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Journal of Intercultural  
Management

Vol. **14** | No. **4** | **2022**

pp. **21–38**

DOI **10.2478/joim-2022-0014**

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# Impact of the Covid-19 Pandemic on the Standing of Companies Listed on the Warsaw Stock Exchange

Received: 04-12-2022; Accepted: 19-01-2023; Published: 25-03-2023

## ABSTRACT

**Objective:** The impact of the Covid-19 pandemic can be observed in many aspects of the functioning of people, economic entities, organisations and countries. One of the areas where this phenomenon has left its mark remains the stock markets. Company listings are influenced by both investor emotions and the economic and financial condition of individual companies. The aim of this study is to assess the impact of the Covid-19 pandemic on individual industries represented by companies listed on the Warsaw Stock Exchange.

**Methodology:** In order to achieve this goal, an analysis was made of the value of changes in the so-called sector indices in the period from the beginning of 2020 to the end of the first half of 2022. This approach to the study will make it possible to determine which industries were most significantly affected by the economic change and what the nature of the possible change was. Quarterly data was used in the research.

**Findings:** The results obtained made it possible to note that among the thirteen analysed sectors, we can observe those that lost their value as a result of the Covid-19 pandemic (WIG-medicines, WIG-food, WIG-banks, WIG-clothing), but also those that significantly increased their value in the period under study (WIG-motorisation, WIG-construction, WIG-energy, WIG-IT).

**Value Added:** The study conducted will allow for a better understanding of how investors react to crisis events and how this translates into the listing of companies on the stock market.

**Recommendations:** The research results obtained require further analysis to establish deeper links between the Covid-19 pandemic and individual sectors of companies listed on the Warsaw Stock Exchange, which will be the subject of the author's further studies.

**Key words:** stock exchange, capital market, impact of the pandemic on the capital market

**JEL codes:** E22, E44

## Introduction

The Covid-19 pandemic has undoubtedly had an impact on many areas of people's lives around the world, and it is being dealt with in various aspects and from many angles. One area that may have been affected by this phenomenon is the stock market. Investors are guided by different criteria and use a variety of methods when becoming active in allocating funds to particular financial instruments. Regardless of the tools used, however, investor interest in a particular sector translates into a broad-based increase in the share prices of companies representing that sector, while a lack of interest in the shares of companies means a fall in prices. Investors take into account the development prospects of a given industry in their decisions and, therefore, a change in the economic situation of a selected sector is the result of their assessment. From the point of view of its impact on the economy and its various sectors the Covid-19 pandemic is a very complex phenomenon, and it can be assumed that the impact is not only negative.

The aim of this study is to assess the impact of the Covid-19 pandemic on individual industries represented by companies listed on the Warsaw Stock Exchange. In order to achieve this objective, an analysis was made of the value of changes in the so-called sector indices in the period from the beginning of 2020 to the end of the first half of 2022. In this way, a determination was made as to which industries were most significantly affected by the economic change and what the nature of the change was. The research used quarterly data, i.e. the rates used in the calculations came from the last day of the stock exchange listing of individual companies in a given quarter. The hypothesis adopted in the study assumes that the impact of the pandemic on companies varies and, depending on the industry, the stock market may not only deteriorate but also improve.

# Literature Review on the Impact of the Covid-19 Pandemic on Various Aspects of Economic Life

An analysis of the content of scientific publications using Google Scholar indicates the very wide range of the impact of the Covid-19 pandemic on many areas of human functioning and various types of entities. Of course, it is impossible to list all areas of impact of the pandemic here, but it is worth flagging the most relevant ones. First of all, attention should be drawn to the colossal impact of the pandemic on not only physical, but also mental health (Javed et al., 2020) manifested by depression, concentration problems, changes in behaviour or eating habits.

Undoubtedly, psychological problems have a direct impact on the functioning of the education system, which, however, thanks to adequate technical facilities, has been able to adapt to the situation, if only through distance learning (Marinoni et al., 2020). The form of remote contact also started to function as a way of providing work, which of course could be done in different formulas, however, research (Sliž, 2020) indicates that large companies, thanks to their technical facilities and resources, undoubtedly found their way better in the new circumstances than medium, small and micro entities.

