Analysis of the effects of COVID-19 on companies listed on the Warsaw Stock Exchange

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Abstract

The spread of COVID-19 has been a huge shock to the economy. Countries around the world are facing unprecedented challenges due to the pandemic, and they have responded by locking down people's movement and business activity and implementing stimulus packages to restrain the devastating slowdown in economic activity. The COVID-19 outbreak has had a decisive impact on the social and purchasing habits of people all around the world. New challenges for companies have arisen as a result. The main aim of the study is to investigate the effect of COVID-19 on the reaction of the stock market and of companies (those considered to have been most significantly affected by the disruption caused by COVID-19). The paper focuses on companies listed on the WSE. The study examines the rates of return of all companies listed on the Warsaw Stock Exchange (WSE), the major indices of the Warsaw Stock Exchange and industry indices. Moreover, the authors use the case study methodology to examine the implications of COVID-19 on corporate (managerial) behaviour. A content analysis is also applied: the authors analyse all current reports and quarterly reports of the selected companies throughout the analysed period. For the purposes of further analysis, the six largest companies (accounting for almost 98% of the index as a whole) from the WIG-clothes index, which recorded the largest decline in terms of the rates of return among all sector indices on the WSE, were selected. The analysis focuses on managerial decisions in response to the COVID-19 outbreak so as to examine the challenges faced by management during the COVID-19 pandemic and the potential actions undertaken by the firms. Therefore, the authors investigated the information regarding management in the areas of financial results, investment decisions, equity decisions, dividend decisions, and other important decisions. The analysis confirmed that the COVID-19 pandemic, due to the administrative decisions and substantial number of restrictions introduced

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by governments, brought about temporary closures and restrictions on the scale of operations, reducing the level of employment. As a consequence, a significant decline in revenues, as well as a deterioration in financial results and the creditworthiness of most companies, could be observed. Our findings contribute to the limited evidence on the reaction of the stock market and companies to the challenges posed by COVID-19.

Key words

COVID-19, financial management, stock market, company decisions

Introduction

The spread of COVID-19 has been a huge shock to the economy. The impact of the pandemic can be considered exceptional due to the extreme scope and the associated levels of uncertainty. Countries responded by locking down people's movements and business activity. Despite the stimulus packages which were introduced to hold back the slowdown in the economy, companies were forced to face up to new challenges. On Friday 21 February 2020, the S&P 500 began a decline which gradually accelerated in the following days. The first rapid decline occurred during the next session on Monday 24 February. The bottom line for the S&P 500 fell on 23 March. In the case of the Warsaw Stock Exchange Index (WIG), strong declines began on Monday 24 February. The overall low point for the WIG occurred on 16 March, while in terms of the closing prices, it was on 12 March (see Figure 1).

Therefore, we divide the entire period of 24 February – 31 August 2020 into two sub-periods:

- 24 February to 16 March 2020 – the first sub-period – the period during which stock prices declined;
- 17 March to 31 August 2020 – the second sub-period – the period during which stock prices increased.

The aim of the study is to investigate the effect of COVID-19 on the stock market reaction and companies' reactions. The rates of return analysis presents the changes in the valuation of sector indices in the analysed periods. It allows us to verify which sector indices experienced the largest losses among all sector indices on the WSE during the pandemic outbreak (first sub-period) and how they performed during the second sub-period (after the stimulus actions undertaken by the government). We examine the rates of return of the WIG-index and industry indices on the Warsaw Stock Exchange.

To examine the impact of the COVID outbreak on the stock market indices, we apply event study analysis. As the event day, we take the World Health Organisation (WHO) announcement of the classification of the COVID-19 outbreak as a pandemic, made on 11 March 2020. To measure the reaction of stock market indices, the abnormal returns (AR) and cumulative abnormal returns (CAR) were calculated.

Subsequently, we analyse the implications of COVID-19 on corporate (managerial) behaviour (using the case study methodology).

We formulate the following research questions:

(RQ1): How did the Polish stock market react to the COVID-19 outbreak?

(RQ2): How did Polish stock market sector indices react to the COVID-19 outbreak?

(RQ3): How did selected companies respond to the challenges posed by COVID-19?

The research also takes into account the company's level by investigating the reaction of selected listed companies to the pandemic. Such analyses enable the researchers to complement the quantitative data from the behavioural indices with qualitative data on company behaviour by investigating shareholder management (decisions undertaken by the management boards in response to the COVID-19 restrictions which were implemented by the government) during the pandemic. The research will extend existing literature and bridge the gaps identified. What is more, there is a limited number of studies which attempt to identify how firms have responded to the COVID-19 pandemic. Our paper complements studies examining the economic impact of COVID-19 by providing evidence with regard to the Warsaw Stock Exchange – the largest stock exchange in Central and Eastern Europe.

The paper is organised as follows. Firstly, section 1 reviews the literature. Section 2 describes the methodology and data. Section 3 presents the research results and the discussion, and finally the conclusions are presented in the last section.

