

COVID-19 AND DIVIDENDS: EVIDENCE FROM POLAND

**Kamil Gemra¹, Piotr Kwestarz², Waldemar Rogowski³,
Mariusz Lipski⁴**

¹ SGH Warsaw School of Economics, Collegium of Business Administration, Poland, ORCID: 0000-0001-5292-2363, kgemra@sgh.waw.pl;

² Independent researcher, Poland, ORCID: 0000-0002-6399-241X, p.kwestarz@strefainwestorow.pl;

³ SGH Warsaw School of Economics, Collegium of Business Administration, Poland, ORCID: 0000-0003-0214-3446, wrogow@sgh.waw.pl;

⁴ SGH Warsaw School of Economics, Collegium of Business Administration, Poland, ORCID: 0000-0001-6773-7128, mlipski1@sgh.waw.pl.

Abstract: *This paper aims to examine the impact of an unexpected change in the level of dividend caused by the coronavirus (COVID-19) pandemic on share prices on the Polish stock exchange. Our article analyses the period from 1 February 2020 to 5 June 2020, which was when companies listed on the primary market of the Warsaw Stock Exchange (WSE) published information about Boards of Directors' dividend recommendations for 2019. The original group of companies included 140 firms. 56 companies (40%) fulfilled all the study criteria, and these were subsequently divided into 2 groups. The groups were defined by the recommendations on profit distribution. The first group consisting of 38 companies (68% of the surveyed) consisted of firms which unexpectedly announced plans to retain all profits in the company or a dividend payment but with a lower value than in the previous year (cancellation or reduction of the dividend amount). The second group of 18 companies (32% of the surveyed) comprised those which unexpectedly announced willingness to pay a dividend per share at a higher level (increase in dividend amount). The research confirmed that the announcement of a change in the level of the dividend or the cancellation of the payment of profit is essential price-creating information on the Polish securities market and has a significant impact on the share prices. In a situation of uncertainty caused by external factors, such as the coronavirus pandemic, the sensitivity of individual companies to lockdown and uncertainty as to the return to normality have a significant negative impact on the market. They cause a fall in the share prices higher than expected, especially when they are accompanied by a shortage of information from the companies and a recommendation to suspend or reduce dividend payment.*

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JEL Classification: G10.

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Introduction

In March 2020, we witnessed enormous turbulence in the global markets caused by the escalation of problems related to the new medical phenomenon of coronavirus (COVID-19) pandemic. High fluctuations of indices were observed during the pandemic, but the crisis caused by fighting the virus

was also reflected in firms' essentials. The uncertainty provoked by the pandemic in the real economy also influenced listed companies. Some of them were forced to restrict or cease their operations temporarily. One of the impacts that this caused relatively quickly was on dividend decisions. Listed companies that had paid dividends for many years faced a difficult

decision on whether they should still pay them or instead restrict or cease issuing dividends. The purpose of such actions would be to build a capital and liquidity buffer.

There is much scientific research on the subject of dividend policies. In particular, the work of Miller and Modigliani (1961) is considered to be one of the essential foundations on the topic. It provides the basis for contemporary theories on dividends, by combining dividend policy and share value. The authors stated that share prices might be affected in the event of a change in the dividend rate even though, in their opinion, the dividend policy is irrelevant to the valuation of a company. They note that if a company has a long-term dividend policy, a change in the dividend payment ratio affects the company's prospects. They state that an increase in dividend payments results in growth in the share price, and a suspension or reduction of dividend payments brings about a fall in the share price.

This premise will be the theoretical basis of our article. We aim to explore how the share prices of companies reacted to information about unexpected changes in dividend policy during the economic 'tsunami' caused by the coronavirus pandemic. The study covered 140 companies listed on the Warsaw Stock Exchange present in the WIG20, mWIG40, and sWIG80 indices.

As far as the methodology of our study is concerned, we decided to follow the research by Miletić (2011), who examined the fluctuations in share prices in response to changes in 2009 dividend levels on the Croatian stock exchange. In that case, the catalyst for the change was the global economic crisis. We decided to answer the following research question in the article: Is an unexpected change in the dividend level, caused by the coronavirus pandemic, vital information for investors?

The article begins with a Literature review of the research on the influence of dividends on share prices. This is followed by the Methodology of the study with the proposed hypotheses. The Results of the research and Conclusions are then presented in the final two sections.