Restrictions on free movement have also affected people's shopping preferences. A significant part of shopping has moved to the Internet, through which consumers can order goods of their choice (Samuk & Sidorowicz, 2021), and, importantly, the number of transactions concluded over the Internet has not decreased after the removal of trade restrictions (Szcukocka, 2022). The development of distance commerce, in turn, has brought additional benefits to courier and transport companies (Szpilko et al., 2021), which have seen increased demand for their services during the pandemic period.

In the literature, we find analyses (Zioło, 2022) indicating the occurrence of general and unfavourable conditions for the development of companies and households, which is aggravated by the crisis created largely under the influence of the pandemic and the political situation translating into a sharp increase in

energy prices on European and world markets. As a consequence of the crisis caused by the pandemic and the warfare undertaken, existing technological, energy, capital-financial, cooperative, market and raw material supply links, especially for rare earth metals, are being severed. This has contributed, among other things, to a decline in the rate of economic development of countries and regions, which affects the limited possibilities for the development of the activities of economic players while increasing expenditure on expanding defence capabilities. These new conditions cause negative consequences and create new complex problems limiting the possibilities for the development of companies, many sectors and economies of individual countries, regions and local systems.

The pandemic that occurred adversely affects various sectors of the economy, and an example of this is the analysis of the change in the financial situation of a company listed on the Warsaw Stock Exchange (Chmielewski & Pioch, 2020) operating in the clothing industry, namely LPP SA. In the case of the company selected for analysis, the pandemic situation arising in 2020 had a significant negative impact on the results achieved by the company in question and, despite a number of restructuring measures, the year 2020 ended with a loss for the first time in a long period. Discriminatory business failure forecasting models were used to assess the change in the financial situation of the analysed company.

In another study (Kraska, 2022), the authors note that the pandemic has caused companies to reduce their business costs since 2020. There was little impact on the profitability of companies reporting a net profit from their business activities. Nevertheless, the coronavirus pandemic has reduced the liquidity of the companies surveyed, which, despite their profitability, may struggle to meet their current liabilities.

In addition to the noticeable differences in the development of corporate financial indicators, a significant and unfortunately negative aspect of the pandemic's impact on the economy is the reduction in employment. A study covering the year 2020 (Dziawgo, 2022) noted that the pandemic caused a certain paralysis of the economy. Some companies were left with less revenue or with costs without revenue. Seeking to save money, they chose to reduce their workforce. In the first half of 2020, an increase in the number of registered unemployed dismissed for reasons related to their employers was marked since

March, with the largest increase compared to the previous month occurring in April (by 20.59%).

Researchers' studies have also focused directly on the situation of companies listed on the Polish stock market. The analysis on the impact of the pandemic on this market (Gajdka et al., 2020) presented the results of a preliminary study on the scale of price changes that took place on the Polish stock market in relation to other global markets during the Covid-19 pandemic and compared these changes with changes in the financial performance of Polish listed companies. The results indicated that share prices on the Polish market reacted more strongly to the pandemic than on most of the markets studied. However, the scale of the decline appears to be largely justified by the financial performance of the companies studied. Although some of them clearly improved their financial results during the pandemic, in most cases both sales revenues and net profits decreased.

Another study assessed the impact of the pandemic on stock indices, however, only during the initial period of the pandemic, i.e. the first quarter of 2020 (Murawska, 2020). Historical quotations of 44 major global stock indices were studied. For each of them, the start and end date of the downtrend were determined, and then momentum indicators were calculated, showing the changes in the declines of the indices in percentage terms. The European, Asian, North and South American and Australian markets were analysed. As a result of the research, it was found that over the course of approximately one month of a stock market panic, the indices lost approximately one-third of their initial value, with the magnitude of the declines being greater in Europe and in North and South America and Australia. The findings of the research point very vividly to a feature of today's capital markets – stock market valuations of companies are volatile and heavily influenced by the turbulence of the external environment.

Taking into account previous considerations and the review of the literature, there is a noticeable research gap in assessing the impact of the Covid-19 pandemic on individual economic sectors represented by listed companies on the Warsaw Stock Exchange in relation to a period covering a broader time horizon, which justifies undertaking the research forming the subject of this study.