1. Literature review

It should be noted that the COVID-19 outbreak was exceptional in many ways – not least in the extreme scope, level and uncertainty. For the first time in the history, such a large number of countries all over the world decided to lock down their economies. Studies examining the impact of COVID-19 have emerged quickly over the past 12 months. Within existing literature used in our study as a background, we identified four main research approaches, the first of which investigates financial contagion during the COVID-19 pandemic (e.g. Akhtaruzzaman et al., 2020; Ali et al., 2020; Yarovava et al., 2020). The second group of studies tests the impact of the COVID-19 outbreak on the country's specific and systematic risk in the global financial markets (e.g. Zhang et al., 2020; Rizwan et al., 2020). The third group focuses on the impact of COVID-19 on stock market performance. Stock market returns react, as with other major events, to natural disasters, such as the SARS outbreak (Chen et al., 2009) and the Ebola virus outbreak (Ichev and Marinc, 2018). The fourth group analyses the impact of COVID-19 on corporate performance in different industries (e.g. Mirza et al., 2020; Shen et al., 2020). The researchers evaluate the effect of COVID-19 on all characteristics of a company, including company performance, governance structure, flexibility, dividend policy, liquidity, leverage level, size and sector. A great deal of literature has examined the US and Chinese markets, and there are also studies investigating international data and data from emerging markets.-

Hu and Zhang (2021) drew on financial data from companies worldwide to study the impact of the COVID-19 pandemic on corporate performance. They claim that performance has deteriorated during the COVID-19 pandemic, but the level of said decline is lower in countries with better healthcare systems, more advanced financial systems, and better institutions. Song et al., (2021) also found that the COVID-19 pandemic has affected company performance, governance structure, dividend policy, liquidity, and leverage level, but the difference between the figures from before and after the COVID-19 pandemic respectively was not significant.

Mixed results were observed by Song et al., (2021) on a sample of U.S. restaurant companies. The results showed that that firms with past characteristics of larger size, more leverage, more cash flows, less ROA, and a greater degree of internationalisation are more resilient to falling stock prices as a result of COVID-19 than otherwise similar firms. On the other hand, dividend policy and ownership structure did not show any significant effect on the relationship between COVID-19 and stock returns.

Liu et al., (2021) studied the effect of firm-level operating flexibility on stock performance during the COVID-19 outbreak in China. The findings confirm that firm-level operating flexibility is significantly positively correlated with the cumulative abnormal stock returns which occur during the event window. The relatively lower level of fixed assets and the location of the companies in the provinces most affected by the epidemic make this positive relationship more pronounced. The role of operating flexibility during the COVID-19 pandemic was also investigated by Barry et al., (2021), who found that greater workplace flexibility and investment flexibility are associated with a lower perceived exposure to the risks associated with COVID-19. Surprisingly, financial flexibility has a negative but relatively weak relationship with perceived COVID risk.

Gu et al., (2020) examined the economic activity of more than 34,000 Chinese firms during the COVID-19 pandemic, finding that the effect of the pandemic differs across industry, firm size and ownership structure. Greater negative effects were observed for firms from the manufacturing industry, whereas industries such as construction, information transfer, computer services and software, and health care and social work were positively impacted by the COVID-19 pandemic. Furthermore, private and smaller firms suffered more than larger state- and foreign-owned firms.

The heterogeneous impact of the COVID-19 pandemic on corporate performance was also proved by Bloom et al., (2021), who used survey data on an opt-in panel of around 2500 US small businesses, finding that the large negative sales impact masks significant heterogeneity, with over 40% of firms reporting zero or a positive impact, while almost a quarter reported losses of more than 50%.

Shen et al., (2020) found that the COVID-19 outbreak reduced corporate revenues, which ultimately led to lower performance, implying that increasing investment and income would reduce the negative impact of the pandemic.

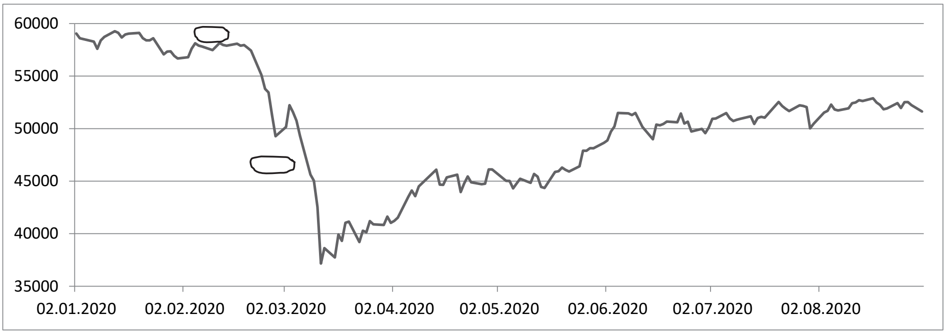
There are still relatively few papers related to CEE countries during the COVID-19 pandemic, though such studies are quickly expanding. We have identified research which examined the impact of COVID-19 on the Polish stock market. However, only Buszko et al., (2021) and Bieszk-Stolorz and Markowicz (2021) focused on the analysis of sectoral performance. Buszko et al., (2021) determined how the stability of behaviour of various industries represented by stock market indices have reacted to the COVID-19 pandemic. The study findings showed that during the pandemic it was possible to identify five clusters of sector indices in the short term and four in the medium term. They confirmed that the composition of the clusters is quite stable over time. The most unstable cluster in the medium-term periods in terms of profitability was cluster 2 (WIG-banking, WIG-clothes). Bieszk-Stolorz and Markowicz (2021) examined the probability and intensity of a decrease in the share prices of energy and fuel companies in the first quarter of 2020, using survival analysis methods and analysing all sectoral indices. The results of the study confirmed that companies belonging to the WIG-clothes index suffered the largest share price decline in the first quarter of 2020. They showed that the development of the pandemic has had a significant impact on the energy and fuel sector. The heterogeneous nature of the impact of COVID-19 on firms encouraged us to take into account the company level by investigating the reaction of selected listed companies to the COVID-19 pandemic on the largest stock exchange in Central and Eastern Europe.