1. Literature Review

Companies face three main decisions in their financial activities: investments, financing sources, and dividend policy. The latter

concerns how generated profits are distributed, i.e. how much capital is invested back into company development and how much is paid out to shareholders. The theory of dividend policy is still under debate. Two similar works, the aforementioned Miller and Modigliani (1961) and a study by Lintner (1956), are the starting point for many considerations on dividends. Both state that the dividend policy has no impact on the valuation of a company. Other studies, based on asymmetry of information and agency theories, claim that the dividend policy affects a company's valuation, for instance, Boţoc and Pirtea (2014) or Graham and Kumar (2006). A further essential part of the literature is also the study of factors influencing dividend policy, such as the works of Jacob and Michaely (2017) or Kumar and Sujit (2016).

Additionally, the research on how dividends affect share prices is also essential and forms the basis of the considerations in this paper. The first researcher to study signaling theory in relation to dividends was Pettit (1972), who examined the speed and extent of the market reaction to a change in the amount of dividend. He concluded that share prices fully reflected the increase or reduction in dividend on the day of its announcement and the following day. Pettit considered that the market valuation reflected the information provided about the dividend decision. An important study relevant to the present paper was conducted by Polish researchers in cooperation with a German partner. Gurgul (2006) examined the impact of dividend change announcements on share prices and trading volumes in the German capital market. An increase or decrease in the dividend announcement had a statistically significant influence on the share price, in the same direction as the announced change of the dividend.

Interestingly, Haw and Kim (1991) linked the effect of the dividend change to the size of the company. Their study showed that a change in the dividend level had a more substantial impact on the listings of smaller companies, resulting from a greater asymmetry of information. Investors were better able to predict the size of the dividend with large companies.

According to Dewenter and Warther (1998), companies that pay dividends have higher rates of return than those that do not. In another paper, Seida (2001) concluded that the increase in the size of the paid dividend is

related to tax rates. This, in turn, affects investor interest in shares of dividend companies, which subsequently contributes to the growth of their prices. An interesting theme in the literature is also the analysis of changes in the shareholder structure, especially when the majority share is retained by institutional investors who do not have to pay dividend taxes. In this case, they prefer companies that regularly pay dividends (Dhaliwal et al., 1999). Furthermore, Chetty and Saez (2005) and Jun (2011) analyzed how institutional investors prefer higher dividends and therefore buy shares in these companies, which, thus, increases their value.

A further area of dividend literature that cannot be overlooked is the important issue of the impact of company share repurchases, rather than paying out dividends, on share prices. Researchers Brav et al. (2005) concluded that share repurchases are more effective. A separate group of studies show that managers prefer to pay dividends regularly as this translates over to the share price and their interactions with shareholders who expect dividends (Graham & Kumar, 2006). Moreover, Poterba (2004) states in his research that managers prefer to increase debt rather than reduce dividend payments. A study by Perez-Gonzalez (2005) shows that companies with a high proportion of individual investors prefer to pay dividends because this meets their shareholders' expectations. Other studies claim that domestic shareholders also prefer companies that pay regular dividends (Henry, 2011; Almeida et al., 2014).

A new interesting research area was to check the impact of the coronavirus pandemic on dividend policy. The work of Jakubik and Teleu (2021) examined the behavior of stock prices after the regulator's decisions to suspend dividend payments in connection with COVID-19. Research on the impact of the dividend policy in the face of the coronavirus was also conducted by other researchers (Eugster et al., 2022; Cejnek et al., 2021; Krieger et al., 2021).

2. Research

2.1 Data

Our study analyses the period from 1 February 2020 to 5 June 2020. This was the period when companies listed on the Warsaw Stock Exchange (WSE) primary market published information about dividend recommendations

for 2019. Recommendations concerning the payment of dividends and their amounts are made by the Board of Directors, and the final decision is made in the General Shareholders' Meeting. In our study, we set several criteria for companies to be included in the research group, which were as follows:

1. The company paid a dividend in the previous year. The profit for 2018 had to be distributed in 2019. An interim dividend was also included in the value of the dividend paid if it had been paid earlier.
2. The company was listed in one of the three most important indices of the Warsaw Stock Exchange – WIG20, mWIG40 or sWIG80 – comprising a total of 140 entities. This allowed us to limit the survey to about 30% of the largest and most liquid WSE-listed companies.
3. The generation of net profit in 2019 and an announced recommendation to distribute profit by the Board of Directors or the supervisory authority during the analyzed period, i.e. between January and June 2020. The recommendation means a publicly announced proposal to pay out part of the profit as a dividend. It had to either include the amount of the payment in the company's currency or alternatively be a proposal to retain the entire profit in the company (dividend cancellation). In this section, we also took into account the profit distribution recommendations issued by the supervisory body – the Polish Financial Supervision Authority (KNF), which acts as a regulator of financial market entities, primarily companies from the banking and insurance sectors. Recommendations issued by the KNF are not binding. However, market practice shows that the vast majority of companies adjust their dividend payment decisions to the recommendation issued by the supervisor.
4. The absence of events that could have significantly disrupted the analysis of the share price. These could include calls for major blocks of shares, splits, an announcement of pre-emptive rights, acquisition rights, subscription rights, denominations, suspension of trading, or a short period of listing.

The original group of companies included 140 firms. Of these, 56 companies (40%) fulfilled this 4 criteria. The companies meeting

the above-mentioned criteria were divided into two groups, defined by the recommendations on profit distribution. The first group consisted of 38 companies (68% of those surveyed) that unexpectedly announced plans to retain all profits in the company or a dividend payment with a lower value than in the previous year (cancellation or reduction of the dividend value). The second group of 18 companies (32% of the surveyed) comprised those which unexpectedly announced willingness to pay a dividend per share at a higher level (increase in dividend value). When defining a decrease or increase in the expected dividend per share, we applied a naïve model based on the difference between the announced dividend per share in the analyzed year and the previous year. The choice of the above model was dictated by difficulty in gathering reliable information on the likely amount of dividend expected by investors compared to the previous year's dividend. Clearly, with the coronavirus risk and forced savings in place, any casual estimates based on an increase or decrease of the net profit would not be grounded. Another argument in favor of the model was a desire to compare the results with the study of the Croatian market (Miletić, 2011), which used the same solution.

We assigned the small number of companies that announced dividends at the same level as the previous year to the second group (increase in dividend value), as a separate study on such a small group consisting of only five companies would be subject to major statistical error.

For the period from the beginning of 2020 to 5 June 2020, 56 companies meeting the study criteria announced a recommendation for profit distribution. Of these, 26 companies announced the cancellation of the dividend. Another 12 companies declared a desire to pay a lower dividend compared to the previous year (cancellation or decrease in the value of the dividend), and 18 companies announced a recommendation to pay a dividend at the same or higher level (increase in the value of the dividend).

Finally, it is worth noting that the criteria selected in this way are met by most companies with a long history of dividend payments, which results in increased expectations of continued payments by investors. Of the 56 companies surveyed, 33 companies (59%) paid dividends regularly, without breaks, for at least 4 years prior to the research. Another 15 companies

paid at least 4 dividends in the previous years, albeit irregularly. From the rest of the group: 3 companies paid dividends three times in the previous years; 3 companies paid dividends twice; 4 companies paid dividends once. During the period under review, 89% of companies have shared their profit at least several times in the past, and most of the companies surveyed can be considered as dividend companies with a long tradition of regular profit distributions.

2.2 Hypotheses

Due to the delay in reporting results for the full year 2019, dividend recommendations were announced when management and investors had already become aware of the high risk of coronavirus (COVID-19), which matches the purpose of the study. The informational content of the announcement regarding a change in the amount or the cancellation of the dividend presents the subject of this analysis. The study aims to examine the impact of an unexpected shift in dividend levels caused by the coronavirus (COVID-19) pandemic on the change in share prices. The article examines a hypothesis that indicates the significance of the information about the profit distribution recommendation, i.e. the occurrence of statistically significant above-average return rates in the days immediately following the announcement of the profit distribution recommendation.

Therefore, null and alternative hypotheses have been formulated:

H0: The average abnormal return is not significantly different from zero in the period immediately following the announcement of a change in the level of dividends or the cancellation of profit distribution.

H1: The average abnormal return is significantly different from zero in the period immediately following the announcement of a change in the level of dividends or the cancellation of profit distribution.

To test the hypothesis, we analyzed the information about the size of the dividend delivered to investors, and then the impact of that information on the direction of share price changes was verified. Following the hypothesis and previous studies in this area, the relationship between the change in the dividend amount and the above-average share price fluctuation (abnormal return) – defined as the difference between the actual and expected

change in the share price – was examined. The changes could occur in two directions: 1) The cancellation or reduction of the proposed dividend amount was negative information for investors, causing the share price to fall; 2) The announcement of a higher dividend payment is positive information for investors, causing the share price to rise. Therefore, to confirm or reject the zero hypothesis, we examined these two cases and the impact on share prices separately.