# Warsaw Stock Exchange and Its Key Indices

The financial system of any country is made up of several fundamental elements, that is legal acts, financial instruments, institutions and markets. Virtually every country with a free market economy has institutions called stock exchanges. These institutions concentrate supply and demand for securities traded in a given market. Thanks to the existence of stock exchanges, companies are able to raise capital to enable them to develop and carry out investment activities, and those with surplus funds have the opportunity to invest these funds in the expectation of obtaining an attractive rate of return.

In addition to quotations of financial instruments, the Exchange calculates and publishes so-called stock indices, i.e. indices that reflect price changes in the market or, to put it another way, the economic situation in the market. At present, a number of indices are published on the Warsaw Stock Exchange; however, three of the most important can be included among them.

**The WIG index** is the first stock market index and has been calculated since 16 April 1991. Its first value was 1,000 points. Currently, the WIG includes all companies listed on the WSE Main Market that meet the underlying index participation criteria. The WIG index follows the principle of diversification, aiming to limit the share of a single company and stock sector. It is an income index and its calculation takes into account both the prices of the shares included in it and income from dividends and subscription rights (<https://gpwbenchmark.pl/opisy-indeksow>).

**The WIG20 index**, the second most popular index on the Warsaw Stock Exchange, has been calculated since 16 April 1994, based on the value of the share portfolio of the 20 largest and most liquid companies on the WSE Main Market. Its first value was 1,000 points. WIG20 is a price-type index, which means that only the prices of the transactions included in it are taken into account in its calculation, and dividend income is not taken into account. The WIG20 index may not include more than 5 companies from one stock exchange sector (<https://gpwbenchmark.pl/opisy-indeksow>).

**The WIG30 index** is much younger than the previous two, as it has been published since 23 September 2013, based on the value of the share portfolio



of the 30 largest and most liquid companies on the WSE Main Market. The base value of the index was set on 28 December 2012 and was 2582.98 points. WIG30 is a price-type index, which means that only the prices of transactions included in the index are taken into account in its calculation and dividend income is not included. No more than 7 companies from one stock exchange sector may participate in the WIG30 index, while the share of one company is limited to 10% in the index (<https://gpwbenchmark.pl/opisy-indeksow>).

In addition to the above-mentioned indices covering the so-called broad market, the stock exchange also publishes so-called sector indices, i.e. indices that take into account companies representing only a specific sector, e.g. WIG-banks, WIG-construction and others. Sector indices are calculated in a similar manner as the WIG index, i.e. they are income indices and their calculation takes into account both the prices of the shares included in them and income from dividends and subscription rights.

## Analysis of the Warsaw Stock Exchange Sector Indices for the Period Q4/2019–Q2/2021

Thirteen sector indices calculated and published by the GWP in Warsaw were used in the present analysis- their quarterly values were used. Table 1 summarises the values of the sector indices taken into account in the period from the end of the fourth quarter of 2019 to the end of the second quarter of 2022, which forms the basis for further calculations. This adoption of the research period is justified by the fact that the beginning of the emergence of any pandemic restrictions and the associated restrictions for individual industries dates precisely to the first quarter of 2020 (data from the end of 2019 were used to calculate the dynamics of change at the end of the first quarter of 2020). The second quarter of 2022, on the other hand, is virtually a complete departure from any constraints affecting the functioning of business and the economy. With the data in Table 1,



it was possible to calculate the dynamics of change in the value of the sectoral indices between Q4/2019 and Q2/2022, as presented in Table 2.