2. Methodology

The paper focuses on companies listed on the Warsaw Stock Exchange. The study examines the rates of return of all companies that meet the WSE base eligibility criteria by examining the WIG index and the industry indices. The analysis covers the period from 24 February to 31 August 2020, divided into two sub-periods (see Figure 1):

- 24 February to 16 March 2020 – the first sub-period;
- 17 March to 31 August 2020 – the second sub-period.

Figure 1. Warsaw Stock Exchange Index over the period January-August 2020



Source: own elaboration based on WSE, 2021.

We collected data on stock prices from the Warsaw Stock Exchange.

To examine the rates of return, we calculated the daily stock returns for both sub-periods, using the following formula:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \quad (1)$$

Where:

$P_{i,t}$ – the value on the i-index for day t (the end of the research sub-period),

$P_{i,t-1}$ – the value on the i-index for day t-1 (the beginning of the research sub-period).

The mean value of R_{it} is computed as:

$$\bar{R} = \frac{\sum_i^N R_i}{N} \quad (2)$$

To check the statistically significance we use the *t*-statistic, computed as

$$t = \frac{R}{\sigma}\sqrt{N} \quad (3)$$

We determined the rates of return for the WIG index and industry indices (WIG-banking, WIG-construction, WIG-chemical, WIG-energy, WIG-games, WIG-mining, WIG-IT, WIG-pharmaceuticals, WIG-media, WIG-automobiles, WIG-real estate, WIG-clothes, WIG-oil & gas, WIG-food, WIG-telecom).

We calculated the rates of return for each listed company for the two analysed periods separately (21 February – 6 March 2020 and 17 March – 31 August 2020). The findings are presented in the form of the rates of returns of relative frequency graphs.

Additionally, we conducted an event study analysis to examine the reaction of stock market indices to the World Health Organisation (WHO) announcement of the classification of the COVID-19 outbreak as a pandemic on 11 March 2020.

To measure market reaction, the abnormal returns (AR) and cumulative abnormal returns (CAR) were calculated. The first step was to calculate the daily rates of return for sector indices as well as the market index.

The rates of return for all sector indices of the WSE were determined.

The abnormal returns were computed using market-adjusted returns (Brown and Warner, 1985):

$$AR_{i,t} = R_{i,t} - R_{m,t} \tag{4}$$

Where:

$R_{i,t}$ – the return on the i-sector index for day t,

$R_{m,t}$ – the daily return on the market index (WIG) for day t.

For each index, we used daily rates of return observations (Brown and Warner, 1985), which covered the estimation period and the event period. We used an 11-day window of 239 trading days.

The cumulative abnormal returns on the i-sector index in an 11-day window were calculated using the following formula:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \tag{5}$$

where:

AR – abnormal return for i-sector index in the time window.

In order to test the significance of the results, we applied a test based on the *t*-statistic:

$$H_0: CAR_i = 0 \tag{6}$$

$$t_{CAR_i} = \frac{CAR_i}{s_{CAR_i}} \tag{7}$$

$$S^2_{CAR_i} = L\, S^2_{AR_i} \tag{8}$$

Where:

L – the number of days in the event window.

The abovementioned methodology allows us to answer the research questions RQ1 and RQ2.

To examine the effect of COVID-19 on companies' reactions (RQ3), we analysed the decisions made by the management boards and financial performance. The analysis focuses on the group of listed companies considered to have been the most affected by the disruption caused by COVID-19.

The content analysis was applied through the examination of all current and quarterly reports of the selected companies (the six largest companies – whose share in the index is almost 98% – from the WIG-clothes index, which recorded the largest decline in terms of the rates of return among all sector indices on the WSE), for the entirety of the analysed period (21 February – 31 August 2020). We identified and collected data from the Polish Press Agency (http://biznes.pap.pl/en).

The paper focuses on companies' management decisions in response to the COVID-19 outbreak in order to examine the challenges faced by management during the COVID-19 pandemic and the potential actions undertaken by the firms. Therefore, the authors looked for information regarding management in the areas of 1) financial results, 2) investment decisions, 3) equity decisions, 4) dividend decisions, and other important decisions besides.

3. Research results and Discussion

This section presents the results of the analysis, carried out in two parts. The first part presents the study findings of the rates of return for the market index and industry indices of the WSE, calculated for the two analysed sub-periods. It also covers the results of the reaction of the stock market indices to the WHO announcement of the classification of the COVID-19 outbreak as a pandemic.

The second part refers to the results of the analysis of the decisions made by the management boards and financial performance. The analysis focuses on the group of companies from the WIG-clothes index which were considered to have been the most significantly affected by the disturbances caused by COVID-19. The six largest companies from the WIG-clothes index were analysed (LPP S.A., CCC S.A., VGR S.A., LUBAWA Capital Group, GLCOSMED, and WITTCHEN);

said index recorded the largest losses among all sector indices on the WSE. It should be noted that sector indices of the WSE are not homogeneous.

3.1. The reaction of the Polish stock market and industries

Table 1 presents the rates of return for the major indices and industry indices of the WSE calculated for the two analysed sub-periods. As we expected, in the first sub-period we observed negative rates of return for almost all indices, while in the second sub-period, they are mostly positive. As assumed, the results of the study show that during the first analysed period, the indices responded differently to the COVID-19 outbreak. The results of firms from the WIG-banking, WIG-mining, and WIG-media indices plummeted, with rates of return lower than -40%, and firms operating in WIG-clothes -50%, in the entire first period of the study (the shock period). However, firms from the IT, real estate, and construction industries had rates of return no lower than -23% (even less in the case of IT – approximately -17.5%).

