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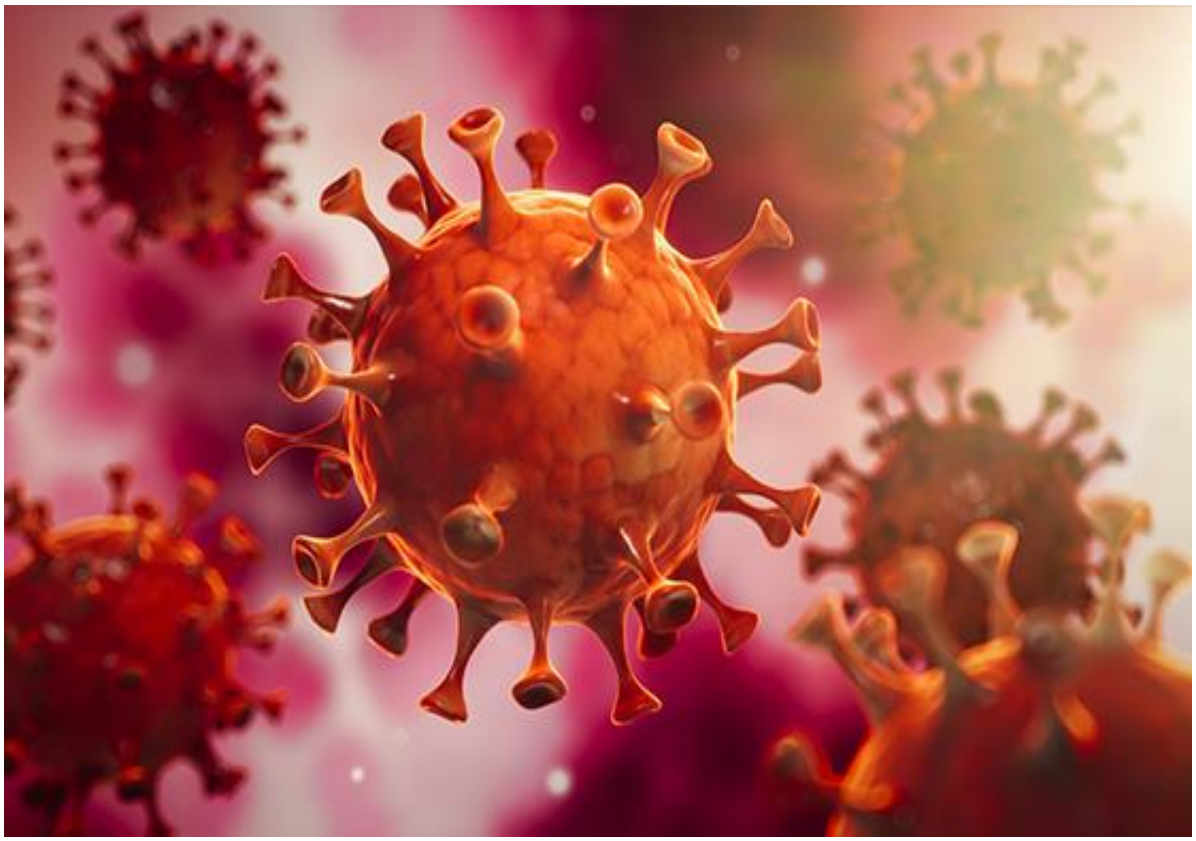
The effects of dividend suspension announcements and dividend cut announcements on stock prices during Covid-19



Master Thesis
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Master Thesis

A research on the effects of dividend suspension announcements and dividend cut announcements on stock prices during Covid-19

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Foreword

Before you lies the research paper “The effects of dividend suspension announcements and dividend cut announcements on stock prices during Covid-19”. This research paper has been written to fulfill the master's requirements of the Accounting and Finance program at the Erasmus School of Economics. I have been engaged in researching and writing this master thesis from January to July 2021.

My research question was developed in collaboration with my supervisors, Professor Cao, and Professor Michael Erkens. The study was challenging, but thorough research enabled me to answer the question that I selected. I would like to express my gratitude to my supervisors, Michael Erkens during the Corporate governance seminar in which I started working on the research proposal and Ms. Cao, during the Master Thesis period, for both their guidance and assistance during this process.

I would like to personally thank Jan Adriaan van Eijk for his indirect positive influence in the writing process of the thesis. My parents deserve a proper thank you as well: for providing during my time as a student. I hope you have a good time reading.

Wessel Schut

Zoetermeer, July 1, 2021

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Abstract

This study investigates whether dividend cuts or dividend suspensions for S&P 500 firms have different impacts based on different periods, Covid-19, and pre-Covid-19, respectively. I exploit an exogenous shock, Covid-19, to indicate if the abnormal return response is different after the introduction of Covid-19 in 2020. My empirical identification takes advantage of three different time windows around the dividend declaration date in which abnormal returns are measured per firm for the S&P 500 firms. The literature on dividend states that investors could anticipate to dividend news according to the signaling theory, the bird in hand theory, and the catering theory. According to the dividend irrelevance theory and the residual theory investors should not react to dividends. My research results state that there is no stock market reaction in the pre-Covid-19 period and the Covid-19 period, in favor of Modigliani-Miller's dividend irrelevance theory and the residual theory. The results indicate that there is no significant positive response to dividend cuts or dividend suspensions during Covid-19 compared to pre-Covid-19. My findings have implications for publicly listed firms paying dividends, corporate finance, and stock market investors.

Keywords: S&P 500 firms, Covid-19 period, pre-Covid-19 period, Dividend cuts, Stock market reaction, Abnormal returns

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1. Introduction

The research question that I try to answer is “What are the effects of dividend cuts and dividend suspension announcements on stock prices during Covid-19?” This research question is answered by first examining the individual sample periods, Covid-19, and pre-Covid-19, and then looking at the differences between the results of these samples.

Firms from the S&P 500 are used in the research. The CRSP database is used since this database has a unique variable called declaration date that I need to implement in the sampling process. Dividend cuts are based on the dividend amount per share at the dividend announcement date. For the pre-Covid 19 sample and the Covid-19 sample, I will perform an ordinary least squares (OLS) regression. This regression estimates the relation between my independent variables and my dependent variable, dividend cut and abnormal return respectively, in both sample periods. For the main research question regarding the effects of dividend suspension announcements and dividend cut announcements, I will perform chow tests for all three subgroups per sample. This test allows me to test whether the true coefficients in two linear regressions in different sample periods are equal.