**Table 1.** Sector index values for the period Q4/2019–Q2/2022

Index	IVQ- 2019	IQ- 2020	IIQ- 2020	IIIQ- 2020	IVQ- 2020	IQ- 2021	IIQ- 2021	IIIQ- 2021	IVQ- 2021	IQ- 2022	IIQ- 2022
WIG-banks	6768,39	4154,68	4157,20	3698,72	4765,33	5432,19	6547,82	7657,84	8640,27	7643,54	5455,75
WIG-construction	2278,75	1928,43	2754,02	2991,16	3662,06	3958,96	4212,95	4295,18	3763,20	3672,44	3676,19
WIG-chemicals	8390,97	5980,66	8067,33	6785,02	7697,82	8622,81	10232,2	8955,44	9822,11	11332,1	11171,6
WIG-energy	1961,62	1219,86	1958,16	1857,90	2040,76	2149,61	2694,54	2702,00	2415,19	2647,54	3045,44
WIG-mining	3089,84	1913,06	2894,00	3746,50	5625,47	5886,60	5940,09	5336,43	4539,55	6052,12	4330,91
WIG-IT	2834,29	2663,12	3419,23	3837,18	3863,01	4060,18	4509,26	4656,34	4706,08	4410,16	4029,15
WIG-medicines	5197,43	3432,33	4865,52	6061,14	4682,94	7572,00	6332,77	6240,07	5096,92	3732,57	2745,32
WIG-media	5375,11	4131,82	5042,77	4992,09	6042,75	6401,04	7770,02	8524,46	8762,86	7400,91	6584,57
WIG-motoring	3521,67	2471,24	3388,79	3765,10	3981,19	5168,69	5851,97	6686,28	6728,61	6439,24	5854,32
WIG-real estate	2460,44	1886,60	2119,03	2148,94	2385,90	2607,18	3014,43	3165,54	2841,12	2708,99	2549,24
WIG-clothing	5665,06	2975,82	3719,69	3830,05	5158,73	5147,22	7539,69	8697,20	9479,24	6353,77	5214,10
WIG-fuels	6489,03	4347,45	5087,79	4134,41	4954,47	5407,72	6357,84	6902,42	6494,21	6552,21	6180,50
WIG-food	3126,05	2543,29	3048,24	3003,79	3641,75	4090,55	4357,72	4662,86	4484,31	2954,92	2125,36

Source: own compilation based on WSE Statistical Bulletin for the period Q4/2019–Q2/2022.



As can be seen from the calculations, by far the worst period for companies was the first quarter of 2020, when each of the sectoral indices recorded a decline in their value in relation to the end of 2019. Table 3 ranks the industries starting with the one that recorded the largest decline in value during this period. The list of the largest loss in value is opened by the index showing the condition of the clothing sector, which fell by -47.47%. At the bottom of the list is the IT sector, which also recorded a loss, but at a significantly lower level of -6.04%. The average attrition rate of the sector indices in the first quarter of 2020 in relation to the end of the fourth quarter of 2019 was -28.77%.

**Table 2.** Dynamics of change in the value of sector indices over the period Q4/2019–Q2/2022 [%]

Index	IQ 2020/ IVQ 2019	IIQ 2020/ IQ 2020	III Q 2020/ II Q 2020	IVQ 2020/ IIIQ 2020	IQ 2021/ IVQ 2020	IIQ 2021/ IQ 2021	IIIQ 2021/ IIQ 2021	IVQ 2021/ IIIQ 2021	IQ 2022/ IVQ 2021	IIQ 2022/ IQ 2022
	WIG-banks	-38,62	0,06	-11,03	28,84	13,99	20,54	16,95	12,83	-11,54
WIG-construction	-15,37	42,81	8,61	22,43	8,11	6,42	1,95	-12,39	-2,41	0,10
WIG-chemicals	-28,73	34,89	-15,90	13,45	12,02	18,66	-12,48	9,68	15,37	-1,42
WIG-energy	-37,81	60,52	-5,12	9,84	5,33	25,35	0,28	-10,61	9,62	15,03
WIG-mining	-38,09	51,28	29,46	50,15	4,64	0,91	-10,16	-14,93	33,32	-28,44
WIG-IT	-6,04	28,39	12,22	0,67	5,10	11,06	3,26	1,07	-6,29	-8,64
WIG-medicines	-33,96	41,76	24,57	-22,74	61,69	-16,37	-1,46	-18,32	-26,77	-26,45
WIG-media	-23,13	22,05	-1,01	21,05	5,93	21,39	9,71	2,80	-15,54	-11,03
WIG-motoring	-29,83	37,13	11,10	5,74	29,83	13,22	14,26	0,63	-4,30	-9,08
WIG-real estate	-23,32	12,32	1,41	11,03	9,27	15,62	5,01	-10,25	-4,65	-5,90
WIG-clothing	-47,47	25,00	2,97	34,69	-0,22	46,48	15,35	8,99	-32,97	-17,94
WIG-fuels	-33,00	17,03	-18,74	19,83	9,15	17,57	8,57	-5,91	0,89	-5,67
WIG-food	-18,64	19,85	-1,46	21,24	12,32	6,53	7,00	-3,83	-34,11	-28,07

Source: own elaboration based on Table 1.

