

## Evaluation of the Performance of Sector Indices Wig-Banki and Wig-Spożywczy Against The Wig and Wig-20 Indices in the Years 2018-2023\*

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### Abstract

The aim of the study was to compare the WIG, WIG-20, WIG-Banki, and WIG-Spożywczy indices listed on the Warsaw Stock Exchange in 2018-2023. The research period covered unprecedented events, i.e., the Covid-19 pandemic and the outbreak of war in Ukraine, which had a significant impact on the country's socio-economic policy assumptions. The research shows that these events had a negative impact on the value of the indices studied. Of the indices analyzed, only the WIG index recorded a slight increase in value during the study period, while the WIG-20, WIG-Banki, and WIG-Spożywczy indices recorded a decline in valuation. An analysis of the factors influencing the changes in the value of the indices examined showed that the inflation rate was a significant factor affecting their value during the study period. This points to the important role of the state's monetary policy in relation to the possibility of increasing the value of capital market companies by influencing internal demand, which determines the increase in the financial efficiency of enterprises. Research on the impact of unprecedented events, such as the COVID-19 pandemic and the outbreak of war in Ukraine, is most often conducted in the context of the entire economy. This article examines the impact of these events on selected sectors. The study is valuable due to the relatively long research period (66 months) and its attempt to use capital market data to assess the situation in two different sectors: food and banking.

**Keywords:** WIG-Banki, WIG-Spożywczy, Polish capital market, stock exchange indices

JEL codes: E44, O16.

### Introduction

The current challenges in Poland's socio-economic sphere, which are characterized by dynamic developments and a wide range of impacts resulting from the growing interdependence and integration of the economic systems of many countries, are important determinants of the growth and development of participants in the financial system and the real economy. These challenges include the Covid-19 pandemic and the outbreak of war in Ukraine, which have subjected the effectiveness of state institutions to multi-stage tests, as well as the ability of participants in the economic system to change their assumptions regarding, among other things, their development strategies, business and operational models, and distribution channels. An analysis of the economic consequences of changes in the macroeconomic environment for entities operating in a market economy should take into account their heterogeneity, which results from differences in their operational objectives and the functions describing the course of supply, production, and sales processes. It may turn out that the same events that are part of systematic risk that cannot be diversified and that, by definition, affect all entities in a market economy, may in fact have different effects on the economic and financial efficiency of their operations. From this point of view, it is important to identify relatively homogeneous groups of entities (e.g., sectors) and to relate the results of the analyses to data representing a larger group (e.g., the economy). Respecting this assumption, this publication

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analyzes the WIG-Banki and WIG-Spożywczy sector indices against the WIG and WIG-20 indices in order to identify differences or similarities in the impact of these challenges on the market value of entities operating within them in 2018-2023.

The decision to select sector indices was made based on significant differences in the activities of companies operating in both sectors. The purpose of entities operating in the food sector is to supply food products that satisfy universal and reproducible food needs, while banking activities are focused on meeting the needs of individual and corporate customers related to the investment and lending of financial resources, as well as their transfer and protection against risk (Gospodarowicz, Nosowski, 2012, p. 128). This diversity may be the basis for the different reactions of the sector indices under review to macroeconomic conditions.

## Theoretical foundations

The Covid-19 pandemic and the outbreak of war in Ukraine are events that had a decisive impact on the generally applicable rules of public safety and order during the research period, as well as on the socio-economic policy assumptions implemented in many countries. The increase in Covid-19 cases led to a decline in global economic activity, thus becoming a new, widespread threat to the financial stability of many developed countries (Boot, Carletti, Haselmann, Kotz, Krahn, Pelizzon, Schaefer, Subrahmanyam, 2020). The economic consequences of the Covid-19 pandemic and the war in Ukraine also include a strong and negative reaction from financial markets, which translated into a sharp decline in the value of individual companies and stock market indices (McKibbin, Fernando, 2020).