There is not a lot of financial research done around Covid-19 yet since it is a very new research subject and data is just getting available for researchers. Covid-19 had a major impact on firms since most physical stores had to be closed, worldwide traffic was put on hold and most people with non-physical jobs started working from home. These Covid-19 effects can be noticed in the stock market response on the different indexes. The difference with this research in comparison to other research is the fact that this research looks after the stock market response during Covid-19 and before Covid-19. What is going to be looked at is if this market response is significantly different during the non-Covid-19 periods in comparison to the Covid-19 period with the usage of Covid-19 as an exogenous shock. One could assume that the response during Covid-19 is different from other periods. It might be different, for instance, because it is a worldwide pandemic. Stakeholders would have a better understanding of the question why there is a no-dividend payout, or a large dividend cut during Covid-19 than when there is no Covid-19. With non-Covid-19 dividend payment stops or cuts at companies, one would assume there need to be specific insights of the company and needs more detailed information shareholders or potential shareholders might lack. Other

reasons for non-dividend payout might be due to government intervention, as in the case of AF-KLM. In most of the countries it became a trend for exchange-listed firms during Covid-19 to not payout dividends. Shareholders might indicate that since there is a trend among exchange-listed firms, there is bigger reasoning behind the dividend payment stop or cut in contrast to pre-Covid periods, in which individual firms tend to stop paying out dividends.

The research results indicates that during Covid-19, there is no negative stock market reaction to no-dividend announcements or dividend cut announcements found. The results for the pre-Covid-19 period are that there is no significant evidence found that there is a negative stock market reaction to no-dividend announcements or dividend cut announcements before the Covid-19 pandemic. The results of the first two pairs of hypotheses support the dividend irrelevance theory and the dividend irrelevance theory. The results align with Miller's dividend irrelevance theory and the research results of Chen (2020). The regression results and the performed chow tests concluded that there is no negative stock market reaction during the Covid-19 pandemic compared to the pre-Covid-19 period.

The results have important implications for different parties. The abnormal return is not different based on the time spans that are considered when there is a dividend cut or dividend suspension announcement. Shareholders can make better-informed investment decisions due to the research I have conducted. The board of directors of firms could use this information to note that reducing the dividend payout, does not lead to a significantly negative or positive abnormal market reaction. This might be positive news for firms that have lower liquidity temporary and want to suspend or majorly cut dividends for a brief time. This could lead to them making better strategic dividend payout decisions and might lead to more stability in the firm.

2. Theoretical framework

In this section of the research paper, I will be looking at the theoretical background and the literature review. I start by addressing the theoretical background and then state prior literature that is conducted and relevant for this research.

2.1 Dividend theory

The board of directors is highly involved in the dividend policy. A company's board of directors and executives must decide whether to pay a cash dividend and, if so, in what amount before it has been declared and paid to shareholders. One can state that dividend policies of the board are part of corporate governance, since this is part of the set of rules, policies, and procedures that guide and manage a business. The board of directors of a firm has the most influence over corporate governance. The board of directors must agree on the amount of money to be paid to shareholders. In my case it made the announcement to suddenly stop paying dividends or cut dividends in comparison to previous periods where it did payout dividends. In the paragraphs below different theoretical perspectives on dividend payouts are further examined.

The dividend signaling theory states that changes in dividend policies transmit news about changes in potential cash flows, according to Ouederni and Dionne (2011, p. 188). It is also stated that dividend signaling indicates a connection between information asymmetry and dividend policy. The higher the asymmetric knowledge level, the more sensitive the dividend is to the firm's prospects. The residual theory states an opposite view of the dividend signaling theory. According to this hypothesis, investors are unconcerned with the type of return they earn from a stock, whether it is dividend or capital gains. Smith (2011) states that under a residual dividend policy, managers can plan the dividend payout only to the extent that they can sufficiently forecast cash flows and investment opportunities.

Another theory on dividend is called the bird in hand theory. This theory should not be overlooked according to Chaudry, Iqbal, and Butt (2015, p. 16). It is based on the idea that dividends are highly valued by investors, also known as the dividend relevance principle. This theory states that investors value stock dividend more than simply capital gains on stock since these are more uncertain. The Modigliani-Miller theory does not agree with this view

and believes the opposite, the so-called dividend irrelevance principle. It is stated by Chen (2020) that according to the dividend irrelevance principle only earnings should be important for the impact of the valuation of an organization and investor. The investment decision is based on the investment policy of the firm and not on dividend policy. Because of this, the dividend payout will have no impact. Black & Scholes (1974) find evidence for this theory in a study on dividend policy and firm valuation. The dividend substitution theory proposes that governance quality should be used to replace dividend payments in the same manner that better-governed businesses have lower market costs, due to the separation of ownership and control. This theory supports the importance of the principal-agency theory. The principle-agency theory assumes according to Bijvank (2021) that the contractor has its own desires, such as a need for a higher wage, more status, or a sense of worth. The second assumption is the asymmetry of facts. The client is unable to adequately determine the contractor's actions and priorities because the client lacks sufficient information.

There is another theory that is more dynamic than the other dividend theories previously stated. This model is proposed by Baker and Wurgler (2004), the so-called catering theory. The catering theory assumes that dividends are very important to share value, but in various ways. In addition, managers seem to cater to market preference changes for dividend payers. This theory contends that market appetite for dividend-paying stocks fluctuates over time, allowing the relative values of dividend and non-dividend-paying stocks to fluctuate. As a result, managers respond to investor desire for dividends by paying dividends while dividend-paying stocks command a premium.

2.2 Micro level Crisis

This paragraph investigates the aspects of the stock market price reactions upon announcements of ‘bad’ news, no-dividend payouts, or dividend cuts on a firm level basis. The reason that this is a relevant aspect, is that shareholders invest a lot of money in companies, and they expect a certain return for this investment. It is relevant for them to know why a certain firm stock increases or decreases in price since their investment in shares will increase or decrease with it. Lonie et al. (1996) investigate if the reaction to a dividend declaration is determined by whether the dividend is raised, decreased, or remains unchanged. US studies indicate that this is still the case, and they agree the dividend's position is a warning to buyers. Some of these US studies focus specifically on banks. Bessler

and Nohel (2000) indicate that stock prices respond to dividend information. Lonie et al. (1996, p. 396) state that businesses that received good news had large positive abnormal returns, while companies that provided bad news had the highest negative abnormal returns of all the classes surveyed. The research results of Filbeck and Mullineaux (1993, p. 414) are in line with these previous results. Filbeck and Mullineaux investigate abnormal returns due to unexpected dividend announcements. Their most important observation is that statistically meaningful findings are obtained for dividend increases of 10% or less and dividend increases of 10% to 20%. These results are in line with the dividend relevance theory and the dividend signaling theory. The evidence of researchers Ghosh and Woolridge (1989, p. 33) aligns with the paper of Filbeck and Mullineaux (1993). Their results add on to the literature that shows shareholders incur substantial capital losses when dividend cuts are announced, regardless of the motivation. The evidence on the effect is insufficient to outweigh the loss associated with dividend cuts. The interaction tests of Lonie et al. (1996, p. 396) produced significant results, demonstrating that the signaling theory influenced the sum of abnormal returns obtained by the firms in the samples.