Table 1. Rates of return (%) for the indices

	First research sub-period (24.02 – 16.03.2020)				Second research sub-period (17.03-31.08.2020)			
index	**R**	**$\bar{R}$**	***t*-stat.**	**Deviation**	**R**	**$\bar{R}$**	***t*-stat.**	**Deviation**
WIG	-34.28	-2.51	-2.5079**	4.00	36.81	0.28	1.8690*	1.64
WIG-banking	-40.51	-3.07	-2.5184**	4.87	-3.39	0.00	0.0048	2.49
WIG-construction	-22.02	-1.49	-1.9071*	3.13	59.24	0.41	2.8338***	1.57
WIG-chemical	-35.55	-2.62	-2.5673**	4.08	50.75	0.39	1.6495	2.52
WIG-energy	-35.49	-2.61	-2.4902**	4.19	83.52	0.58	1.9232*	3.22
WIG-games	-27.06	-1.69	-0.9420	7.16	92.63	0.59	2.6999***	2.37
WIG-mining	-41.98	-3.17	-2.2194**	5.72	151.93	0.84	2.9995***	3.03
WIG-IT	-17.13	-1.12	-1.5028	2.99	53.42	0.38	2.4448**	1.69
WIG-pharmaceuticals	-35.50	-2.39	-1.2459	7.68	121.03	0.80	1.7943*	4.78
WIG-media	-41.98	-3.26	-3.2810***	3.98	36.97	0.29	1.5193	2.08
WIG-automobiles	-35.29	-2.59	-2.5131**	4.13	53.23	0.40	1.6594*	2.61
WIG-realestate	-21.27	-1.44	-2.0067**	2.87	8.42	0.08	0.5435	1.63
WIG-clothes	-50.36	-4.14	-3.1430***	5.26	64.91	0.48	1.6734*	3.08
WIG-oil&gas	-35.29	-2.60	-2.5331**	4.10	23.15	0.20	1.0023	2.18
WIG-food	-27.15	-1.85	-1.5312	4.82	17.71	0.15	1.0698	1.54
WIG-telecom	-23.78	-1.62	-1.8326*	3.53	28.25	0.23	1.3544	1.84

Remarks:
Deviation – the standard deviation of the daily return series
***, **, * significant at 1%, 5%, 10% respectively

Source: own elaboration based on WSE, 2021.

The results of the analysis of the rates of return were supplemented with the analysis of the cumulative average abnormal returns around the event date (the WHO announcement confirming the COVID-19 outbreak as a pandemic) for the 11-day window, presented in Table 2. The study findings show that the negative and statistically significant cumulative abnormal rates of return were observed for WIG-clothes (-24.32%) and WIG-banking (-12.8%). The findings confirm that in the short term the COVID-19 pandemic affected the WIG-clothes index most strongly.

Table 2. CARs within the 11-day window (the WHO announcement of the COVID-19 pandemic) based on mean adjusted returns

index	CAR	t-ratio
WIG-banking	-12.80	6.7802***
WIG-construction	5.49	1.5906
WIG- chemical	8.81	1.8561*
WIG-energy	8.45	1.7423*
WIG-games	10.05	1.9986**
WIG-mining	-6.88	1.3922
WIG-IT	14.17	3,9290***
WIG-pharmaceuticals	5.92	0.9356
WIG-media	-3.71	0.8630
WIG-automobiles	-2.93	0.8255
WIG-realestate	5.71	2.0056**
WIG-clothes	-24.32	6.1424***
WIG-oil&gas	1.72	0.4454
WIG-food	6.16	1.7406*
WIG-telecom	19.56	4.3298***

Remarks:
***, **, * significant at 1%, 5%, 10% respectively

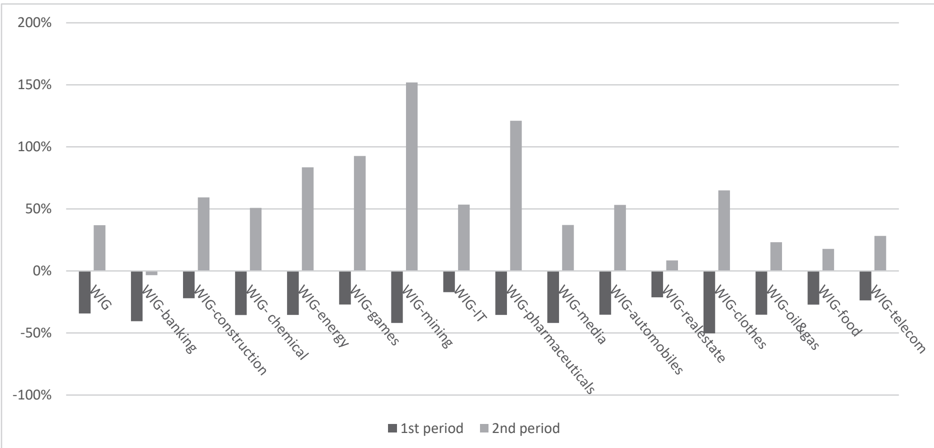
Source: own elaboration based on WSE, 2021.

