of squares of the complete data
RSS_1 = sum of squares of the data from the period during the COVID-19 pandemic
RSS_2 = sum of squares of the data from the period 2010-2019
N = number of observations
k = number of parameters

Formula (5) presents the formula that is used to perform the Chow test.

3.3.2. Control variables

In order to avoid a false conclusion that share prices react to dividend cuts (type 1 error) I include control variables in my research. To be selected as control variable, it is important that those control variables influence dividend cuts and omissions and stock prices (Nielsen & Raswant, 2018). According to Brav et al., (2005) debt and earnings per share (EPS) are variables that influence a company's dividend payout policy. Therefore, I include the debt/equity ratio and EPS as control variables in my research. In the studies from Wahjudi (2018) and Ali (2022) they also conclude that leverage (debt/equity) has a negative relation with dividend policies. I also include variables used in the factor models from Fama and French (1993; 2015). Size, book-to-market ratio and profitability are variables that I think are also useful to control for in my research. This is because these 3 variables are seen as average return variables. Since my study also focuses on stock returns due to dividend cuts and omissions, it is good to control for these variables. Size can be calculated as the stock price from a specific share times the number of outstanding shares, in other words 'market capitalization'. The other one is the book-to-market ratio. This is the book value from a company divided by the market value of the same company. Profitability, lastly, can be calculated from the return on equity (ROE) as it represents a company's net income divided by its book equity (Fama & French, 1993; Fama & French, 2015).

Now that my control variables have been established, it is essential that I run a regression to see what effect my control variables have on the results of my main study. In this way, it is possible to see whether and which control variables affect dividend cuts and omissions and share prices. I use *formula (6)* for the regression analysis of my control variables.

Formula (6): OLS regression control variables

$$CAR_i = \beta_0 + \beta_1 * D/E + \beta_2 * EPS + \beta_3 * Profitability + \beta_4 * Size + \beta_5 * Book\text{-}to\text{-}market + \varepsilon$$

Formula (6) present the formula to calculate the CAR for stock i using an OLS regression with control variables. The control variables are D/E, EPS, Profitability, Size and the book-to-market ratio. ε is the error-term.

The clarification of the variables is presented in *table 2*. The descriptive statistics are outlined in *table 3*. The correlations between the control variables can be found in the matrices of *table 4*. The cumulative abnormal return is also added in *table 4*.

Table 2: Variable explanations

Variable	Meaning
D/E	Debt-to-equity ratio, calculated as the total debt divided by the total common equity
EPS	Earnings per share, calculated as the net profit divided by the number of outstanding shares
Profitability	Profitability, calculated as the return on equity: net profit divided by the total common equity
Size	Size of a company, calculated as the log of the market capitalization: log of the share price of a company times the number of outstanding shares
Book-to-market	The book-to-market ratio, calculated as the book value of a company divided by the market value (market capitalization)

Table 2 shows the control variables that are used in the study and their meanings. Also, the way they are calculated is explained.

Table 3: Descriptive statistics

Descriptive Statistics COVID-19 period

Variable	N	Mean	Max	Min	SD	Median
D/E	137	1.105	21.913	-173.658	15.662	1.478
EPS	137	-.287	8.020	-15.650	3.146	.140
Profitability	137	1.218	166.737	-3.579	14.272	.022
Size	137	9.132	12.349	6.823	.886	9.092
Book-to-market	137	1.105	25.410	-1.630	2.570	.608

Descriptive Statistics 2010-2019 period

Variable	N	Mean	Max	Min	SD	Median
D/E	657	3.024	91.657	-84.698	8.337	1.397
EPS	657	1.717	34.280	-23.460	3.200	1.260
Profitability	657	.917	288.000	-4.573	13.782	.103
Size	657	8.977	11.288	6.828	.823	9.044
Book-to-market	657	1.278	132.820	-9.639	5.870	.663

Table 3 shows the descriptive statistics of the control variables in the period during the COVID-19 pandemic and the period from 2010-2019. N is the number of observations.

Table 4: Correlations between the control variables

Matrix of correlations COVID-19 period

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) CAR	1.000					
(2) D/E	0.140	1.000				
(3) EPS	0.077	0.214	1.000			
(4) Profitability	-0.115	0.089	0.235	1.000		
(5) Size	0.021	0.018	0.100	0.019	1.000	
(6) Book-to-market	-0.132	0.041	-0.177	-0.075	-0.042	1.000

Matrix of correlations 2010-2019 period

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) CAR	1.000					
(2) D/E	-0.030	1.000				
(3) EPS	0.010	-0.020	1.000			
(4) Profitability	0.017	0.283	0.055	1.000		
(5) Size	0.017	-0.038	0.197	-0.015	1.000	
(6) Book-to-market	0.014	0.063	-0.010	-0.013	-0.030	1.000

Table 4 shows matrices with the correlations between the cumulative abnormal return and the control variables mutually.