These significant results are consistent with those of previous studies conducted in the United States by Kane (1983) and Easton (1985). However, contrary to the results of the other two studies, these findings show that the magnitude and sign of the earnings signal remain important. These findings were also noted by Ball and Brown (1968) in their seminal paper on the impact of accounting numbers on stock market returns. The major differences with the previous stated papers in this paragraph, the previous paragraph, and my research is mainly caused by the fact that this paper does not only look at dividend changes but also at the difference between bad news in crisis, which is real systematic bad news, and in non-crisis periods. The differences of the explanatory power of dividend cuts are tested between two sample periods while their research does not examine this aspect of research. Evidence on this aspect will create a new dimension on dividend theory. The research papers line up with the bird in hand theory and the dividend signaling theory. The findings support the notion that shareholders overreact to dividend cuts.

Tee and Tessema (2018) dig further into the signaling principle, which contends that dividends communicate information about a company's future income. They discover a favorable (negative) market response to dividend increases and initiations in 2019 and that the magnitude of dividend raises, or declines had no bearing on future earnings. These

findings suggest that cash dividend notifications provide information to the consumer. They find that firms with no improvement in dividend distributions, do not produce a substantial abnormal return. Research results of Jensen (2010, p. 736) and researcher Jagannathan (1999) who both examine dividend signaling theory, suggest that changes in dividend payouts provide a reliable signal of the permanent earning potential or quality or the value of the firms' growth options. A research paper by Charitou, Lambertides and Theodoulou (2006) places a sidenote on this view and also adds that the market response might be different and more negative for firms with long patterns of past earnings and dividend payouts than the market reaction to firms with less-established past earnings and dividend payout history. These results cannot clearly state if it aligns with the bird in hand theory or the dividend irrelevance theory since the effect of the earnings and dividend are not laid out but are in accordance with the dividend signaling theory. Dasilas and Leventis' (2010) research results are in alignment with prior results (Tee and Tessema 2018; Charitou, Lambertides and Theodoulou 2006). Dasilas and Leventis' (2010) research is primarily concerned with investigating both share-price and trading-volume activity in an institutional context. They add to the literature on signaling theory that there is a statistically significant price response on the day of the dividend announcement. They see evidence for the dividend signaling theory, which is consistent with the tone of prior literature. As a result, dividend raises result in a substantial positive stock price reaction, while dividend cuts result in a significant negative stock price reaction. Constant dividends have little impact on stock markets. They also provide evidence that the sector efficiently absorbs dividend news. The research did not cover very systematic bad news and bad news in non-crisis periods. In my research there will be an exogenous shock that can really alter the statistical outcomes.

Evidence regarding catering theory shows that dividends are very important in terms of share prices, but in various ways and at different times. In addition, administrators seem to acknowledge and cater for changes in dividend payer demand. Grinstein and Michaely (2005) state that their model shows that the dividend catering theory and its predictions pertain to dividend decreases and increases as well. Researchers Baker and Wurgler (2004) pronounce that the shortcomings of the catering theory are that the stock return upon dividend initiation announcements increases with the dividend premium. If investors clamor for dividends, they should respond more favorably to news of dividend initiations. There is no statistical evidence found for this. Li and Lie (2005) find statistical evidence for this and add to the

literature that firms are more likely to boost dividends, the dividend increases are bigger, when the dividend premium is strong. Grinstein and Michaely (2005) find that both the probability of dividend decreases and increases, and the magnitude of the dividend changes are related to the dividend premium as predicted by the model. Ferris, Jayaraman, and Sabherwal (2009) discover that companies in common law countries respond more to their investors' desire for dividends than those in civil law countries. Other studies, on the other hand, find no evidence to back up the catering hypothesis. Denis and Osobov (2004), for example, use global data to analyze dividend policy and offer evidence that contradicts the catering hypothesis. After balancing for uncertainties, Hoberg and Prabhala (2009) find no support for the catering theory, as the dividend premium has no power to justify vanishing dividends.

2.3 Macro level crisis

Furthermore, my research is built on the Covid-19 exogenous shock that occurred after introduction of the virus in the world. It is important for my research to seek what the core effects of crisis on stock performance are and what the impact has been on equity market related markets. The following papers focus on the importance of the effects of crises on stock on the equity markets. I expect that crises will tend to crash stock prices making the stock market less reliable and riskier, therefore making market response in periods of crises different compared to periods out of crises.

Pettenuzzo (2020) examines the effect of the Covid-19 pandemic on firm decisions to suspend dividends. His estimates suggest that dividend suspensions have a significant effect on anticipated potential dividend increases and have helped forecast the dramatic decreases in wider economic activity indicators. Firms with heavy debt and poor profitability were more likely to have deferred dividends during the pandemic. Firms that cut but did not suspend dividends saw large positive abnormal returns. Case, Hardin, and Wu (2012) agree with the results of Petenuzzo (2020) and add on this literature that real estate investment funds with higher market leverage or lower market to book ratios are more likely to reduce dividends, postpone dividends, or pay stock dividends. These findings suggest that minimizing going concern risk is a significant motivation for real estate investment funds changing dividend policies during the recession. An add on regarding the going concern risk is stated by Kongsilp and Mateus (2016). They conducted research on uncertainty risk and stock return

predictability across global financial crises. Their results affirm the effect of abnormal volatility on the predictability of equity returns. They find evidence that volatility may be a stock return indicator with a lower impact and meaning than implied abnormal volatility as a whole. Pettenuzzo (2020) indicates that investors value dividends and these results are in alignment with the bird in hand theory and the dividend signaling theory.

Bae, Chang, and Kang's (2010) research findings indicate that in elevated and very masculine cultures, robust investor protection leads to bigger dividend distributions. Adjaoud and Ben-Amar's (2010) results are in alignment with that of Bae, Chang, and Kang (2010). Their focus lays upon the agency problem and how the agency problem affects the dividend payout. Abreu and Gulamhussen (2013) agree with Bae, Chang, and Kang (2010). According to them, dividend payouts before and after the financial crisis are explained by the agency cost hypothesis. Zhang (2018) investigates the stock-price volatility and linkages among three countries, as well as stock price volatility. Their findings show that stock price volatility in China was higher in the early 1990s, shortly after the stock exchange was created, than it was in 2007, when the global financial crisis occurred. During the financial crisis, dividend payouts are explained by the signaling theory. The investigation of Forti and Schiozer (2015) revealed that banking dividends are positively linked to the dependence of institutional investors on deposits during normal times and that this association is increasingly strong during the crisis. In fact, banks with a high degree of institutional depositor support before the crisis raise payouts while other banks reduce payouts. The major difference with my paper and these papers is that these papers focus on the financial crisis, I will focus on the Covid-19 crisis and dividend news in comparison to the financial crisis.