Such a behaviour of sector indices is undoubtedly related to the condition of the entire stock exchange, and is the effect of investors' fear and anxiety in the face of the occurrence of a hitherto completely new and unknown phenomenon i.e. pandemic restrictions imposed on various social and economic activities, which could affect companies to various degrees through the loss of some of their revenues, which in turn would translate into lower profits or even the possibility of losses. Analysing the data presented in Table 2, it can be seen that successive periods bring an improvement in the situation in individual sectors, as we find many observations where the indices record a positive rate of return.

**Table 3.** Dynamics of change in the value of sector indices in Q1/2020 relative to Q4/2019 [%]

<b>Index</b>	<b>Q2/2020 / Q4/2019</b>
WIG-clothing	-47.47
WIG-banks	-38.62
WIG-mining	-38.09
WIG-energy	-37.81
WIG-medicines	-33.96
WIG-fuels	-33.00
WIG-motoring	-29.83
WIG-chemicals	-28.73
WIG-real estate	-23.32
WIG-media	-23.13
WIG-food	-18.64
WIG-construction	-15.37
WIG-IT	-6.04

Source: own elaboration based on Table 2.

In order to determine the change in the value of the indices of the various sectors in the period from the fourth quarter of 2019 to the end of the

second quarter of 2022, the dynamics of change were calculated and presented in Table 4, ranked starting from the index with the greatest impairment. The analysis of the results obtained shows that, out of the thirteen sectoral indices taken into account, only five of them experienced a decrease in their value, and the most severe one was related to the WIG-medicines index, which amounted to -47.18%. Given the context of the pandemic, this conclusion is surprising. The analysis of Table 4 also indicates that there are areas that increased their value significantly during the reviewed period. These are, in particular, the WIG-motoring, WIG-construction, WIG-energy and WIG-IT indices, which recorded increases in value of 66.24% to 42.16% respectively. It can be assumed that this situation is a result of the impact of the pandemic on society's activity in terms of remodelling the way it works, shops and approaches to its broader pre-pandemic activities. This is indicated by the good results of the automotive industry, which may be supported by increased activity in the transport and courier industry (which may be the result of increased interest in deliveries of products ordered via the Internet), or the good result of the WIG-IT index, which is the result of increased interest of entities in solutions involving new technologies (e.g. Internet shopping, remote working, remote provision of services).

**Table 4.** Dynamics of change in the value of sector indices from Q4/2019 to Q2/2022 [%]

<b>Index</b>	<b>Q2/2022 / Q4/2019</b>
WIG-medicines	-47.18
WIG-food	-32.01
WIG-banks	-19.39
WIG-clothing	-7.96
WIG-fuels	-4.75
WIG-real estate	3.61
WIG-media	22.50
WIG-chemicals	33.14
WIG-mining	40.17
WIG-IT	42.16
WIG-energy	55.25
WIG-construction	61.32
WIG-motoring	66.24

Source: own elaboration based on Table 1.