4. RESULTS

In chapter 3 I explained the method, data and research design that I use to answer my research question: ""Do shareholders react differently to dividend cuts during the global COVID-19 pandemic?" Now that it is clear what my estimation and event windows are, how many companies cut or omitted their dividends and what control variables I am using, it is possible to test my formulated hypotheses.
In this section I discuss all three formulated hypotheses as I look at the results of the formulas carried out in the research design section. In section 4.2. I elaborate on the possible underlying reasons for my results.

4.1. Testing the hypotheses

4.1.1. Hypothesis 1

The first hypothesis from my study stated: "there is a negative stock price reaction to dividend cuts and omissions in a period without a crisis or pandemic (2010-2019)." This expectation is based on the fact that dividend cuts generally send a negative signal to shareholders, leading to a negative impact on share prices. Dividend cuts send a pessimistic signal to investors because dividends are generally based on (future) profits. A dividend cut is therefore seen as a negative signal. The cumulative abnormal return from *Table 5A, model (1)* shows a result of -0.029, highly significant at 0.1% level. This means that the cumulative abnormal stock return decreased with 2.9% in the event window of dividend cuts and omissions in the research period from 2010-2019. This result is consistent with the expectation that in times without crisis and pandemic a negative share price reaction takes place when dividend cuts and omissions are announced by companies. Since the result is highly significant, it can be said that the result is not coincidental, and that dividend reductions and omissions do in fact have a negative effect on share prices.
In *Table 5A, model (2)*, all control variables are also included. It can be noticed that the result for the constant value is not significant anymore. This means that, when there is controlled for other variables, I fail to demonstrate that dividends cuts and omissions have an effect on cumulative abnormal stock returns in the period from 2010-2020. The five control variables that are included are also not significant, meaning that none of the control variables included in *model (2)* have an impact on the relation between stock prices and dividend cuts and omissions.

4.1.2. Hypothesis 2

The second hypothesis in my study stated: "there is a negative stock price reaction to dividend cuts and omissions during the COVID-19 pandemic." According to a lot of discussed papers in the literature review section, dividend cuts and omissions are in general considered as something 'negative'. By looking at the cumulative abnormal returns in my event window, it is possible to see a significant result. *Table 5A, model (3)*, shows a cumulative abnormal stock return of 0.027, significant at 5% level. This means that during the COVID-19 period, companies experience a cumulative abnormal return of stock prices of 2.7%. However, the result is in total contrast to the expectation set out in hypothesis 2. There may be several reasons for a positive stock return around companies' dividend cut announcements during the COVID-19 pandemic. The possible explanations for this significant result are discussed in section 4.3.

Table 5A, model (4) includes all control variables. The result for the constant is not significant anymore, meaning that the -0.229 cannot be linked as a response to

dividend cuts and omissions. So, controlling for other variables, I fail to demonstrate that the dividends cuts and omissions have an effect on cumulative abnormal stock returns in the period during COVID-19. In contrast, holding all other variables constant, *model (4)* shows a significant result of 0.028 for 'Size' at 5% level. This means that companies with a greater market capitalization generally experience a more positive cumulative abnormal stock return. The results for the other control variables are all insignificant.

Table 5A: Stock price reaction to dividend cuts and omission

	(1) CAR 2010-2019	(2) CAR 2010-2019 Including control variables	(3) CAR COVID-19	(4) CAR COVID-19 Including control variables
D/E		-0.001		0.004
		(-0.90)		(1.27)
EPS		0.000		0.001
		(0.01)		(0.36)
Profitability		0.000		0.003
		(0.69)		(0.91)
Size		0.005		0.028*
		(0.66)		(2.07)
Book-to-market		0.000		-0.007
		(0.47)		(-1.40)
Constant	-0.029***	-0.070	0.027*	-0.229
	(-5.19)	(-1.09)	(2.23)	(-1.84)
N	657	657	137	137
adj. R^2	0.000	-0.005	0.000	0.042

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5B: Chow test

F-statistic	4.050
Critical F-value	1.774
P-value	0.001

Table 5A shows the stock price reaction to dividend cuts and omissions. The D/E (debt-to-equity ratio), EPS (earnings per share), Profitability (return on equity), Size (market capitalization) and the Book-to-market ratio are control variables. The dependent variable is the cumulative abnormal return (CAR).
*CARi = β0 + β1 * D/E + β2 * EPS + β3 * Profitability + β4 * Size + β5 * Book-to-market + ε*
Table 5B shows the results of the Chow test.