2.4 Hypothesis development

In this section I will be looking upon the hypothesis. This research aims to test whether there are differences in stock price changes during Covid-19 and stock price changes before Covid-19, based on announcements of no-dividend payout or dividend cuts. Hypothesis (H-A0) is based upon the fact that there is no stock market reaction to no-dividends payouts announcements or dividend cut announcements and stock price changes during Covid-19. This means that that the response is not statistically significant. Hypothesis (H-A1) states that there is a negative stock market reaction to no-dividends payout announcements or dividend cut announcements and stock price drops of these firms in Covid-19. In this case there is a

statistically significant result that is considered negatively. The first two hypotheses will be looking towards firms during the Covid-19 period.

H-A0: There is no stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic.

H-A1: There is a negative stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic.

Hypothesis (H-B0) is based on the fact that there is no significant negative stock market reaction to no-dividends payouts announcements or dividend cut announcements in the period before Covid-19. This means that the response is not statistically significant. Hypothesis (H-B1) is based on the fact that there is a negative stock market reaction to no-dividends payout announcements or dividend cut announcements in the period before Covid-19. In this case there is a statistically significant result. The next two hypotheses I will be looking towards are about the firms between 2015-2019, before the outbreak of Covid-19 in the world pandemic:

H-B0: There is no stock market reaction to no-dividend announcements or dividend cut announcements before the Covid-19 pandemic.

H-B1: There is a negative stock market reaction to no-dividend announcements or dividend cut announcements before the Covid-19 pandemic.

Hypothesis (H-C0) is based upon that there is no positive stock market reaction during the Covid-19 pandemic compared to the pre-Covid-19 period. This means that the response is not statistically significant. Hypothesis (H-C1) suggests that there is a positive stock market reaction during the Covid-19 pandemic compared to the pre-Covid-19 period. In this case there is a statistically significant result. I expect a more positive market response during Covid-19 compared to before Covid-19, based on the understandability of the Covid-19 concern, the trend among firms to not payout dividends suggest a higher reasoning and collective incentives. The no-dividend payouts before Covid-19 might suggest the critical situation of companies before Covid-19. The last two hypotheses, are as follows:

H-C0: The stock market reaction is not less negative during the Covid-19 pandemic compared to the pre-Covid-19 period.

H-C1: The stock market reaction is less negative during the Covid-19 pandemic compared to the pre-Covid-19 period.

3. Methodology

In this chapter, I will be looking into how I plan to investigate the research question. I will lay out all the proposed steps that are going to be taken in the research.

3.1 Sample selection data

Covid-19 period

In the first sample based upon exchanged listed firms I look up organizations that suddenly stopped paying dividends or cut dividends between the 15th of March till the 31st of December 2020. I will recall this sample as the treatment group. I identify firms in this sample using the CRSP database. Firms from the S&P 500 are used, and I will be looking if these companies are suspending dividends or cutting dividends based upon Covid-19 reasons. The CRSP database is used since this database has a unique variable called declaration date that I need to implement in the sampling process. I will also be looking upon other news regarding these companies that could indicate stock price changes in the time span of the observation that has been considered for the research. Dividend cuts are based on the dividend amount per share at the dividend announcement date. Additional control variables are allocated from the merged Compustat and CRSP database. The control variable board size is collected using the BoardEx database. Statistical outliers in the variables will be dealt with since these observations could affect the validity of the whole sample outcome. Winsorization is chosen for outliers at the 1% level. The Covid-19 Sample is shown on page 11 in **Table 1A**.

The results of this sample will answer the first pair of hypotheses and bring an answer to the question “Is there a negative stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic?”.

Pre Covid-19 period

For the second sample, I use CRSP for the sample based upon characteristics that are stated at the beginning of this chapter. I only use companies in my sample that suddenly stopped paying dividends or suddenly cut their dividends. In this sample based upon exchanged listed firms, I will look up organizations that suddenly stopped paying dividends or cut dividends between the 1st of January 2015 and the 31st of October 2019. I will also be looking up the

reasoning after the dividend suspension or dividend cut. It is important for the research to not look after the period of the 31st of October since Covid-19 appeared for the first time in the following months in the city of Wuhan, China. I will also be looking upon other news regarding these companies that could indicate stock price changes in the time span of the observation that has been considered for the research. Additional variables are collected from the merged Compustat and CRSP database, board size is collected from the BoardEx database.

Statistical outliers in the variables will be dealt with since these observations could affect the validity of the whole sample outcome. Winsorization is chosen for variable observations that are considered as outliers at the 1% level. The sample selection, distribution, and correlation matrix of sample 1 are shown in **Table 1B** on page 12. The results of this sample will answer the second pair of hypotheses and bring an answer to the question "Is there a negative stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic?".

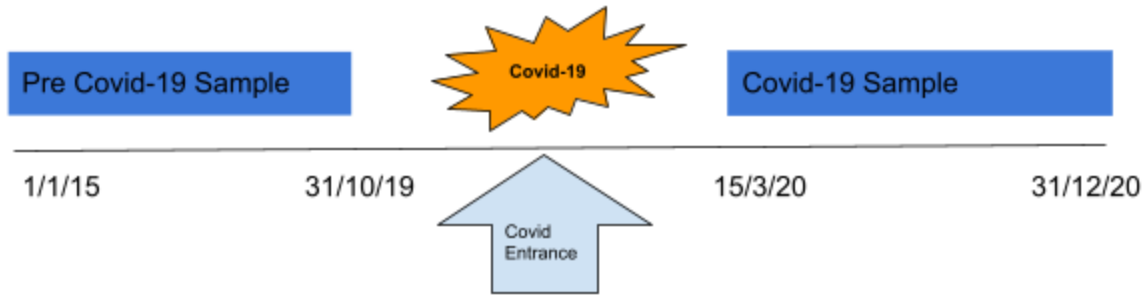

Figure 1 Covid-19 Entrance

The usage of this research design enables me to isolate the Covid-19 effect on stock price changes and move on to the last pair of hypotheses. I will look at the differences between the first pair of hypotheses and the second pair of hypotheses stated in the previous paragraphs to see if there are significant differences between these sample periods. The 'chow test' is particularly appropriate to look at significant changes during the pre-Covid-19 period and the Covid-19 sample period and allows me to reject the null hypothesis that the regression coefficients were similar before and after the Covid-19 entrance. This will indicate the answer to my research question "What are the effects of dividend suspension announcements and dividend cut announcements on stock prices during Covid-19?"

The sample selection and sample distribution are shown in **Table 1A** and **Table 1B**, Table 1A shows the sample distribution for the Covid-19 sample on this page. Table 1B shows the sample distribution for the pre-Covid-19 Sample on the following page. In the research the Abnormal return is looked upon in three different timeframes. First, the one-day window in which the declaration date and the corresponding abnormal return are examined. Secondly, the three-day window, one day prior to the declaration date until one day after the declaration date, in which the accumulated abnormal return over the three-day time span is taken and examined. Thirdly, the five-day window, two days prior to the declaration date until two days after the declaration date, in which the accumulated abnormal return over the five-day timespan is considered. Dividend cuts range from 0.01% dividend cut to 100% in both the samples.