2.3 Methodology

The assessment of each of the two dependencies defined above required the calculation of the AAR (Average Abnormal Return) for each day in the 10-day ‘announcement period’ and verification whether their difference was statistically significant from zero.

We used similar research methods for the calculation of AAR and the later defined Cumulative Average Abnormal Returns (CAARs), which were also used in the study on suspension of insurers’ dividends as a response to the COVID-19 crisis (Jakubik & Teleu, 2021) and the work on the impact of the coronavirus disease pandemic on investors’ trading behaviors around exdividend dates in Europe (Eugster et al., 2021).

In our study, we analyzed a 10-day ‘announcement period’, which was defined along similar lines to the Croatian market study (Miletić, 2011) that examined the relationship between the change in share prices in response to changes in 2009 dividend levels on the Croatian stock exchange. The ‘announcement period’ consisted of seven trading days before the date of the recommendation announcement, day zero (the date of the recommendation announcement), and two trading days after the recommendation announcement. Day zero (the date of the recommendation announcement) is the first day on which the market could react to the published recommendation. Thus, if the recommendation was announced after the closing of a session, we assumed the next session day to be day zero (the date of recommendation announcement).

The AAR (Average Abnormal Return) for each t day in the 10-day ‘announcement period’ is calculated using the following formula (1):

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \quad (1)$$

where t is the number of companies in the studied group and $AR_{i,t}$ is the Abnormal Return for company i on the day t . The return rate for each company i in the test group is the difference between the actual return rate and the Expected Return. It is calculated for each company i and each day t in the 10-day ‘announcement period’ according to the following formula (2):

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad (2)$$

where $R_{i,t}$ is the actual return rate on shares of the studied company calculated according to the following formula (3):

$$R_{i,t} = \ln \left(\frac{P_{i,t}}{P_{i,t-1}} \right) \quad (3)$$

where $P_{i,t}$ is the share price of company i on the analyzed day t and $P_{i,t-1}$ is the price of the company shares on the preceding trading day $t-1$.

In formula (2), $E(R_{i,t})$ is the Expected Return on the shares of company i on day t . Its value is calculated based on a linear regression method, according to the formula from formula (4), where the β parameter is derived from an analysis of 30 daily returns from the ‘comparative period’ preceding the 10-day ‘announcement period’. The length of the comparative period was selected according to the Miletić’s (2011) study and the results of the Johnson’s (1998) work, which claim that the 30-day period gives the best comparative results.

$$E(R_{i,t}) = \alpha_i + \beta_i R_{m,t} \quad (4)$$

The independent variable $R_{m,t}$ in formula (4) is the return rate of the index where the company is listed (WIG20, mWIG40 or sWIG80), calculated using the following formula (5):

$$R_{m,t} = \ln \left(\frac{P_{m,t}}{P_{m,t-1}} \right) \quad (5)$$

where $P_{m,t}$ is the value of the index where company i is listed on day t and $P_{m,t-1}$ is the value of that index on the preceding trading day $t-1$.

In this manner, the average abnormal returns for each day in the 10-day ‘announcement period’ AAR_t are checked for significant differences from 0. To do this, we calculate the value of the test statistics for each day t in the 10-day ‘announcement period’ according to the

Tab. 1: Share price reaction to the announcement of dividend cancellation or reduction

Day	T-student	Df	Critical value 2%	Critical value 5%	Critical value 10%	AAR	CAAR	Confidence interval 95%	
								Lower	Upper
-7	1.094	37	2.431	2.026	1.687	0.57%	0.57%	-0.52%	1.67%
-6	-0.155	37	2.431	2.026	1.687	-0.08%	0.49%	-1.43%	1.27%
-5	0.788	37	2.431	2.026	1.687	0.41%	0.91%	-0.71%	1.53%
-4	-1.025	37	2.431	2.026	1.687	-0.54%	0.37%	-1.53%	0.45%
-3	-0.760	37	2.431	2.026	1.687	-0.40%	-0.03%	-1.69%	0.90%
-2	-0.116	37	2.431	2.026	1.687	-0.06%	-0.09%	-1.36%	1.24%
-1	-1.659	37	2.431	2.026	1.687	-0.87%	-0.96%	-1.65%	-0.09%
0	-2.572*	37	2.431	2.026	1.687	-1.35%	-2.31%	-2.34%	-0.35%
1	-0.505	37	2.431	2.026	1.687	-0.26%	-2.58%	-1.26%	0.73%
2	-1.554	37	2.431	2.026	1.687	-0.82%	-3.39%	-1.64%	0.01%