4.2.3. Hypothesis 3

The third hypothesis of my study was expressed as follows: "there is a more negative stock price reaction to dividend cuts and omissions during the COVID-19 pandemic compared to the period before the pandemic." This result was mainly expected since the COVID-19 pandemic led to negative investor sentiment, causing investors to quickly overreact to new reports and policy changes. Also, during the pandemic, a lot

of new, non-professional investors started investing in capital markets, which can also influence share prices and reactions to news items and policy changes.
In order to check whether the third hypothesis is correct, and at the same time to find an answer to the research question formulated, a Chow test is used. The null hypothesis (H_0) from a Chow test states that the coefficients from both regressions (COVID-19 period and 2010-2019 period) are equal to each other. The alternative hypothesis states that there is inequality in the coefficients from the two regressions. For the Chow test, I compare the two regressions including control variables because these are two linear regressions, which is necessary for performing a Chow test. This concerns *column (2) and (4) of table 5A*. Unfortunately, the two calculated 'constant' values of the columns are insignificant, but by conducting a Chow test it is possible to find out whether the differences between the two regressions are significant. The results from the Chow test are shown in *Table 5B*. Because the F-statistic is higher than the critical F-value, the null hypothesis can be rejected. Also the P-value of 0.001 indicates that the results deviate significantly from the null hypothesis. This means that the results of the period during the COVID-19 pandemic and those of the period 2010-2019 can be said to be significantly different. So shareholders do in fact react differently to dividend cuts and omissions during the pandemic compared to the period from 2010 to 2019. However, it cannot be determined whether shareholders react more negatively during a pandemic because the 'constant' values of *column (2) and (4) of table 5A* are both not significant.

4.2. Discussion of the results

Since two of the three hypotheses can be rejected after interpreting the results, the results are still somewhat surprising. It is very curious to see that there is a significant increase after dividend cut announcements during the COVID-19 pandemic. Searching for specific explanations, I come up with two different possible reasons for this increase. First, there was a huge crash during the pandemic when it became really clear in February 2020 that the pandemic would have a major economic impact on the world. The S&P 500 fell by more than 30% between mid-February and mid-March, the Dow Jones Industrial Average by more than 25%, and the NASDAQ Composite fell by almost 30%. However, it only took a little over two months to fully recover these losses. One of the reasons for the rapid recovery of the stock markets may be the stimulus (money) that companies have received from the government. Having learned from some of the wrong decisions made during the 2008 financial crisis, the United States government and Federal Reserve have acted very quickly after realizing the seriousness of the pandemic. Jerome Powell, Chairman of the Federal Reserve, announced that the interest rate would be lowered so much that it would be close to 0%. This should provide more purchasing power for consumers and could boost the economy again. The United States government has also made the decision to come up with "stimulus packages". This consisted of stimulus payments for individuals, but also loans to companies (Banerji, 2020). As the purchasing power of individuals was boosted and businesses received help from the government, the economic damage was most likely expected to be greater than it ultimately was, causing the economy to recover in a relatively short period of time. Due to this rapid recovery and the more positive economic outlook, there is a chance that investors have not placed a high value on dividend cuts because they have focused more on share price gains in this recovery period, for example. This could be one of the reasons for the rise in stock prices around the announcement of dividend cuts and omissions.

Another possible explanation for this rise in stock prices could be the number of new investors who have started investing since the pandemic. It turns out that most of the money invested in 2020 will come from households, not from investment funds or corporations (Domm, 2021). The rapid recovery of the stock market provided investors with an enormous amount of overconfidence. Additionally, investing for individuals has become tremendously easy in recent years due to various types of apps and platforms where one can invest without paying any fee. The huge increase in private investors, the amount of overconfidence among investors, and the amount of money invested from these investors gave a big boost to the stock markets. The almost continuous rise of the stock markets and the focus of private investors on price gains instead of dividends could therefore be a reason why stock prices rose around the announcement of dividend cuts and omissions during the pandemic.