Table 1A: Sample Selection and Sample Distribution Covid-19 Sample

Panel A: Sample selection procedure of the Covid Sample

	N	
Sampling procedure	*Cases*	*Firm-years*
Dataset containing the dividend cut data for the year 2020 with PERMCO and Div_cut from CRSP.	341	516
Less: Firms without the merged CRSP/Compustat data	(167)	(286)
Less: Firms without the BoardEx data on board size	(60)	(103)
Final Dividend cut sample for the research design	114	127

Panel B: Frequency of firm-years by dividend cut year (N=127)

Year	Frequency	Percent	Cumulative frequency
2020	127	100%	127

Panel A of this table reports the sample selection procedure. Panel B present the frequency distribution of dividend cuts for the Covid-19 sample, based on the period 2020.

Table 1B: Sample Selection and Sample Distribution pre-Covid 19

Panel A: Sample selection procedure of the Pre-Covid Sample

	N	
Sampling procedure	*Cases*	*Firm-years*
Dataset containing the whole dividend cut data in the period 2015-2019 with PERMCO and Div_Cut	1460	5463
Less: Firms without the merged CRSP/Compustat data	(539)	(2550)
Less: Firms without the BoardEx data on board size	(356)	(1600)
Final Div_Cut sample for the research design	565	1313

Panel B: Frequency of firm-years by dividend cut year (N=1313)

Year	Frequency	Percent	Cumulative frequency
2015	276	21.02%	276
2016	230	17.52%	506
2017	316	24.07%	822
2018	346	26.35%	1168
2019	145	11.04%	1313

Panel A of this table reports the sample selection procedure for the pre-Covid-19 sample. Panel B present the frequency distribution of dividend cuts for the pre-Covid-19 sample, based on the period 2015-2019.

3.2 Research design

I start the research design by calculating daily stock returns for the pre-Covid-19 period and the Covid-19 period using the market-adjusted return. The adjusted-market model is very popular and particularly appropriate for event studies. Corhey and Tourani (1996) use the adjusted market model and have a similar goal for their research as I have in my research paper. Another paper written by Newton da Costa on the overreaction in the Brazilian stock market uses the adjusted market returns in the research design for calculating the abnormal returns. Da Costa (1994) tries to capture the overreaction effects on stock by looking at the extreme volatility. The market-adjusted return is calculated as the daily share return minus the corresponding S&P 500 daily market return.

The individual share return per firm is first calculated in the research. I will use the CRSP database to get the individual share return, and the CRSP database to get the corresponding market return (Rmt). The daily share return (Rit) is calculated as the relative difference between the opening share price and the closing share price:

$$\boldsymbol{Rit} = \left(\frac{\boldsymbol{Closing\ share\ price - Opening\ share\ price}}{\boldsymbol{Opening\ share\ price}}\right)$$

After that, the abnormal return is calculated as follows:

$$\boldsymbol{ARit = Rit - Rmt}$$

In the market-adjusted return model, I will use abnormal returns as the dependent variable (Y), the observed return of the reference market on day t. Rmt is subtracted from the return Rit of the observation i on day t. The resulting measure is referred to as the abnormal return. In the research, the amount of dividend cut will be calculated for both sample periods as follows:

$$\boldsymbol{Dividend\ change}\ (\boldsymbol{in}\ \%) = \left(\frac{\boldsymbol{Dividend\ period\ t - Dividend\ period\ t-1}}{\boldsymbol{Dividend\ period\ t-1}}\right)$$

Period t is the dividend with the cut or suspension compared to a prior period. Period t-1 is the dividend in the period before the dividend cut or suspension announcement. This is the same for the Pre Covid-19 sample. Negative dividend changes are used in the sampling process and the regression models since this indicates the bad news announcement in comparison to previous dividend announcements. The dividend cut variable is the negative change in dividend multiplied by minus one, since dividend cuts of 50% are the same as a dividend change of -50%. Positive dividend changes and no dividend changes are excluded from the sampling process and regression models.

I will use several corporate governance control variables to make sure that the research results are reliable and can be interpreted as complete, accurate, and valid. Larcker (2015) states that fourteen corporate governance dimensions could be used for research. These are called: Active, Block, Affiliated, Insider Appointed, Compensation Mix, Meetings, Lead Director, Anti-Takeover I, Old Directors, Debt, Insider Power, Board Size, Anti-Takeover II and Busy Directors. The presented literature review also points towards board size, and market to book ratio as relevant control variables in my dividend policy setting. I will apply a large portion of these control variables in my research. These are firm size, leverage, return on assets, market to book ratio, and board size.

For the pre-Covid-19 sample and the Covid-19 sample, I will perform an ordinary least squares (OLS) regression. This regression estimates the correlation between my independent variables and my dependent variable, abnormal return in both sample periods. The corresponding regression line for both the pre-Covid-19 sample and for the Covid-19 sample in my research design is as follows:

Abnormal Return (Abn_Ret) = B0 + B1*(Div_Cut) + B2*(Firm_Size) +B3*(LEV) +B4*(ROA) +B5* (MTB) + B6*(Board_Size) + E

As stated before, the abnormal return will be looked upon on the declaration, the 1-day window referred to as Abn_Ret1, the 3-day window referred to as Abn_Ret3, and the 5-day window referred to as Abn_Ret5 in the ordinary least regressions. The time span for the 1-day window is the declaration date. The time span for the 3-day window is one day prior to one day after the declaration date, and the time span for the 5-day window is two days prior to two days after the dividend declaration date. The control variables will be merged with the abnormal return data and the dividend cut data on fiscal year basis. For all the definitions of the proxies used in both sample periods, pre-Covid-19, and Covid-19, I refer to **Appendix A.** The standard errors in the OLS regressions are clustered on a firm level basis for all the observations of the samples.

For the third hypothesis regarding the effects of dividend suspension announcements and dividend cut announcements, I will perform chow tests for the three abnormal return time spans per sample as stated before. This test allows to test whether the true coefficients in two linear regressions on the different samples are equal. I will use this method in a time series analysis to test for the presence of a Covid-19 break. Abreu and Gulamhussen (2013) research dividend payouts in the banking industry and use the chow test to look for a certain time break in a time-series approach to my research. The OLS regressions results, and the chow tests will bring an answer to the research question of most interest “What are the effects of dividend suspension announcements and dividend cut announcements on stock prices during Covid-19?”