Source: own

formulas used in Brown and Warner (1985) and check whether it shows a statistically significant relationship of at least 5%.

$$t_{stat} = \frac{AAR_t}{\sigma_{AR_t}^{\Delta}} \tag{6}$$

where $\sigma_{AR_t}^{\Delta}$ is the standard deviation of average abnormal returns;

$$\sigma_{AR_t}^{\Delta} = \sqrt{\frac{1}{T-1} \sum_{t=t_0}^{t_0+T-1} (\overline{AR_t} - \overline{\overline{AR_t}})^2};$$

$$\overline{\overline{AR_t}} = \frac{1}{T} \sum_{t=t_0}^{t_0+T-1} \overline{AR_t};$$

where:

t_0 – index of the oldest observation in the estimation window;

T – length of the estimation window.

In addition to analyzing the effect of the information on share prices over time, we calculated the Cumulative Average Abnormal Returns (CAARs) by summing the average abnormal returns from all ten days of the ‘announcement period’. The numerical results have been presented in the tables in Section 4, and data visualization is provided in Fig. 1 in Section 4.

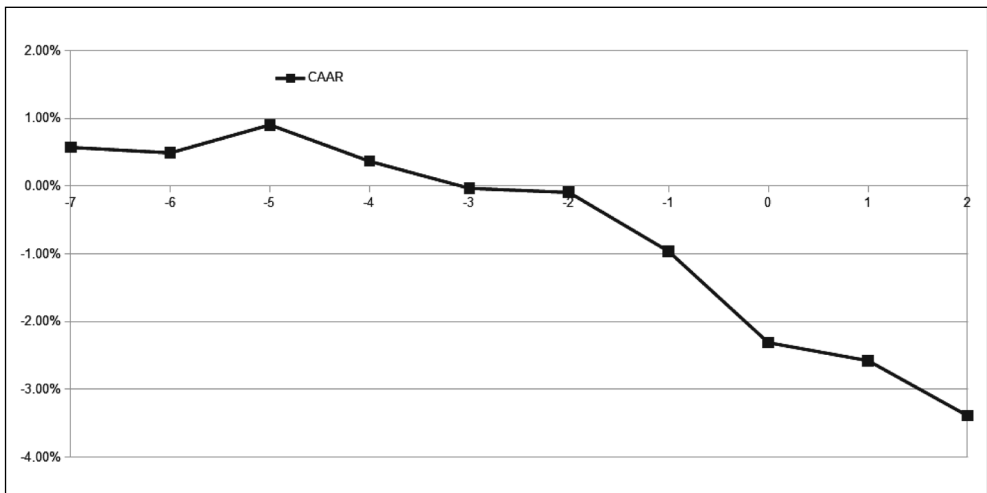
3. Empirical Results

Verification of the hypothesis required the examination of 2 types of profit distribution recommendations (cancellation or reduction of

dividend value and increased dividend value), as well as the impact of each kind of information on the change in share price. In the first step, we examined an unexpected change in the share prices in the event of a cancellation or reduction of the dividend amount. The results are presented in Tab. 1.

On the dividend announcement date ‘day zero’ (Tab. 1), the average abnormal return for companies that announced dividend cancellation or reduction was -1.35%. This result was statistically significant at the level of both 5% and 2%. The null hypothesis that the average abnormal return does not differ statistically significantly from zero was rejected in favor of the alternative hypothesis for ‘day zero’ (recommendation day). Thus, it can be assumed that negative information about the distribution of profit announced during a situation of coronavirus risk is vital information for investors on the day of its announcement. The research showed that investors negatively perceived the reduction or complete resignation of dividend payments. Failure to continue the payment weakens investors’ hopes of maintaining the growth dynamics, slowing down the growth or potential problems of the company in the near future. This is reflected in the decline in the share price.

Cumulative average abnormal returns on the last examined day were -3.39%, i.e. two percentage points less than on ‘day zero’.

Fig. 1: Cumulative average abnormal returns (CAAR) for group 1

Source: own

Tab. 2 presents the results from the analysis of the relationship between an unexpected change in the share prices after an announced increased dividend value.