In the period from 2010 to 2019, outside of the pandemic, the results do show a significant drop in reaction to a dividend reduction or omission. Dividend cuts or omissions in a period outside a crisis or pandemic are mostly based on the financial condition of companies. Disappointing earnings results, threats to future profits and an economic downturn are examples of reasons why companies cut their dividend. Since these are really reasons that say something about the current or future status of a company, it is logical that investors react negatively to this. This is in contrast with dividend cuts during the pandemic, which were most likely based on predicted economic consequences. However, these economic consequences soon turned out to be less than predicted, which ensured that shareholders generally did not react negatively to dividend cuts and omissions. This was mainly because the fundamentals and financial status of the companies were not in great danger.

5. ROBUSTNESS TEST

In this part I conduct a robustness test where I change a specific model specification assumption. I choose for a different sample because I think this may have a large impact on my results. A robustness test where a sample is changed is considered as "Model Variation Test". This is one of the 5 types of a robustness test (Neumayer & Plümper, 2017).

5.1. Model variation test

Because I think that my sample is an important model specification in my study, I choose to adjust my sample in my robustness test to see how this affects my results. I focus only on companies that are classified as mid, large or mega market capitalization. I calculate this by multiplying the outstanding shares of all the companies in my sample by the share price. Companies are classified as mid-market or higher if they have a market capitalization of more than $2 billion (Finviz, n.d.). See *table 6* for my robustness test sample selection.

Table 6: Sample selection: robustness test

	Number of PERMNOs	
	COVID-19 period	***2010-2019***
Number of PERMNOs in original study	137	657
PERMNOs with a lower market capitalization than $2 billion	(72)	(331)
Total sample size	65	326

Table 6 shows the sample selection. "A PERMNO is a unique stock (share class) level identifier (Research Sources & Guides, n.d.)." In fact, it is another word for 'company'. Table 6 shows that the total sample sizes of both periods consist of the number of PERMNOs from my original study minus the PERMNOs with a market capitalization lower than $2 billion.

5.2. Robustness test results

The test with the sample containing only mid, large and mega market capitalization companies is performed for the period during the COVID-19 and the period from 2010 to 2019, just like in my main study. The results are shown in *table 7*.

Table 7, model (1) shows a result of -0.026, significant at 1% level. This is almost the same result as the result found in *table 5A* (-0.029***), which means that companies with a market capitalization greater than $2 billion only experience a slightly less negative abnormal stock return compared to the total sample of *table 5A*, concerning the period from 2010 to 2019.

As I did in my main study, I also add control variables in my robustness test to ensure the internal validity of my research. However, none of the control variables show a significant result in *model (2)* of *table 7*. Also, the result for the constant is no longer significant when control variables are added. So, including control variables, I fail to demonstrate that dividend cuts and omissions have an impact on share prices at companies with a market capitalization greater than $2 billion, for the period from 2010 to 2019.

Secondly, I perform the same robustness test for the period during the COVID-19 pandemic. In *model (3)* there is a highly significant result visible: 0.059, at 0,1% level. This means that there is an increase of 5.9% in stock price returns in the period from a dividend cut or omission during the COVID-19 pandemic. Compared to the results from *table 5A*, this is more than 3 percentage points higher. It can be inferred that companies with a market capitalization higher than $2 billion provide a higher cumulative abnormal return in the event window of dividend cuts and omission during the COVID-19 pandemic compared to companies with a lower market capitalization.

Different from the results in *table 7*, *model (2)*, the fourth model from *table 7* also shows a significant (at 5% level) result of 0.060, which means that, controlling for several variables, the cumulative abnormal stock returns in the event window of dividend cuts and omissions during the pandemic are over 6%. Again, these results apply to companies with a market capitalization greater than $2 billion.
It is observable that in *model (4)* all results for control variables are not significant. However, by adding my control variables, I can show that I controlled for bias that might have occurred if I had omitted my control variables.

In general, the robustness test with a different sample therefore gives mixed results. In the pandemic period, companies with a market capitalization greater than $2 billion show a higher cumulative abnormal stock return in the event window of dividend cuts or omissions. However, this result is different for the period 2010-2019, where firms with a market capitalization larger than $2 billion show approximately the same result as in *table 5A*, where the entire sample is used. And when control variables are added, no significant result is even shown.