The general assessment is that the economic impact of the shocks caused by the Covid-19 pandemic and the war in Ukraine is clearly negative and affects (to varying degrees) all sectors of the economy (Nicola, Alsafi, Sohrabi, Kerwan, Al-Jabir, Iosifidis, Agha, Agha, 2020). The elements of the aforementioned security policy aimed at limiting the number of new coronavirus infections, which during the Covid-19 pandemic defined the framework for the daily functioning of nearly 90% of the world's population, included, above all, a restriction on the movement of people combined with an order to remain at home, as well as a prohibition on participation in gatherings (Gossling, Scott, Hall, 2020). The high incidence of Covid-19 has also led to a decline in GDP and an increase in the dispersion of indices and prices of instruments listed on many markets, including securities, commodities, currencies, and goods and services (Czech, Karpio, Wielechowski, Woźniakowski, Żebrowska-Suchodolska, 2020). According to many authors, the full economic impact of the Covid-19 pandemic and the war in Ukraine has not yet been determined (Barro, Ursúa, Weng, 2020). This study is part of a research and analysis trend aimed at determining the impact of these events on the Polish capital market.

## Material and methods

The study used monthly index quotations for the period from January 31, 2018, to June 30, 2023, on the basis of which basic descriptive statistics were calculated (Witkowska, 2006, p. 54-83), (Parlińska, Parliński, 2007, p. 35-59):

- the simple rate of return, given by the formula:

$$r = \frac{(q_t - q_{t-1})}{q_{t-1}},$$

where,  $q$  is the level of quotations of a given index in the period  $t$  or  $t-1$

- the geometric mean, given by the formula:

$$\sqrt[n]{x_1 \cdot x_2 \cdot \dots \cdot x_n}$$

where:  $x_1, x_2, x_n$  are positive numbers;

- the Pearson correlation coefficient, given by the formula:

$$r_{ij} = \frac{cov(r_{i}, r_{j})}{\sigma_i \sigma_j},$$

where  $cov(r_{I_i}, r_{I_j})$  is the covariance of the (index return) variables, and  $\sigma_{I_i}, \sigma_{I_j}$  are the standard deviations of these variables. For the calculated correlation coefficients, a test of their significance was conducted, given by the formula (Luszniewicz, Słaby, 1996):

$$t = \frac{r_{ij}}{\sqrt{1 - r_{ij}^2}} \sqrt{n - 2},$$

where the t-statistic has a Student's t-distribution with  $\nu = n - 2$  degrees of freedom. A significance level of 0.05 was adopted in the study. The methodology for applying this test involves formulating two hypotheses: a null hypothesis indicating the lack of statistical significance of the correlation coefficient, and an alternative hypothesis indicating its significance. Hypotheses were verified based on the Student's t-test and the calculated test statistic, followed by a comparison of the obtained result with the value obtained from the Student's t-table (*t critical*), appropriate for the given sample size and the assumed significance level. If the value of the calculated t-statistic is in interval  $(-\infty; -t \text{ critical}) \cup (t \text{ critical}; \infty)$ , then the null hypothesis is rejected in favor of the alternative hypothesis, which proves the statistical significance of the correlation coefficient (Peternek, Košny, 2011, p. 348).

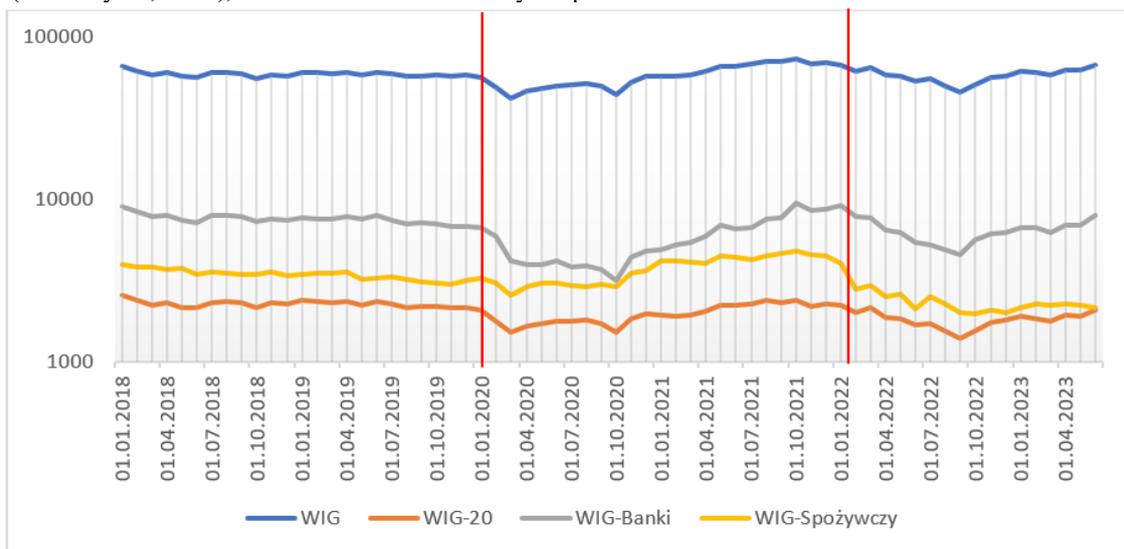
- the beta coefficient, given by the formula:

$$\beta = \frac{cov(r_{IS}, r_M)}{\sigma_M^2},$$

where,  $cov(r_{IS}, r_M)$  is the covariance of the variables (returns of the given index and the market portfolio), and  $\sigma_M^2$  is the variance of the return on the market portfolio. The data used in the research comes from the Warsaw Stock Exchange, which provides historical values of indices and securities (WSE, 2025).

## Results And Discussion

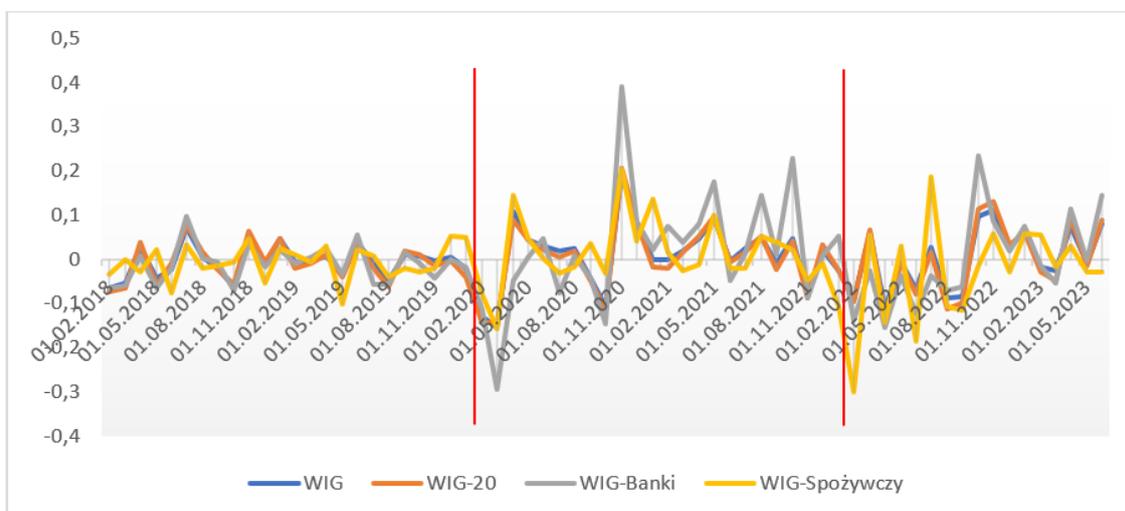
Figure 1 shows the values of the indices examined in the years 2018-2023, with dates (marked in red) representing events that had a significant impact on their quotations. The first sub-period of the analysis, which covered index quotations from the beginning of the research period (January 31, 2018) to the outbreak of the Covid-19 pandemic and the introduction by the government of the first mass restrictions aimed at slowing down the growth rate of infections (March 31, 2020), was characterized by relatively stable quotations of the indices under review. Importantly, as a result of the outbreak of the Covid-19 pandemic, all of them recorded a decline in value. In the second contractually defined sub-period, lasting from March 31, 2020, to the outbreak of the Russian-Ukrainian war (February 28, 2022), an increase in the volatility of quotations was observed.



**Figure 1. Quotations of the WIG, WIG-20, WIG-Banki, and WIG-Spożywczy indices between January 31, 2018, and June 30, 2023, source: own study based on WSE data.**

source: Own study.

In the third of the identified sub-periods, which lasted from the start of the Russian-Ukrainian war (February 28, 2022) to the end of the research period (June 30, 2023), the diversity of quotations remained visible.