The second sub-period (Table 1) covers the period of the market calming phase that followed the reaction to the first crash. The central banks and governments of many countries implemented stimulus and support measures, which calmed the mood on the financial markets (including on the Polish financial market) and brought about an increase in the market valuations of the companies listed on the WSE, which is confirmed by the findings of the study. Only the banking sector saw a negative rate of return (-3.39%); all other sectors were characterised by positive rates of return – the highest being in WIG-mining and

WIG-pharmaceuticals (121% and 152% respectively). The rates of return for the indices for both sub-periods are presented in Figure 2.

As Mazur et al., (2020) argue, COVID-19 caused "a revenue shock to the majority of industries that remain shut down during the quarantine period". We may agree with the statement that "from this perspective, [the] March 2020 stock market crash [did] not occur due to weak economic fundamentals".

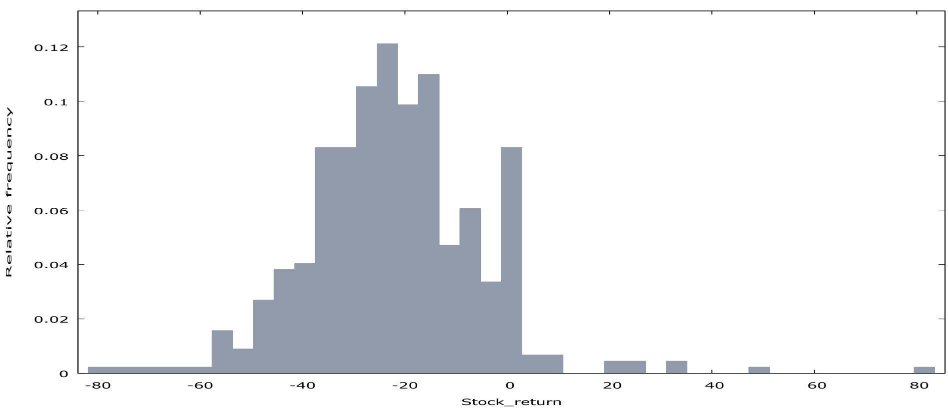
Figure 2. The period rates of return for both sub-periods



Source: own elaboration.

Figure 3 shows the rates of return relative frequency for the first sub-period (24 February to 16 March 2020).

Figure 3. The rates of return relative frequency histogram for the first sub-period



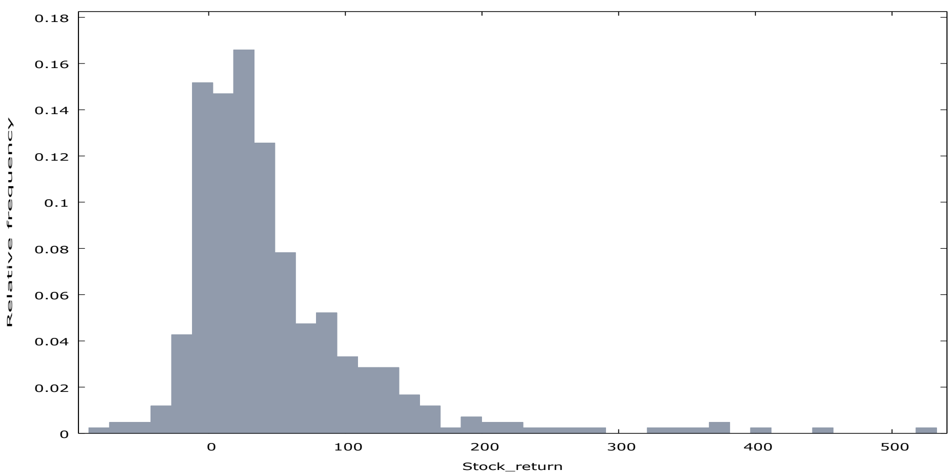
Source: own elaboration.

Figure 3 confirms the strong and unambiguous reaction of stock prices to the information from the environment in the first period studied – the beginning of the COVID-19 outbreak. This indicates the emotional behaviour of the investors as it pertains to stock exchange trading and a negative assessment of the future economic situation.

In the first sub-period from 24 February to 16 March 2020 (when the economic crash was observed), the declines in the rates of return were dominant. The distribution of rates of return was left-side asymmetric. Due to the results, almost 89% of the shares of the companies listed on the WSE fell. Declines ranging from 15.0 to 30.0 percent prevailed in the studied group. The dynamics of the declining rates of return caused by COVID-19 were some of the largest in the history of the WSE.

The relative frequency of rates of return for the second sub-period (17 March to 31 August 2020) is presented in Figure 4. The second research period concerned the market calming phase that followed the first shock reaction. Investors positively assessed the public aid packages for enterprises and began to take into account the easing of the epidemic restrictions and limitations announced by the government. This triggered a strong upward correction in the stock market. In the second of the analysed periods, increases in share prices dominated. We confirmed the increase in share prices of almost 82% of the analysed companies. For the majority of companies, the rates of return in the period were in the range of 0% to 30%.

Figure 4. The rates of return relative frequency histogram for the second sub-period



Source: own elaboration.

In the entire analysed period from February to August 2020, it was possible to observe a sharp decline in share prices during the first sub-period from 24 February to 16 March 2020, followed by a strong increase during the second sub-period from 17 March to 31 August 2020), which in the case of some companies even resulted in setting new record valuations. Fluctuations of the stock exchange conditions on the WSE were a severe reaction to a random event with a very low probability of occurrence.

3.2. Shareholder management and COVID-19 – companies belonging to the WIG-clothes index

The changes triggered by the COVID-19 crisis brought about long-term effects on the operations and management of companies. In order to broaden the research, the decision was made to examine the reactions (decisions) of selected companies to the COVID-19 outbreak. The analysis focused on the group of listed companies considered to have been most significantly affected by the disturbances caused by COVID-19. The subject of the analysis was a group of the six largest companies from the WIG-clothes index, which also recorded the largest losses among all sector indices on the WSE (table 3).