Table 7: Stock price reaction to dividend cuts and omissions: robustness test

	(1) CAR 2010-2019	(2) CAR 2010-2019 Including control variables	(3) CAR COVID-19	(4) CAR COVID-19 Including control variables
D/E		-0.001		0.003
		(-0.85)		(0.72)
EPS		-0.003		-0.001
		(-1.22)		(-0.14)
Profitability		0.000		0.051
		(0.65)		(0.81)
Size		0.017		-0.000
		(1.05)		(-0.46)
Book-to-market		0.001		-0.007
		(0.37)		(-0.67)
Constant	-0.026**	-0.179	0.059***	0.060*
	(-3.28)	(-1.18)	(3.61)	(2.40)
N	326	326	65	65
adj. R^2	0.000	-0.006	0.000	-0.025

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7 shows the stock price reaction to dividend cuts and omissions. Compared to my main study, only the sample was adjusted to companies with a market capitalization of more than $2 billion. The D/E (debt-to-equity ratio), EPS (earnings per share), Profitability (return on equity), Size (market capitalization) and the Book-to-market ratio are control variables. The dependent variable is the cumulative abnormal return (CAR).
*CARi = β0 + β1 * D/E + β2 * EPS + β3 * Profitability + β4 * Size + β5 * Book-to-Market + ε*

6. CONCLUSION AND DISCUSSION

6.1. Conclusion

In this study I try to find an answer on the research question: “Do shareholders react differently to dividend cuts during the global COVID-19 pandemic?”, where shareholders' reactions are measured by stock price returns. Three different hypotheses have been formulated with the expected findings of my research. By conducting an event study using the Market Model, the cumulative abnormal returns and a Chow test, I manage to achieve specific results.

The first formulated hypothesis is about the effect of dividend cuts and omissions on stock price returns in a period without a crisis or pandemic (2010-2019). The results indicate that there is a significant negative cumulative abnormal stock return visible in the event window of a dividend cut or omission, during the period from 2010 to 2019. However, controlling for alternative variables, the result is not significant anymore. The significant negative result found is predicted in advance, as dividend cuts are generally considered to be a negative signal to investors. So, in the period from 2010 to 2019, dividend cuts and omissions have a negative effect on shareholders’ reactions.

The second hypothesis is about the effect of dividend cuts and omissions on stock price returns in the period of the COVID-19 pandemic. The results show a significant positive cumulative abnormal stock return. This indicates that, during the COVID-19 pandemic, companies experienced a positive cumulative abnormal stock return in the event window of a dividend cut or omission. This is an unexpected result and thus also in contrast with my established hypothesis. However, there may be various reasons for this. For instance, companies received financial help from the U.S. government and the Federal Reserve. Moreover, the interest rate was lowered to such an extent that people's purchasing power increased. An alternative reason for this significant result could be the number of new "household" investors during the pandemic, as they collectively contributed more money in investments than investment funds and corporations. Future studies might clarify this by examining it.
When control variables are added, the positive cumulative abnormal stock return changes to an insignificant result. Thus, taking control variables into account, no statements can be made about shareholders' reactions to dividend cuts and omissions during the COVID-19 pandemic.

The third hypothesis is the most important one, because it answers my research question. It looks specifically at the differences between shareholders’ reactions to dividend cuts and omissions during the pandemic and their reactions in the period before the pandemic. A Chow test is used to test the equality of the coefficients of the two regressions (during COVID-19 and 2010-2019) including control variables. The significant Chow test result show that shareholders do react significantly different to dividend cuts and omissions during the pandemic compared to the period from 2010 to 2019. However, due to insignificant results, no statement can be made as to whether this reaction is more positive or negative during the pandemic. Nevertheless, I expect shareholders to react more positively to dividend cuts and omissions during the pandemic compared to the period from 2010 to 2019. This expectation is based on the statistically significant findings of column (1) and (3) of Table 5A. However, this is an expectation and therefore no statistical statement can be made about it, because the

Chow test was based on the regression including control variables, and there the results were unfortunately insignificant.

I have also conducted a robustness test with an adjusted sample. I focused on companies with a market capitalization greater than $2 billion. The results show that in the period from 2010 to 2019 the results do not differ much from those from the entire sample. Looking at the period during the COVID-19 pandemic, significant positive results are visible, even when control variables are added. This means that during the pandemic companies with a market capitalization greater than $2 billion experienced a higher cumulative abnormal stock return in the event window of dividend cuts or omissions.

After carrying out and answering my three hypotheses formulated, it is possible to answer my research question. Shareholders do indeed react differently to dividend cuts and omissions during the global COVID-19 pandemic. However, based on the regressions including control variables, no statement can be made about whether they react more positively or negatively during the pandemic.