**Figure 2. Monthly rates of return for the WIG, WIG-20, WIG-Banki, and WIG-Spożywczy indices in the period from January 31, 2018, to June 30, 2023, source: own study based on WSE data.**

source: Own study.

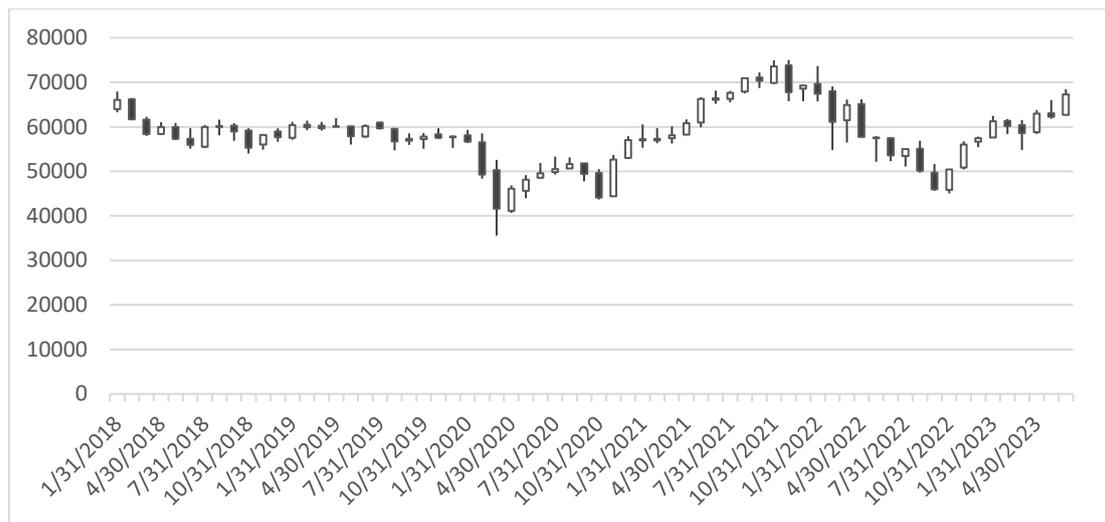
The thesis of increased diversity in the values of the indices examined, which occurred in the second and third research sub-periods (March 31, 2020–June 30, 2023), is also confirmed by the data presented in Figure 2, showing the rates of return calculated for their monthly closing levels.

**Table 1. Correlation coefficients for the WIG, WIG-20, WIG-Banki, and WIG-Spożywczy indices in the period from January 31, 2018, to June 30, 2023**

	WIG	WIG-20	WIG-Banki	WIG-Spożywczy
WIG	1,00	0,76	0,80	0,55
WIG-20		1,00	0,84	0,68
WIG-Banki			1,00	0,40
WIG-Spożywczy				1,00

source: Own study.

Table 1 presents the correlation coefficients between the indices under study. Due to the similarity of the results obtained, the correlation coefficients calculated for the rates of return of the indices under study were not presented. The data show that during the study period, the WIG-Banki index was more closely linked to the economic situation than the WIG-Spożywczy index. These results therefore indicate a different response of the examined sector indices to the macroeconomic conditions prevailing during the study period.



**Figure 3. WIG index quotations between January 31, 2018 and June 30, 2023, source: own study based on WSE data.**

*source: Own study.*

An analysis of the data presented in Figure 3 showed that the rate of change in the closing levels of the WIG index was positive during the research period and amounted to 1.9%, changing at an average monthly rate of 0.03%. An analysis of the monthly WIG index quotations during the research period also showed that the lowest value of this index occurred at the end of March 2020. The correlation coefficients calculated for the WIG index and the WIG-20, WIG-Banki, and WIG-Spożywczy indices proved to be statistically significant and amounted to 0.76, 0.80, and 0.55, respectively. These results confirm the significant importance for the economy of companies operating in the banking sector, as well as the largest companies. The results of the study may also indicate similarities in the conditions for changes in the value of entities in the banking sector and the 20 largest companies.