The analysis, the results of which are presented below, was conducted on the basis of the current reports and interim reports for the first quarter of 2020 and the first six months of 2020 from the following companies: LPP S.A. (LPP SA Group, 2020a, 2020b, 2020c), CCC S.A. (CCC S.A Capital Group, 2020a, 2020b, 2020c), VGR S.A. (VRG, 2020a, 2020b, 2020c), LUBAWA Capital Group (Lubawa SA Group, 2020a, 2020b, 2020c), GLCOSMED S.A. (Global Cosmed Group, 2020a, 2020b, 2020c), and WITTCHEN S.A. (Wittchen S.A. Group, 2020a, 2020b, 2020c).

Table 3 presents basic market data of the analysed companies and the weighting of each company belonging to the WIG-clothes index.

Table 3. Company data

	Weighting (%) in WIG -Clothes	Price change in the first period (%)	Price change in the second period (%)
LPP	70.94	- 42.32	43.7
CCC	21.88	-67.14	116.32
VRG	3.64	-57.19	21.58
LUBAWA	1.07	-31.28	90.67
GLCOSMED	0.43	-23.85	777.58
WITTCHEN	0.34	-49.61	31.58

Source: own elaboration based on WSE data.

The COVID-19 outbreak had a decisive impact on the social and purchasing habits of people all around the world. According to the KPMG study "Consumer Pulse Survey", a new type of consumer is emerging: one who limits their expenses, is more advanced in the use of digital technologies and makes purchasing decisions more thoughtfully (KPMG, 2020). These are challenges which companies operating in the clothing sector must face up to.

To examine shareholder management and decisions undertaken by management boards in response to COVID-19, we selected the following firms from the WIG-clothes index:

- LPP S.A. – a company which designs and distributes clothing in Poland and abroad (CE Europe, Western Europe, the Balkans and the Middle East). It is one of the most dynamically developing clothing companies in the region. Clothes are designed in the company's headquarters in Poland, and production is commissioned to contractors in Asia, Turkey and Poland. The key strategy is to focus on the design, distribution and creation of their own brands. The brands offered by LPP differ in terms of target groups – for children (RE Kids brand), teenagers (Cropp, House, SiNSAY) and adults (MOHITO, RESERVED).
- CCC S.A. – the largest footwear retail company in Central Europe, and the largest footwear manufacturer in Europe. At the end of 2020, the Group had 1029 stores in 29 countries, with total sales area of 685,000 square metres. The top 10 CCC brands accounted for almost 80% of CCC's total sales. CCC sells almost 45 million pairs of shoes per year. The group has a total of 72 sales platforms.

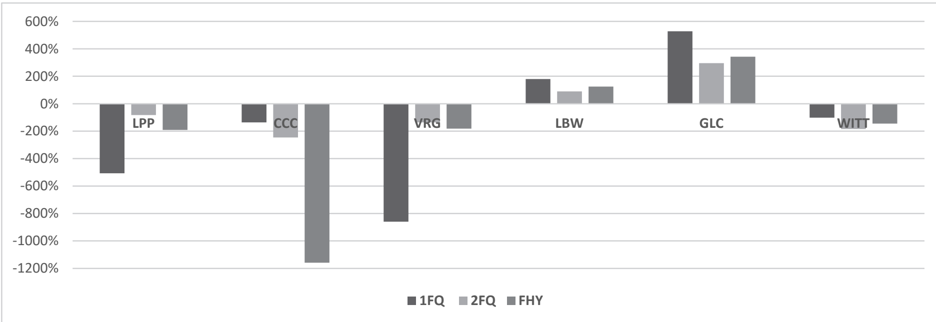
- VGR S.A. (formerly Vistula Group S.A.) – specialises in the design and distribution of high-quality fashion collections for men and women and jewellery. It is the owner of well-known trademarks in five main lines: Vistula, Bytom, Wólczanka, Deni Cler Milano and W.KRUK. VRG S.A. focuses on brand management, clothing and jewellery design and the development of its own sales network.
- LUBAWA Capital Group – the main activity of the group is the production, processing and sale of fabrics and knitted fabrics offered to public and business customers. The sale of products and services is carried out at every stage of fabric and knitwear processing – from raw material to a technologically advanced final product. The company produces goods that are used in many industries – from advertising, to automotive or medical, to military. Enterprises belonging to Lubawa offer umbrellas and advertising products, awnings for caravans, technical and decorative fabrics, tents and specialised products and equipment for uniformed services, among others.
- GLCOSMED S.A. – the Global Cosmed Group associates companies producing cosmetic products and household chemicals. It focuses on the development of foreign expansion to the German market as well as Asia (China and South Korea). It supplies products to virtually all major market players in the country and the region, such as Biedronka, Lidl, Aldi, Kaufland and Rossmann. It also continues to develop activity in the private label segment.
- WITTCHEN S.A. – a leader on the Polish luxury accessories market, mainly leather, in the upper- and middle-class segment. The group also sells luxury leather footwear, clothing and luggage accessories. It specialises only in the sale and marketing of luxury accessories, but does not manufacture them. The firm orders and purchases finished products which are produced by external suppliers on its behalf. The group is the owner of the WITTCHEN brand.