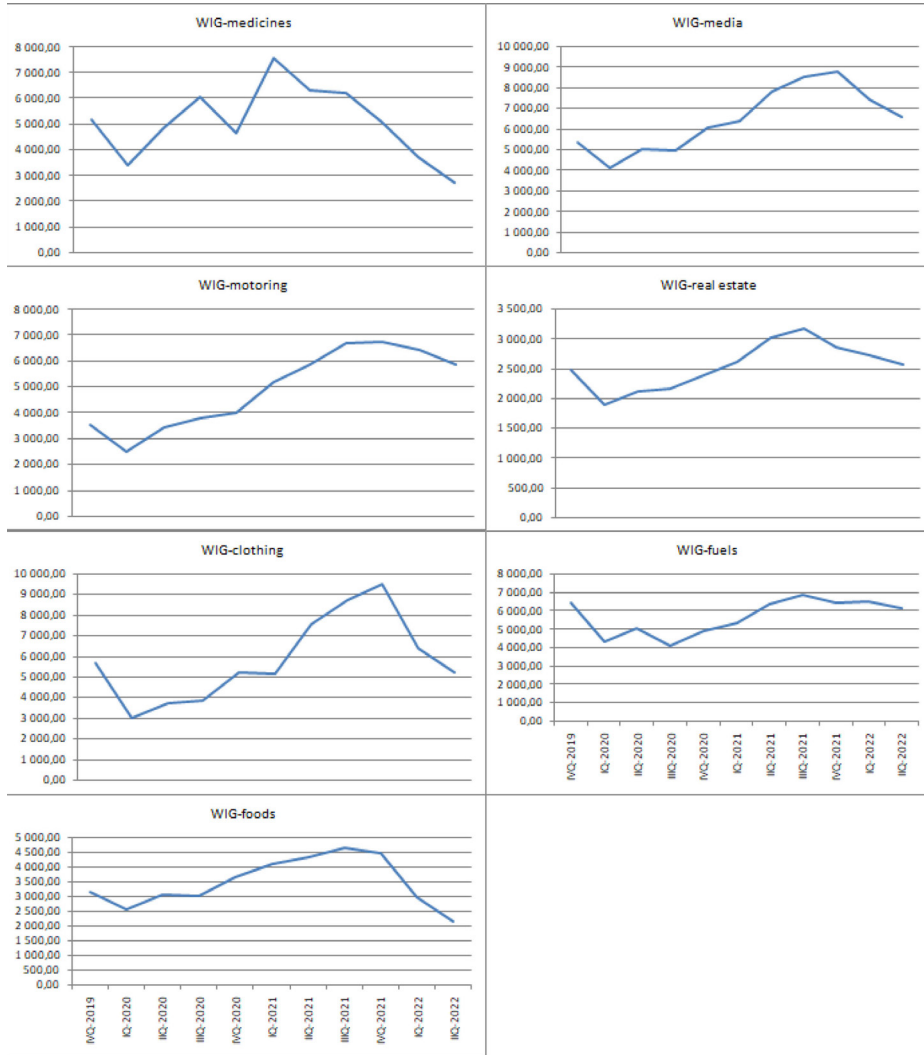
Figures 1 and 2 synthesise the presentation of the development of the values of the sectoral indices in successive periods starting from the end of the fourth quarter of 2019 until the end of the second quarter of 2022. The graphical interpretation of the obtained results confirms the fact that the Covid-19 pandemic cannot be considered only as a phenomenon that contributed negatively to the condition of companies listed on the Warsaw Stock Exchange, but should also be perceived through the prism of a change in the model of social behaviour, which results in a remodelling of everyday private and professional activity, leading to differentiated rates of return of individual sectoral indices.

**Figure 1.** Sector index charts for banks, construction, chemicals, energy, mining and IT for the period Q4/2019–Q2/2022



Source: own elaboration based on Table 1.

**Figure 2.** Sector index charts for medicines, media, motoring, real estate, clothing, fuels and food industries for the period Q4/2019–Q2/2022



Source: own elaboration based on Table 1.



## Conclusions

The aim of this study was to assess the impact of the Covid-19 pandemic on individual industries represented by companies listed on the Warsaw Stock Exchange, and the hypothesis assumed that the impact of the pandemic on companies varies and, depending on the industry, the stock market may not only deteriorate but also improve. This hypothesis should be verified positively, because out of the thirteen analysed sectors, we can observe those that lost their value as a result of the Covid-19 pandemic (Wig-medicines, WIG-food, WIG-banks, WIG-clothing), but there were also those that significantly increased their value in the period under study (WIG-motoring, WIG-construction, WIG-energy, WIG-IT). Obviously, the research results obtained require further analysis to establish deeper links between the Covid-19 pandemic and individual sectors of companies listed on the Warsaw Stock Exchange, which will be the subject of the author's further studies.

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