The largest decline in the WIG index in March 2020 was related to the introduction of the first restrictions by the government in response to the anticipated high rate of new coronavirus infections. These restrictions involved the mandatory limitation or cessation of services in many service and commercial industries, such as hairdressers, beauty services, hotels, and large-format stores, which, due to the nature of their services involving direct contact with customers, could relatively quickly become a source of new infections. The restrictions introduced, which affected the economic activity of representatives of the real economy, also included the introduction of a limit on the number of people served in brick-and-mortar stores, which depended, among other things, on the size of the retail outlet or the number of cash registers and transaction stations.

The impact of unprecedented and widespread restrictions aimed at reducing the rate of new infections led to a massive sell-off and a deterioration in investor sentiment, which may have been due, among other things, to the inability to assess the social and economic risks related to exogenous conditions affecting business operations. The above conclusion confirms the value of the rate of return calculated for the WIG index quotations on February 29, 2020, and March 31, 2020, which reached the lowest level in the adopted research period, i.e., -15.52%. The decline in the WIG index in March 2020 was also the largest among all observations included in the adopted research period. This is confirmed by the difference between the maximum and minimum WIG index quotations relative to its closing level, which amounted to 40.78% in the analyzed month. It should be emphasized that the ratio of the difference between the closing value of the WIG and the minimum value in March 2020 to the closing level of the WIG index in that month was 14.5%, which indicates a correction of negative investor expectations that took place within the same month.

The recovery from the economic losses caused by the outbreak of the Covid-19 pandemic began in April 2020, when the closing value of the WIG index fluctuated around its maximum value (in that month). The upward trend in the monthly values of the WIG index ended on August 31, 2020, after recovering the losses incurred in March of the same year. The following two months brought a correction in the WIG index, which ended at a level higher than the previous minimum. It is noteworthy that, starting in November 2020, the WIG index moved in an upward trend until October 2021, when the closing value of the index reached its highest level. Starting in November 2021, the WIG index began a downward trend, which may have been initially related to a seasonal increase in Covid-19 cases.

A significant deterioration in the index occurred in February 2022 and was directly related to the outbreak of war in Ukraine. Faced with a new threat to the geopolitical stability of Central and Eastern Europe, the mood of domestic and foreign investors deteriorated significantly. The influx of war refugees, who requested aid financed from the state budget and local government units, with the active participation of companies with State Treasury shareholding, also posed a significant challenge to the macroeconomic stability of the economy. The financial performance of companies was also affected by the progressive depreciation of the zloty against major currencies, which significantly influenced the value of exports and imports during this period, as well as the quantity and quality of payment mechanisms and transaction hedging instruments used.

One of the business conditions that had a significant impact on the financial performance of enterprises in 2022 was the rising inflation rate (CPI), which was also one of the key reasons for the depreciation of the zloty against foreign currencies. The monthly values of the average price growth rate (compared to the previous year's base) reached double digits in 2022, remaining on a dynamic growth path until October, when the highest inflation rate (y/y) of 17.2% was recorded (CSO, 2022). The intensification of inflation observed in 2022, manifested in a high CPI index, may also have had a negative impact on the WIG index. The consequences of the decline in the purchasing power of money also include the results of measures taken as part of the monetary policy pursued by the National Bank of Poland, which aimed to restore price stability. The cycle of interest rate hikes that began in October 2021 continued uninterrupted until September 2022 and led to an increase in the reference interest rate from 0.1% to 6.75% at the end of the research period.

The decline in the WIG index observed during this period may have reflected investor sentiment regarding the current and potential opportunities for above-average returns on the Polish capital market in conditions of inflationary pressure. The increase in the yield on zloty deposits available in the banking sector may also have contributed to the decline in investment activity on the capital market. Another important factor influencing the investment activity of capital market investors was the projected dividend value (included in the WIG index analytical formula), which was uncertain at the time due to the turbulent nature of economic processes, the increased risk of liquidity loss, and greater pressure to maintain profitability.

The data presented in Figure 4 show that the rate of change in the value of the WIG-20 index during the study period was negative and amounted to -19.3%, while the average monthly rate of change in the closing levels of this index was -0.33%. The correlation coefficients calculated for the WIG-20 index and the WIG, WIG-Banki, and WIG-Spożywczy indices proved to be statistically significant and amounted to 0.76, 0.84, and 0.68, which may indicate a strong relationship between the index of the twenty largest companies and the situation in the banking sector.



**Figure 4. WIG-20 index quotations between January 31, 2018, and June 30, 2023, source: own study based on WSE data.**

source: Own study.