The results show that the announcement of higher dividend payments was not statistically significant on any of the examined days. *H0* that the average upward rate of return does not differ statistically significantly from zero cannot be rejected.

In the case of the analyzed period on the Stock Exchange market, it was not possible to demonstrate a statistically significant increased interest in acquiring shares in the event that the company announced that the dividend would be continued at the same or higher level. Investors perceived this signal from the company's management board as neutral. On the other hand, it did not cause a significant statistical negative reaction to the share price.

Tab. 2: Share price reaction to the announcement of dividend increase

Day	T-student	Df	Critical value 2%	Critical value 5%	Critical value 10%	AAR	CAAR	Confidence interval 95%	
								Lower	Upper
-7	0.734	17	2.567	2.110	1.740	0.59%	0.59%	-0.54%	1.72%
-6	-0.252	17	2.567	2.110	1.740	-0.20%	0.39%	-2.45%	2.04%
-5	-0.374	17	2.567	2.110	1.740	-0.30%	0.09%	-2.10%	1.50%
-4	-0.096	17	2.567	2.110	1.740	-0.08%	0.01%	-2.01%	1.85%
-3	0.053	17	2.567	2.110	1.740	0.04%	0.05%	-2.58%	2.67%
-2	0.605	17	2.567	2.110	1.740	0.49%	0.54%	-0.90%	1.88%
-1	-1.124	17	2.567	2.110	1.740	-0.90%	-0.37%	-2.00%	0.19%
0	-0.016	17	2.567	2.110	1.740	-0.01%	-0.38%	-1.02%	1.00%
1	1.312	17	2.567	2.110	1.740	1.06%	0.68%	-0.90%	3.02%
2	0.367	17	2.567	2.110	1.740	0.30%	0.97%	-1.22%	1.81%

Source: own

Conclusions

The research presented in the article confirms that announcing a change in the dividend level or the cancellation of profit payment is vital information for the investors on the Polish securities market that has a substantial influence on the share price. Thus, they are price affecting. In a situation of uncertainty caused by external factors, such as the coronavirus pandemic and lack of full information from the companies, a recommendation to cancel the dividend payment or information on its reduction is essential for the market and causes a higher drop in the share price than expected.

The impact of an announcement covering the unexpected cancellation, reduction, and increase of the dividend amount on the share prices was analyzed in Section 3. The sudden cancellation or reduction in the dividend amount resulted in statistically significant reductions in the share price. On the date of the recommendation, the decrease achieved -1.35% and was statistically significant at both 5% and 2%. The relationship between an unexpected cancellation or a reduction of the dividend value was therefore confirmed. However, the increase in the share price was not confirmed in the event of the announcement of the continuation of the dividend payment at the same or increased level as in the previous year. Investors perceived this signal from the company's management board as neutral. This may be because the study was conducted during a period of significant market uncertainty due to coronavirus.

A similar result was obtained in the study for the Croatian market by Miletić (2011). It showed the significance of the information about a dividend reduction (decrease in the share price) and a rise in the dividend (increase in the share price) on the Zagreb market in 2009. In both cases, there were statistically significant changes in share prices in the respective directions.

Also, the Jakubik study on Telemor (2021) proved a statistically significant drop in the share price after the announcement of a proposal to suspend dividends by insurance companies by the European Insurance and Occupational Pensions Authority on April 2, 2020. The results of this study gained statistical significance at a very demanding level 1% using the same research methods as in our paper. The dependence of the decline in the

share price on information about dividend level demonstrated in this study indicates the importance of such signals for investors. This is in line with the signal theory related to the capital structure. The decision to retain capital in the company after earlier payouts in previous years is an important signal to the market from the management board about the expected slowdown in growth, lower revenues, or other potential problems in the company. Investors treat the previously unannounced creation of financial security in the form of retention of profits as a signal of the management's lack of faith in repeating the good results of the previous year and the necessity to prepare for worse times.

This paper explored the impact of COVID-19 on dividend decisions. However, withholding dividend policy is not solely motivated by uncertainty about the future in all cases. Retention of profits may be justified, for example, by investments that will result in higher financial results in the future. In the future, our research could be expanded to include a questionnaire study to assess the significance of factors influencing the decision not to pay out a dividend. This study could also be extended to other European markets by examining the impact of issued recommendations on the share prices in relation to local conditions. A proposal for further research also includes an analysis of investor behavior in previous years, for both the Polish and European markets.

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