6.2. Discussion

6.2.1 Implications

When I compare the results of my study with various theories that I have discussed in section 2, a few things can be concluded. For example, my results do not match the “bird-in-hand” theory, which claims that investors prefer stocks that pay dividends. If that would be true, then my cumulative abnormal stock returns in the event window of dividend cuts and omissions during the COVID-19 pandemic would not be positive. On the other hand, the results for the period 2010 to 2019 are in line with this theory.

Whether my study corresponds to the dividend signaling theory, where managers use dividends to convey inside information to third parties, will remain unclear. During the pandemic, this is probably because of the negative outlook, but this cannot be determined. After all, I have no information on the motives behind the dividend cuts and omissions. Therefore, it is also not possible to make statements on the tax preference theory, where higher taxpaying investors attach less value to a higher dividend yield. And finally, I cannot make any statements about the free cash flow theory, in which companies use dividends as a signal about their investment policies. This also requires information about the motives behind dividend cuts and omissions.

Compared to other studies on the impact of dividend cuts and omissions, my findings for the period from 2010 to 2019 are very similar to the findings of other studies. However, my findings for the period during the COVID-19 pandemic are not as expected. A positive cumulative abnormal stock return in de event window of dividend cuts and omission is a unexpected result, as dividend cuts and omissions are generally seen as something negative by investors. So, this shows that the global pandemic is having a certain impact on investors and companies' policies that no one might have expected. Nevertheless, this result becomes insignificant when control variables are added.

6.2.2 Limitations

The biggest limitation of my study is that through CRSP I only had access to specific stock markets: The New York Stock Exchange, the American Stock Exchange and the

NASDAQ Exchange. This means that I only included United Stated companies in my study. Therefore, the external validity is not optimal, and the results may not be generalizable to other countries and exchanges.

Moreover, the sample size for the COVID-19 period is not large, with 137 companies in the sample selection (*Appendix A*). However, my study revolves around dividend cuts and omissions, something that does not often occur in companies. Therefore, it is not possible to obtain a very large sample size. This should therefore not hinder the validity of my results.

Finally, my results show that dividend cuts and omissions have different effects on stock returns when the period during the pandemic is compared with the period between 2010 and 2019. For example, it is very unexpected to observe a positive cumulative abnormal stock return in the event window of a dividend cut or omission during the COVID-19 pandemic. So, there should be specific motives for this. However, I lack the information that could lead to these motives, which could perhaps also be regarded as a limitation of my research.

6.2.3 Recommendations for future research

For future studies on the effect of dividend cuts and omissions on stock returns, it would be good to generate as large a sample size as possible, not just focusing on companies from the United States. Moreover, future studies should focus on the motives behind dividend cuts during the pandemic, but also the motives of shareholders not to react negatively to these dividend cuts. This way, the unexpected positive results from my study during the COVID-19 pandemic can be explained.

Future studies could also focus on the possible reasons for the positive cumulative abnormal stock returns in the event window of a dividend cut or omission during the pandemic. In section 4.2. I have mentioned and explained a few possible reasons, but it is not possible for me to test these reasons statistically due to lack of time. Future research could focus on statistically test these possible reasons.