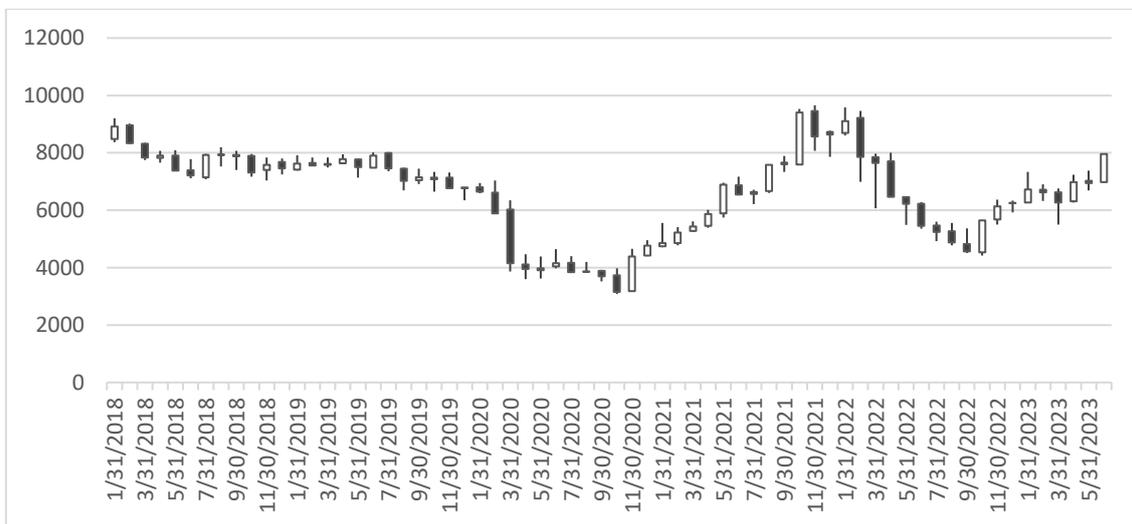
An analysis of the monthly WIG-20 index quotations in the adopted research period showed that its lowest closing level occurred in September 2022. In the context of the above considerations regarding the possible determinants of the WIG index volatility, this may mean that the value of the index, which includes the 20 largest companies on the Polish capital market, was particularly affected by the inflation rate during the research period. The increase

in the average price level of consumer goods and services, which was associated with a decrease in consumer purchasing power, was therefore a significant factor in the change in the market value of the largest entities on the Polish capital market during the research period.

It is noteworthy that the adverse impact of the inflation rate on the market value of the companies included in the WIG-20 index turned out to be greater than the loss in value of the index caused by the introduction of unprecedented restrictions aimed at limiting the spread of the Covid-19 pandemic in March and April 2020. At the end of September 2022, the value of the WIG-20 index was the lowest in the entire analysis period, which may indicate the particular sensitivity of the largest capitalization companies to changes in the volume and structure of demand reported by consumers, who experienced a significant decline in the purchasing power of money during this period. The dynamic growth of the inflation rate in the economy generally contributes to a reduction in macroeconomic stability and a slowdown in economic growth and development processes (Fisher, 1993).

Fisher (1993) proved that inflation is an obstacle to the effective allocation of resources because it affects relative price levels, which makes decision-making difficult. Research results confirming the negative impact of inflation on economic growth processes were also presented by J. De Gregorio (1992). This situation is caused by the weakening of the purchasing power of money, which is a result of the increase in the average price level in the economy. As a result of price increases, consumers purchase fewer goods, which leads to a decline in consumption and, consequently, an increase in inventories and a reduction in production volume in the economy. In the short term, an increase in inventories leads to a decline in the financial liquidity (quick and cash) of enterprises. In the medium and long term, a decline in production and an increase in inventories may be associated with an increase in corporate insolvency and unemployment. A reduction in the number of people in work leads to a further decline in consumption and, consequently, a widening of the gap between potential and actual production levels. The negative demand gap causes a decline in state budget revenues from taxes and fees dependent on the level of production and consumption, while at the same time increasing pressure to increase social spending, often covered by increasing debt.