3.2.1. Financial results

There are two types of risks associated with the COVID-19 outbreak faced by clothing companies: supply chain risk (perceived as low at the beginning of the pandemic) and the risk related to the sales of goods, which was perceived as very high (due to the closure of shops and customer limits in retail outlets). Due to the pandemic, its risks and its implications, reduced sales were expected. For example, LPP reported that the impact of the COVID-19 pandemic on the operations of the firm was unknown and impossible to estimate and depended on factors that were beyond the issuer's influence or control. Finally, LPP reported that after two fiscal quarters of 2020, revenues had decreased by 20.6% y/y (-35.3% in the first and -9.20% in the second fiscal quarter), Wittchen reported a 27.5% decrease (respectively -12% and -41.5%), VRG -23.2% (-7.9% and -35.3%) and CCC -13.3% (-7.10% and – 17.60%).

Two companies in the group which was the subject of analysis benefited from the pandemic. Global Cosmed experienced a surge in demand for selected cosmetics products: after the first fiscal half-year revenues increased by 18% (18.7% in the first and 17.4% in the second fiscal quarter). Lubawa reported an approximately 2% increase in revenues after the first fiscal half year (a 12.7% increase in the first fiscal quarter and an 8.7% decrease in the second). This was the result of differences in its client base (the army, police, border guards, fire brigades) and the type of products offered by the firm, which were highly desirable during the pandemic (health and safety products, worker protection products).

Figure 5. EBIT changes for the analysed companies (2020/2019)



Source: own elaboration.

Consistently with the decreases in revenue, LPP, Wittchen, VRG, and CCC reported decreases in other financial measures, i.e. in EBIT. Lubawa and Global Cosmed, as the "stars" of the pandemic, enjoyed an improved financial situation and achieved a higher EBIT than in 2019. Figure 5 shows the changes in EBIT in the first and second quarter as well as in the first fiscal half-year of 2020 overall in relation to 2019.

3.2.2. Investment decisions

Companies from the analysed industry faced a significant risk on the sales side. From mid-March to the beginning of May this year, LPP, CCC, VRG and Wittchen had to close almost all bricks-and-mortar stores due to the administrative decisions and restrictions introduced by the governments of the countries affected by the pandemic. The discontinuation of sales in the fixed-line channel was an unprecedented event for these three groups – the share of revenues generated in the fixed-line channel was approximately 90% at LPP, 86% at VRG and 72% at CCC. Wittchen does not publish data on revenues generated in the traditional and e-commerce channels.

The abovementioned situation forced companies to change their investment policy. CAPEX for LPP in the first quarter of 2020/21 amounted to PLN 191.7 million, i.e. 17.7% less when compared to the first quarter of the previous year. In the first fiscal half-year of 2020/21, CAPEX amounted to PLN 353.3 million, i.e. approx. 16% less compared to the previous year. Lower capital expenditure was mainly related to the reduction in the development of the sales network.

In January 2020, CCC announced a decrease in investment expenditures from approximately PLN 700 million in 2019 to PLN 150-200 million in 2020 and the two years following. The pandemic only resulted in increased efforts to develop the e-commerce channel. According to the group's forecasts, in 2022 this channel may be responsible for approx. 32% of sales on the Polish footwear market, which will probably change the role of traditional shopping centres.

In response to the pandemic, VRG optimised its development plans, closed unprofitable showrooms and renegotiated rental conditions. The company has announced a reduction in net retail space compared to the end of 2019 by approx. 3%, as well as the closing of unprofitable stores. At the same time, it expects double-digit sales increases in the on-line channel.

Wittchen announced that, despite the current situation related to the COVID-19 pandemic, the expansion of the logistics centre near Warsaw is to continue due to its strategic importance to the entire group. The Wittchen management board also started negotiations with representatives of shopping centres aimed at defining new terms of cooperation, including reducing the rents paid or terminating the partnerships.

In the case of Lubawa and Global Cosmed, there have been no clear declarations made by the management boards in terms of limiting plans and cutting investments. Lubawa mainly fulfils orders for uniformed services. It also offers products for occupational health and safety, employee protection, and tourism products. Global Cosmed, in turn, offers specialised household chemicals and cosmetics. The group obtained external certificates for its products for disinfection, and the pandemic had a positive impact on the financial results achieved in the short term.

To sum up, restrictions on investment plans and expenditures concerned entities that generated a significant part of their revenues from their stationary sales networks which, due to administrative decisions, were closed in the period from March to May. However, the analysed index also included companies whose results were not affected by the pandemic, and which thus saw no need to cut capital expenditure.

3.2.3. Equity decisions

The COVID-19 outbreak resulted in a stock market crash and reduced valuations of companies. In order to mitigate the effects of the pandemic, some companies decided or planned to repurchase their own shares. By reducing the numbers of outstanding shares, EPS is increased, which could result in the market valuation of a company increasing.

Lubawa announced the share repurchase programme in May 2020. It was, however, quite controversial among investors, mainly due to the price offered, which was about 28% lower than the current price, albeit correct in accordance with commercial law (the six-month average). Such disproportion between the current price and the six-month average was the result of a sharp increase in the value of Lubawa's shares at the beginning of April. Most likely, investors expected at the time that Lubawa, as a supplier of equipment for the uniformed services and health and safety materials, would benefit from the pandemic and thus achieve improved financial results. The share repurchase programme was not successful.

In September, LPP decided to repurchase their own shares. The General Meeting of Shareholders approved the establishment of the company's reserve capital (PLN 2.1 billion) to finance the operation.