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8. APPENDIX

Appendix A

PERMNO	Company Name	Ticker Symbol	Distribution Declaration Date
92528	A H BELO CORP	AHC	2-6-2020
13429	ALEXANDER & BALDWIN INC NEW	ALEX	17-12-2020
89002	ALLIANCE DATA SYSTEMS CORP	ADS	23-4-2020
91658	ALTRA INDUSTRIAL MOTION CORP	AIMC	29-4-2020
12591	APOLLO GLOBAL MANAGEMENT INC	APO	1-5-2020
14593	APPLE INC	AAPL	29-10-2020
13887	ARMADA HOFFLER PROPERTIES INC	AHH	30-7-2020
13802	ARTISAN PARTNERS ASSET MGMT INC	APAM	28-4-2020
15537	ASTRONOVA INC	ALOT	12-05-2020
14951	B G STAFFING INC	BGSF	5-5-2020
29890	B P PLC	BP	1-4-2020
18222	BAIN CAPITAL SPECIALTY FIN INC	BCSF	4-5-2020
17137	BASSETT FURNITURE INDUSTRIES INC	BSET	15-7-2020
15340	BLACK STONE MINERALS LP	BSM	22-4-2020
18515	BRIGHAM MINERALS INC	MNRL	6-8-2020
14985	BRIGHTSPHERE INVESTMENT GRP INC	BSIG	28-4-2020
92550	BROOKFIELD INFRASTRUC PARTNER LP	BIP	7-5-2020
92326	C V R ENERGY	CVI	6-5-2020
91895	CAPITAL PRODUCT PARTNERS L P	CPLP	31-7-2020
11267	CATO CORP NEW	CATO	06-04-2020
21792	CENTERPOINT ENERGY INC	CNP	24-4-2020
30509	CHICAGO RIVET & MACH CO	CVR	4-8-2020
14686	COLONY CAPITAL INC	CLNY	20-03-2020
82656	CORE LABORATORIES NV	CLB	28-4-2020
17789	COREPOINT LODGING INC	CPLG	09-04-2020
76515	COVANTA HOLDING CORP	CVA	14-5-2020
27618	CRAWFORD & CO	CRD	15-5-2020
90943	D H T HOLDINGS INC	DHT	2-11-2020
64936	DOMINION ENERGY INC	D	4-11-2020
89695	DORCHESTER MINERALS LP	DMLP	23-7-2020
84207	ELBIT SYSTEMS LTD	ESLT	27-5-2020
16660	EMERALD HOLDING INC	EEX	20-03-2020
14564	ENABLE MIDSTREAM PARTNERS LP	ENBL	5-5-2020
88485	ENTRAVISION COMMUNICATIONS CORP	EVC	5-5-2020
89016	EQUINOR A S A	EQNR	23-7-2020
18150	EQUITRANS MIDSTREAM CORP	ETRN	27-4-2020
83411	EVOLUTION PETROLEUM CORP	EPM	5-5-2020
14279	EXTENDED STAY AMERICA INC	STAY	6-5-2020
16905	FALCON MINERALS CORP	FLMN	7-5-2020
92301	FANHUA INC	FANH	27-5-2020

12885	FIDUS INVESTMENT CORP	FDUS	29-4-2020
36768	FLEXSTEEL INDUSTRIES INC	FLXS	29-5-2020
15456	FOOT LOCKER INC	FL	20-8-2020
85449	FRESH DEL MONTE PRODUCE INC	FDP	28-4-2020
14252	GAMING & LEISURE PROPERTIES INC	GLPI	29-4-2020
13319	GASLOG LTD	GLOG	6-5-2020
15597	GENCO SHIPPING & TRADING LTD	GNK	5-5-2020
80774	GEO GROUP INC NEW	GEO	6-10-2020
14493	GEOPARK LTD	GPRK	4-11-2020
75064	GLAXOSMITHKLINE PLC	GSK	29-4-2020
15455	GLOBAL NET LEASE INC	GNL	1-4-2020
17672	GRAFTECH INTERNATIONAL LTD NEW	EAF	5-5-2020
15427	GREEN PLAINS PARTNERS LP	GPP	16-4-2020
83264	GREIF INC	GEF	8-12-2020
23819	HALLIBURTON COMPANY	HAL	19-5-2020
70033	HARLEY DAVIDSON INC	HOG	28-4-2020
41217	HAVERTY FURNITURE COS INC	HVT	19-5-2020
32707	HELMERICH & PAYNE INC	HP	12-5-2020
14338	HILTON WORLDWIDE HOLDINGS INC	HLT	05-03-2020
14919	I C L GROUP LTD	ICL	11-11-2020
44768	INTERFACE INC	TILE	19-5-2020
14450	INVESTCORP CREDIT MGMT B D C INC	ICMB	7-5-2020
84780	KNOLL INC	KNL	27-4-2020
18578	KONTOOR BRANDS INC	KTB	27-10-2020
12788	KOSMOS ENERGY LTD DE	KOS	11-05-2020
48347	LA Z BOY INC	LZB	18-8-2020
14489	LADDER CAPITAL CORP	LADR	28-5-2020
83879	LAMAR ADVERTISING CO NEW	LAMR	28-5-2020
93101	LEAR CORP	LEA	18-11-2020
11891	M G M RESORTS INTERNATIONAL	MGM	30-4-2020
86887	MANHATTAN BRIDGE CAPITAL INC	LOAN	6-5-2020
15069	MARATHON OIL CORP	MRO	1-10-2020
51530	MARINE PETROLEUM TRUST	MARPS	21-8-2020
88895	MARINE PRODUCTS CORP	MPX	29-4-2020
13085	MARRIOTT VACATIONS WORLDWIDE COR	VAC	06-05-2020
89570	MARTIN MIDSTREAM PARTNERS LP	MMLP	27-7-2020
52090	MCCORMICK & CO INC	MKC	20-11-2020
75578	MERCER INTERNATIONAL INC	MERC	30-4-2020
27975	MESABI TRUST	MSB	13-7-2020
77735	METHANEX CORP	MEOH	29-4-2020
54114	MILLER HERMAN INC	MLHR	15-9-2020
14075	MIX TELEMATICS LTD	MIXT	5-6-2020
13650	MONROE CAPITAL CORP	MRCC	8-5-2020
28345	MURPHY OIL CORP	MUR	24-4-2020
91822	NATIONAL CINEMEDIA INC	NCMI	5-5-2020