3.3 Descriptive Statistics

Table 2A and **Table 2B** on pages 16 and 17 show the descriptive statistics for the samples. My Covid-19 sample consists of 127 firm year observations. The pre-Covid-19 sample on page 17 consists of 1313 firm year observations. For information regarding the variables including the control variables I refer to **table 2A** and **table 2B**. Panel B in these tables show the correlations between different variables.

TABLE 2A: Descriptive Statistics and Correlation Matrix Covid-19 sample

Panel A: Descriptive Statistics

Variables	N	Mean	SD.	p25	Median	p75
Abn_Ret1	*127*	*-0.004*	*0.029*	*-0.021*	*-0.006*	*0.012*
Abn_Ret3	*127*	*-0.008*	*0.048*	*-0.035*	*-0.002*	*0.015*
Abn_Ret5	*127*	*-0.012*	*0.059*	*-0.048*	*-0.009*	*0.028*
Div_Cut	*127*	*0.543*	*0.315*	*0.3*	*0.500*	*0.8*
Firm_Size	*127*	*3.493*	*0.979*	*2.967*	*3.432*	*3.946*
LEV	*127*	*0.876*	*1.109*	*0.009*	*0.571*	*1.361*
ROA	*127*	*0.062*	*0.079*	*0.000*	*0.061*	*0.095*
MTB	*127*	*1.552*	*1.206*	*0.790*	*1.162*	*2.000*
Board_Size	*127*	*8.260*	*2.505*	*7*	*8*	*10*

Panel B: Correlations

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
(1) Abn_Ret1								
(2) Abn_Ret3	***0.44***							
(3) Abn_Ret5	***0.33***	***0.73***						
(4) Div_Cut	*0.01*	*0.06*	*0.04*					
(5) Firm_Size	*-0.03*	*0.08*	*0.13*	*0.04*				
(6) LEV	*0.08*	*0.03*	*0.03*	*-0.15*	***0.24***			
(7) ROA	*0.10*	*0.17*	*0.12*	*0.19*	*-0.21*	*-0.12*		
(8) MTB	*0.13*	*0.12*	*0.06*	***0.29***	*-0.10*	*0.06*	***0.45***	
(9) Board_Size	*0.04*	*0.02*	*0.00*	*0.10*	***0.50***	*-0.09*	*-0.05*	*0.05*

Table 2A Panel A reports descriptive statistics for all test variables and Panel B presents Pearson, Kendall, and Spearman correlations between the key variables. Detailed variable definitions are stated in Appendix A. Bolded correlations are significant at the 0.01 level.

TABLE 2B: Descriptive Statistics and Correlation Matrix pre-Covid sample

Panel A: Descriptive Statistics

Variables	N	Mean	SD.	p25	Median	p75
Abn_Ret1	*1,313*	*-0.002*	*0.020*	*-0.013*	*-0.002*	*0.009*
Abn_Ret3	*1,313*	*-0.006*	*0.037*	*-0.026*	*-0.006*	*0.015*
Abn_Ret5	*1,313*	*-0.009*	*0.048*	*-0.035*	*-0.008*	*0.018*
Div_Cut	*1,313*	*0.444*	*0.341*	*0.091*	*0.442*	*0.750*
Firm_Size	*1,313*	*3.581*	*0.979*	*3.007*	*3.565*	*4.138*
LEV	*1,313*	*0.597*	*0.818*	*0.000*	*0.409*	*0.939*
ROA	*1,313*	*0.087*	*0.092*	*0.020*	*0.071*	*0.134*
MTB	*1,313*	*1.742*	*1.497*	*0.847*	*1.441*	*2.400*
Board Size	*1,313*	*8.903*	*2.876*	*7*	*9*	*11*

Panel B: Correlations

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
(1) Abn_Ret1								
(2) Abn_Ret3	***0.594***							
(3) Abn_Ret5	***0.488***	***0.821***						
(4) Div_Cut	*-0.001*	*0.018*	*0.001*					
(5) Firm_Size	***0.089***	***0.136***	***0.161***	***-0.256***				
(6) LEV	*0.021*	*0.044*	*0.059*	***-0.135***	***0.227***			
(7) ROA	*0.044*	*0.027*	*0.022*	***0.094***	***-0.342***	***-0.137***		
(8) MTB	*0.043*	*0.053*	*0.066*	*0.067*	***-0.152***	***0.293***	***0.402***	
(9) Board_Size	*0.014*	*0.024*	*0.051*	***-0.095***	***0.559***	*0.061*	***-0.166***	***0.085***

Table 2B Panel A reports descriptive statistics for all test variables and Panel B presents Pearson, Kendall, and Spearman correlations between the key variables. Detailed variable definitions are stated in Appendix A. Bolded correlations are significant at the 0.01 level.

4. Results

4.1 Evidence during the Covid-19 Crisis

In this paragraph, I investigate more thoroughly whether firms with higher dividend cuts are related to more negative abnormal returns in the Covid-19 sample, shown in **table 3**. Column 1 considers the 1-day abnormal return window, column 2 is the 3-day abnormal return window, and column 3 consists of dividend cuts in the 5-day abnormal return window.

There is a dividend cut reaction of -0.001% among firms at the 1-day abnormal return window, indicating that there is no significant abnormal return response at the dividend declaration date. The 3-day abnormal return window results of column 2 suggest there is a dividend cut reaction of 0.003% among firms at the 3-day abnormal return window, being insignificant. This abnormal return result is the accumulative abnormal returns one day prior to one day after the dividend declaration date. The 5-day abnormal return window results of column 3 suggest there is a coefficient of 0.001% among firms at the 5-day abnormal return window. The results of column 3 are similar to the results of column 1 and column 2 and are not significant. The slightly positive coefficients indicate that higher dividend cuts are related to slightly less negative abnormal returns. It seems that the different time windows for the abnormal return have no effects on the abnormal returns in all three columns. The results of columns 1, 2, and 3 are a bit in line with the expectations and might be caused by a broad understanding among shareholders about Covid-19. They would have a proper understanding of the trend among exchange-listed firms to cut or suspend dividends, and why there is a no-dividend payout or dividend cut during the Covid-19 pandemic.

Firm size seems to be positively and significantly related to abnormal returns at the 10% level in column 3, meaning firms with higher values of total assets are related to less negative abnormal returns. The fact that the abnormal return response is insignificant and slightly positive for column 2 and 3 and slightly negative for column 1, does not allow to reject the residual theory and the dividend irrelevance theory. The dividend irrelevance theory states, according to Chen (2020), that only earnings should be important for the impact of the valuation of an organization and investor. The results are in line with the residual theory and findings of Smith (2011) since this theory states that investors are unconcerned with the type of return they earn from a stock, whether it is dividends or capital gains. It seems that

increases in the dividend cuts, at the dividend declaration time spans, do not result in significant negative results. The results of all three columns allow me to reject the dividend signaling hypothesis and bird in hand theory. For further research findings, I refer to **Table 3**.