In October 2020, VRG was also to accept the share repurchase programme (not more than 19.09% of the share capital) in response to the low valuation of the company on the financial market. The draft of the resolution assumed the establishment of reserve capital of PLN 135 million. Finally, the General Meeting scheduled for 13 October 2020 was cancelled.

Another type of equity operations was observed at CCC, which needed new funds to strengthen the company's working capital. At the beginning of March the company decided to issue new ordinary shares and increase the share capital by not less than 20%. As a result, at the end of April 2020, the company issued 13.7 million new shares, raising PLN 506.9 million.

3.2.4. Dividend decisions & other important decisions

Dividend decisions, particularly the decision not to pay out dividends, are a common, strong and clear effect of the crisis. The analysis of the dividend decisions made by the analysed companies confirms this assumption.

Three out of six analysed companies (LLP, CCC and Wittchen) had a stable dividend policy and shared their net profit with shareholders continuously for many years (CCC and LPP began doing so in

2010, and Wittchen in 2016). In response to the COVID-19 outbreak, the management boards of all three companies recommended no dividend payment in 2020 to the General Meeting of Shareholders. For the following years, the Management Board of Wittchen has recommended allocating all profit to an increase in the supplementary capital. The remaining companies did not pay dividends or did so sporadically; due to the crisis, the profit remained within the company (in the case of Lubawa, the decision was not related to the pandemic).

A different dividend approach was observed in the case of Global Cosmed, which adopted a dividend policy assuming a payout to the shareholders of not less than 35% of the consolidated net profit annually over the period 2020-2023.

In addition to dividend decisions, companies have taken other measures to mitigate the effects of the pandemic. The Management Board of Wittchen waived their remuneration for the functions performed in the period from 1 April to 20 June 2020, reducing it to the amount of PLN 0.01 per month. Similar decisions were undertaken at LPP – the members of the Management Board and the Supervisory Board decided to forgo remuneration during the crisis. The vice-president of the Supervisory Board stated that the members are not indifferent to the challenges the entire company is facing. Bearing in mind above all the safety of its employees and long-term business partners, as a gesture of solidarity with the company's management, members of the board decided that until the financial situation has stabilised, they would not receive remuneration for fulfilling their functions.

One negative result of the pandemic was the lower rating of LPP's financial credibility. This was a consequence of the weakening of the company's financial situation expected by EuroRating as the result of the periodic closure of its stationary stores.

Conclusions

The COVID-19 outbreak has not only affected people's health and social lives, but also companies and the financial markets all around the world. The consequences of COVID-19 are uncertain and diverse. As Ellul et al., (2020) claim: "corporations, whether small, medium, or large, young or old, are at the very heart of these two challenges, and academic research will be needed to guide policy making."

The aim of the study was to investigate the implications of COVID-19 in terms of the Polish stock market reaction, analysing the market level (RQ1), the industry level (RQ2) and the corporate level (RQ3). We conducted the analysis in two sub-periods. To achieve this aim, we examined the rates of return of all companies listed on the Warsaw Stock Exchange (WIG) and the industry indices of the Warsaw Stock Exchange.

The study results show, as assumed, that the COVID-19 outbreak in February 2020 was a shock to the companies listed on the Warsaw Stock Exchange. During the first analysed period, all indices showed negative rates of return; however, we can observe significant differences among the indices. The companies operating in the WIG-banking, WIG-mining, and WIG-media indices lost more than 40%, and firms from the WIG-clothes index about 50%, of their capitalisation in the entire first period of the study. Firms from the WIG-IT, WIG-real estate, and WIG-construction indices lost less than 23% (WIG-IT even less than 17.5%). In the second of the analysed sub-periods, increases in share prices dominated.

The analysis of the implications of COVID-19 on the corporate and managerial behaviour of companies from the WIG-clothes index listed on the WSE confirmed that the administrative decisions and restrictions introduced by the government as a result of the pandemic substantially caused temporary closures and restrictions on the scale of operations, reducing the scale of employment. As a consequence, a significant decline in revenues, a deterioration in the financial results and the creditworthiness of most such companies could be observed. Again, this effect was not the same for every company, as some companies benefited from COVID-19, mostly due to the type of products offered, some of which were necessary – and thus in high demand – in the pandemic.

Corporate management during COVID-19 was focused on mitigating the effects of the pandemic. Companies made decisions to improve their position by reducing costs, e.g. by renegotiating credit agreements, renegotiating commercial space rental agreements, reducing investments, not paying out dividends, and developing e-commerce channels. Due to the situation on the financial market, some companies decided to repurchase their own shares so as to mitigate the low valuation. Other decisions were related to changes in the composition of management boards, as well as the remuneration of management boards or supervisory boards. It should be noted that stimulus packages were of significant importance to management during the pandemic. Such results cannot be compared to other studies, as they are based on an analysis of specific companies (a case study). Moreover, there is a lack of research on the behaviour of particular companies in response to COVID-19.

In this study we focused on the short-term reactions and the management decisions in the short term; further studies could take into account the long-term reactions, as well as performance and managerial decisions in the long term. The study could be also extended to other markets by means of a comparative analysis.

The COVID-19 outbreak had a significant impact on economies around the world and changed the way businesses are run. We are unable to predict the future effects of the COVID-19 pandemic, but in this study we tried to mirror the current impacts triggered by the pandemic on the Polish stock market by analysing the market, industry and corporate levels. The results of the study could be interesting for investors or company managers. The findings allow for a better visualisation of the effects of COVID-19 on different sectors of the Warsaw Stock Exchange.

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