92426	NAVIOS MARITIME PARTNERS L P	NMM	29-7-2020
88362	NETEASE INC	NTES	20-11-2020
17126	NEWMARK GROUP INC	NMRK	6-5-2020
58836	NEWTEK BUSINESS SERVICES CORP	NEWT	10-11-2020
24205	NEXTERA ENERGY INC	NEE	16-10-2020
16333	NOBLE MIDSTREAM PARTNERS LP	NBLX	27-4-2020
85346	NORDIC AMERICAN TANKERS LTD	NAT	16-11-2020
63706	NORTH EUROPEAN OIL RTY TR	NRT	30-10-2020
13698	O F S CAPITAL CORP	OFS	4-5-2020
14050	OAKTREE STRATEGIC INCOME CORP	OCSI	7-5-2020
34833	OCCIDENTAL PETROLEUM CORP	OXY	3-6-2020
77037	OLD DOMINION FREIGHT LINE INC	ODFL	21-5-2020
14786	ORION ENGINEERED CARBONS SA	OEC	07-05-2020
15048	PARAMOUNT GROUP INC	PGRE	15-12-2020
16499	PARK HOTELS & RESORTS INC	PK	11-05-2020
79857	PATTERSON U T I ENERGY INC	PTEN	22-4-2020
16768	PLYMOUTH INDUSTRIAL REIT INC	PLYM	11-6-2020
85710	POWER INTEGRATIONS INC	POWI	30-7-2020
11043	PSYCHEMEDICS CORP	PMD	13-05-2020
13941	QIWI PLC	QIWI	22-5-2020
12009	QUAD GRAPHICS INC	QUAD	02-04-2020
17830	RAYTHEON TECHNOLOGIES CORP	RTX	27-4-2020
82518	RCI HOSPITALITY HOLDINGS INC	RICK	8-6-2020
13787	READY CAPITAL CORP	RC	15-6-2020
36003	ROLLINS INC	ROL	28-4-2020
90793	ROYAL DUTCH SHELL PLC	RDS	30-4-2020
14608	SABRE CORP	SABR	08-05-2020
91858	SARATOGA INVESTMENT CORP	SAR	7-7-2020
14277	SCHLUMBERGER LTD	SLB	16-4-2020
14520	SIXTH ST SPECIALTY LENDING INC	TSLX	19-2-2020
10421	SKYWEST INC	SKYW	24-04-2020
79663	SOCIEDAD QUIMICA & MINERA CHL SA	SQM	22-5-2020
82800	SOUTHERN COPPER CORP	SCCO	23-4-2020
81132	STMICROELECTRONICS NV	STM	3-6-2020
16813	T P G RE FINANCE TRUST INC	TRTX	16-6-2020
12476	TARGA RESOURCES CORP	TRGP	16-4-2020
16780	TCG BDC INC	CGBD	3-8-2020
14778	TOWNSQUARE MEDIA INC	TSQ	15-06-2020
16936	TREMONT MORTGAGE TRUST	TRMT	31-3-2020
14522	TRIPLEPOINT VENTURE GR BDC CORP	TPVG	21-12-2020
13003	VEREIT INC	VER	18-5-2020
15139	VIPER ENERGY PARTNERS LP	VNOM	5-5-2020
19828	WENDYS CO	WEN	6-5-2020
21186	WESTROCK CO	WRK	5-5-2020
39917	WEYERHAEUSER CO	WY	29-10-2020

13714	WHITEHORSE FINANCE INC	WHF	9-10-2020
79491	WINMARK CORP	WINA	29-4-2020
84403	WOODWARD INC	WWD	29-4-2020
17794	WYNDHAM HOTELS & RESORTS INC	WH	12-5-2020
15216	XENIA HOTELS & RESORTS INC	XHR	31-03-2020
92517	XINYUAN REAL ESTATE CO LTD	XIN	5-6-2020
89922	XPERI HOLDING CORP	XPER	29-7-2020