To summarize, the findings in table 3 are not significant. The results in all three columns do not allow to reject the first null hypothesis, meaning there is no evidence found of a negative stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic.

Table 3. The impact of Dividend cuts on Abnormal Returns during Covid-19

Panel A: Regression

Dependent variable =	*Abn_Ret1*	*Abn_Ret3*	*Abn_Ret5*
	(1)	*(2)*	*(3)*
Div_cut	-0.001	0.003	0.001
	(0.01)	(0.01)	(0.02)
Firm_Size	-0.002	0.007	0.014*
	(0.00)	(0.00)	(0.01)
LEV	0.003	0.001	-0.001
	(0.00)	(0.00)	(0.00)
ROA	0.025	0.108	0.109
	(0.03)	(0.07)	(0.08)
MTB	0.002	0.002	0.001
	(0.00)	(0.00)	(0.00)
Board_Size	0.001	-0.001	-0.003
	(0.00)	(0.00)	(0.00)
Constant	-0.011	-0.038*	-0.045*
	(0.01)	(0.02)	(0.02)
S.E: Clustered	Firm Level	Firm Level	Firm Level
Observations	127	127	127
Adj. R-squared	-0.016	0.002	0.001

Table 3 presents the results from estimating the following OLS regression:
Abnormal Return (Abn_Ret) = B0 + B1(Div_cut) + B2*(Firm_Size) +B3*(LEV) +B4*(ROA) +B5* (MTB) + + B6*(Board Size) + E*
The standard error is clustered on a firm level basis.

Estimated standard errors are presented in parentheses. Detailed variable definitions are provided in Appendix A. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

4.2 Evidence before the Covid-19 Crisis

The second test of whether firms with higher dividend cuts are related to higher abnormal returns, in the pre-Covid-19 sample, is shown in **table 4**. It was postulated earlier that the announcement of a dividend cut could result in abnormal returns due to the signaling theory, the bird in hand theory, and the catering theory.

There is a positive reaction of 0.001% among firms that cut their dividends measured at only the declaration date. The dividend cut coefficient of the 3-day abnormal return window is 0.006% and the dividend cut reaction of the 5-day abnormal return window is 0.007%. The coefficients all seem to be insignificant and meager, indicating that investors do not respond to the dividend declaration. Since the dividend cut reaction is meager, and the constant is very negative and significant, larger time spans are related to more negative abnormal returns when all other variables are hold constant.

The results do not allow me to reject the dividend signaling hypothesis and the bird in hand theory since the results indicate that the investors do not react significantly negatively to dividend cuts. The results also do not allow to reject the dividend irrelevance theory and the residual theory indicating that investors do not value dividends and dividends are considered as the residual next to capital gains from earnings. These research findings are in line with Smith's (2011), and Black and Scholes' (1974) results. The firm size reaction is 0.003% in the first column, significant at the 1% level, and positively related in all columns. The firm size reaction is 0.009 % in the second column, and 0.0012% in the third column, also both significant at the 1% level. These coefficients indicate that larger firms are related to less negative abnormal returns when they cut dividends.
These firm size results have a small magnitude for all three columns. The market to book ratio coefficient 0.003% in column 3 is significant at the 10% level, meaning firms with higher market to book ratios are related to less negative abnormal returns. The negative board size coefficients seem to be significant at the 10% level in column 1 and 2, and significant at the 5% level in column 3. These results indicate that bigger board sizes are related to more negative abnormal returns. For further research findings, I refer to **Table 4**. To summarize, the results of columns 1, 2, and 3 indicate that there is no evidence found of a negative stock

market reaction to no-dividend announcements or dividend cut announcements before the Covid-19 pandemic.

Table 4. The impact of Dividend cuts on Abnormal Returns before Covid-19

Panel A: Regression

Dependent variable =	*Abn_Ret* (1)	*Abn_Ret* (2)	*Abn_Ret* (3)
Div_cut	0.001	0.006	0.007
	(0.00)	(0.00)	(0.00)
Firm_Size	0.003***	0.009***	0.012***
	(0.00)	(0.00)	(0.00)
LEV	-0.000	-0.001	-0.000
	(0.00)	(0.00)	(0.00)
ROA	0.014	0.022	0.029
	(0.01)	(0.01)	(0.02)
MTB	0.001	0.002	0.003*
	(0.00)	(0.00)	(0.00)
Board_Size	-0.001*	-0.001*	-0.003**
	(0.00)	(0.00)	(0.00)
Constant	-0.013***	-0.034***	-0.051***
	(0.00)	(0.01)	(0.01)
S.E: Clustered	Firm Level	Firm Level	Firm Level
Observations	1313	1313	1313
Adj. R-squared	0.014	0.032	0.039

Panel B: Chow Tests

Chow Tests	**F-statistic**	**P-value**
Chow test 1	0.340	*0.712*
Chow test 2	*0.515*	*0.597*
Chow test 3	*0.350*	*0.704*

Table 4 presents the results from estimating the following OLS regression and additional chow Tests:

Abnormal Return (Abn_Ret) = B0 + B1(Div_cut) + B2*(Firm_Size) +B3*(LEV) +B4*(ROA) +B5* (MTB) + B6*(Board_Size) + E*

The standard error is clustered on a firm level basis.

Panel B shows the additional chow tests and the corresponding F-statistics and P-values for all corresponding columns in the OLS regression model for the pre-Covid-19 period and the Covid-19 period. Estimated standard errors are presented in parentheses. Detailed variable definitions are provided in Appendix A. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

4.3 Differences in the results

I will now take a closer look into the differences between these two samples to see if these differences are statistically significant, which allows me to answer the main research question.

The chow test results examine if the explanatory power of the dividend cuts upon the abnormal returns for both samples are statistically different, meaning there is a structural break found recalled as Covid-19. The chow tests are performed for the results of columns 1, 2, and 3 of the pre-Covid sample and the corresponding results of columns 1, 2, and 3 of the Covid-19 sample. The dividend cut reaction of the Covid-19 sample in column 1 is -0.001% The corresponding dividend cut reaction for the pre-Covid-19 sample is 0.001%. Although the sign of the coefficients is different, the results of the chow test suggest there are no statistical differences in the 1-day abnormal return window, as shown in **Table 4 panel B**.

The dividend cut reaction of the Covid-19 sample in column 2 is 0.003%. The corresponding dividend cut reaction for the pre-Covid-19 sample is slightly higher, being 0.006%. The dividend cut reaction of the Covid-19 sample in column 3 is 0.001%. The corresponding coefficient in the pre-Covid-19 sample is 0.007% respectively, slightly larger in size. Although the dividend cut coefficients in the pre-Covid-19 sample are higher than in the corresponding columns of the Covid-19 sample, the chow test indicates that there are no significant differences in the regression coefficients. This means that there are no significant differences in the 3-day window and the 5-day window in the different sample periods. The results of the abnormal return measured at the three different time spans, indicate that investors do not react more negative to dividend cuts before Covid-19 than during Covid-19. These results of dividend cuts on abnormal returns support the dividend irrelevance theory and the residual theory, rejecting the catering theory proposed by Baker and Wurgler (2004) that would indicate a different market reaction in different sample periods.

The results of column 1 of **Table 3** and **Table 4** and the additional chow test do not allow me to reject the final null hypothesis indicating that there is no evidence found that the stock market reaction is less negative during the Covid-19 pandemic compared to the pre-Covid-19 period.

5. Conclusion

In this research, I try to uncover if Covid-19 had a positive stock market reaction to the no-dividend announcements or dividend cut announcements pandemic compared to the pre-Covid-19 period.

I first start with looking at the Covid-19 period to see if there is a negative stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic. The results of the Covid-19 sample indicate that dividend cuts are not negatively and significantly related to abnormal returns in the three different time windows. This does not allow me to reject the first null hypothesis for these results, meaning there is no negative stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic.

After this, I look upon the pre-Covid-19 period to see if there is a negative stock market reaction to dividend cut announcements. Like the Covid-19 period, there is no evidence found that the stock market responds negatively to dividend cut announcements. The results of the pre-Covid-19 sample are slightly less negative for the coefficients of all three columns, but not significant. The second hypothesis cannot be rejected due to this insignificance. This results in the conclusion that there is no evidence found that there is a negative stock market reaction to no-dividend announcements or dividend cut announcements before the Covid-19 pandemic.

For the last hypothesis, I perform additional chow tests to test if the explanatory power of the dividend cuts upon the abnormal returns for both samples are statistically different, meaning there is a structural break I recall as Covid-19. The results of the first, second and third chow test are insignificant, which does not allow me to reject the null hypothesis for these results.

The results of all three columns of these tables support the final null hypothesis, indicating there is no evidence found of a positive stock market reaction to no-dividend announcements or dividend cut announcements during the Covid-19 pandemic in comparison to the pre-Covid-19 period, at different time windows at the dividend announcement date.

6. Discussion

In the discussion part of the research, the implications of my research are pointed out, after that the limitations and lastly the recommendations of the research are stated.

Implication

The results support the dividend irrelevance theory. The dividend irrelevance theory states that only earnings should be important for the impact of the valuation of an organization and investor. The investment decision is based on the investment policy of the firm and not on dividend policy. Because of this, the dividend payout will have no impact.
My research results are also in line with the residual theory. This theory states that investors are unconcerned with the type of return they earn from a stock, whether it is dividends or capital gains. This research provides new insights into the relation between dividend cuts and abnormal returns in the Covid-19 period and the pre-Covid-19 period and indicates that the abnormal market reaction does not differ in the two sample periods. The results have important implications for different parties. The abnormal return is not different based on the time spans that are considered when there is a dividend cut or dividend suspension announcement. Shareholders can make better-informed investment decisions due to the research I have conducted. The board of directors of firms could use this information to note that reducing the dividend payout, does not lead to a significantly negative or positive abnormal market reaction. This might be positive news for firms that temporarily have lower liquidity and want to suspend or majorly cut dividends for a brief time. This could lead to them making better strategic dividend payout decisions and might lead to more stability in the firm. Stock market analysts could use my research to get a better view of the stock market reaction around the formal dividend declaration date and could use this for trading purposes.

Limitations

There are some limitations that need to be addressed in this paragraph. The first limitation of my research is that my sample is based upon S&P 500 listed firms. This sample may not be representative of similar research settings in other countries. Secondly, the sample size for the Covid-19 sample and the pre-Covid-19 sample is relatively small, being 127 and 1313 observations, respectively. Applying similar research with bigger sample sizes might give different results. Thirdly, the dividend cut, or dividend suspension news of firms might be

privately available for longer periods than five days in advance. Although the formal announcements were made on the dates data was collected, the news could already be privately available which could indicate that the market response was different than if there was no privately available information.

Although my control variables contained corporate governance features, my research did not dig further into the dividend substitution theory. This did not allow us to make a statement in favor or against the dividend substitution theory.

Even though my research does not find evidence for the bird in hand theory and the dividend signaling theory, it is possible that investors do react to dividends, for example at the dividend pay date or around the dividend pay date. In this research I only looked at the cash dividend stock market reaction. There are far more dividend payment possibilities, for example stock dividend, property dividend or a hybrid dividend.
Another limitation is the timing of the study, it could be possible that more relevant information for my research will become available soon. Lastly, the legislation was due to time constraints, something that was not looked closer upon.

Recommendations
The S&P 500 might not be fully representative to firms in other parts of the world and therefore the recommendation is to perform similar research in other parts of the world.
Another recommendation is to look at the Covid-19 legislation in future research.
After having conducted the research, future research could also look upon the actual dividend payment date and the corresponding abnormal return. Since it is possible that investors do react to dividends, for example at the dividend pay date or around the dividend pay date, performing similar research looking at the dividend payment date instead of the dividend declaration date could find evidence of investors reacting significantly to dividends.

The last recommendation would be to look at a market reaction when there are other dividend payouts than cash dividend to shareholders. It would be interesting to see if the market reaction is quite the same or different when other dividend payment methods are applied. Further research could point out if there is evidence for the dividend signaling theory, the catering theory, or the bird in hand theory.

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Appendix A

Appendix A. Variable Definitions Covid and pre-Covid-19 sample

Variable	Definition
	Variables used in the main analysis
Abn_Ret1	*Derived by using the individual firm share return and extracting the corresponding market return on this certain day of the firms share return on a one-day window at the dividend declaration date (Source: CRSP)*
Abn_Ret3	*Derived by using the individual firm share return and extracting the corresponding S&P 500 market return. This will be done for the accumulative abnormal return one day prior to one day after the dividend declaration date, a three day-window (Source: CRSP)*
Abn_Ret5	*Derived by using the individual firm share return and extracting the corresponding S&P 500 market return. This will be done for the accumulative abnormal return two days prior to two days after the dividend declaration date, a five day-window (Source: CRSP)*
Div_cut	*The year-to-year negative dividend per share change in percentages in the pre-Covid-19 period and the Covid-19 period, period 2015 till 2020 (source: CRSP)*
Firm_Size	*The logarithm of the end-of-year total assets (in million $) (source: Merged CRSP/Compustat database)*
LEV	*Derived by dividing the total debt of a firm to the shareholder equity (source: Merged CRSP/Compustat database)*
ROA	*Net income over beginning-of-year total assets (source: Merged CRSP/Compustat database)*
MTB	*The value of the firm according to the market value of equity divided by the book value of equity (Source: Merged CRSP/Compustat)*
Board_Size	*The number of directors of individual boards on yearly basis (Source: BoardEx)*