The effects of monetary policy measures, which determined the availability and price of external financing, also contributed to the increased pressure to maintain the financial efficiency of the largest companies during this period. The high pressure to maintain the profitability of companies listed on the WIG-20 index also resulted from their high level of activity in terms of operations, finance, and investment on international markets, which during this period also faced difficulties that translated into a decline in production volume.



**Figure 5. WIG-Banki index quotations between January 31, 2018 and June 30, 2023, source: own study based on WSE data.**

*source: Own study.*

The data presented in Figure 5 show that the rate of change in the closing levels of the WIG-Banki index was -10.7% during the research period, changing at an average monthly rate of -0.17%, which means that it was lower than the rate of change in the closing levels of the WIG index (1.9%) and higher than the rate of change of the WIG-20 index (-19.3%). The correlation coefficients calculated for the WIG-Banki index and the WIG, WIG-20,

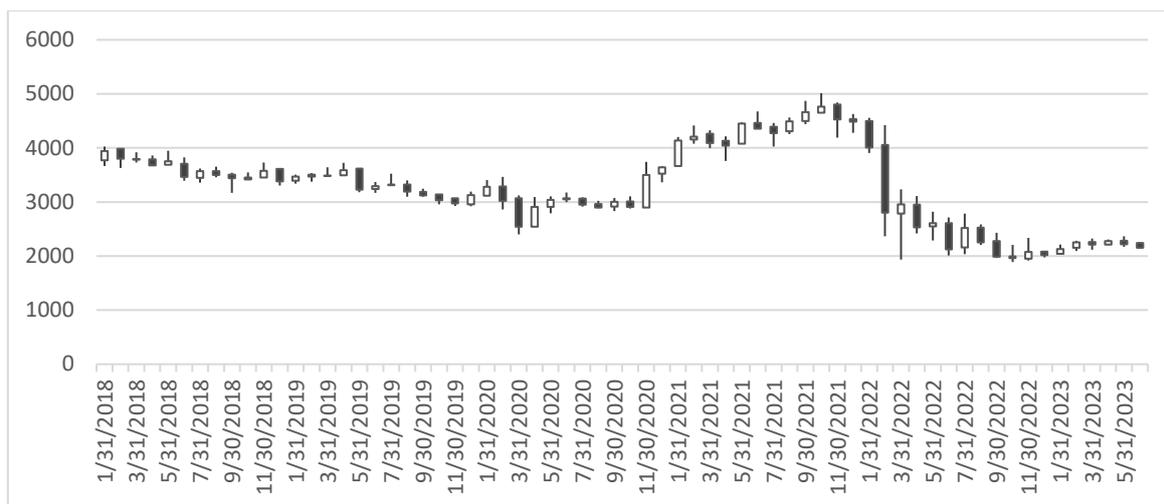
and WIG-Spożywczy indices proved to be statistically significant and amounted to 0.80, 0.84, and 0.40, respectively. This may therefore indicate the important role of the banking sector in the economy and the similarity of the conditions in the banking sector to the factors affecting the value of the 20 largest companies.

The lowest closing value of the WIG-Banki index occurred at the end of October 2020. It is worth noting the relatively long time it took for the bottom of this index to form during the research period, compared to the WIG and WIG-20 indices, which, after a significant loss in value in February and March 2020, did not record a correction until October of the same year. Interesting conclusions can be drawn from the beta coefficient calculated on the basis of the rates of return of the WIG-Banki and WIG indices (as a market portfolio), which during the research period was 1.34, indicating greater volatility of this index relative to the market. This may also indicate that the effects of the Covid-19 pandemic were more severe for the banking sector than for the economy as a whole. The negative impact of the Covid-19 pandemic on the market capitalization of banks, spread over time, seems justified, given the share of credit exposures involving entrepreneurs engaged in service and trade activities who were facing market and administrative restrictions on their business activities at that time.

The decision by many banks to introduce the possibility of suspending loan repayments for customers (both businesses and individuals) who found themselves in a difficult financial situation due to the market situation and the implementation of social and economic restrictions aimed at reducing the number of coronavirus cases was of significant importance in liquidity management in the banking sector. The decisions of the Monetary Policy Council taken in March, April, and May 2020 to lower interest rates (the reference interest rate was reduced from 1.5% to 0.1%) were among the important factors affecting the banking sector.

The impact of interest rates on credit supply and the analysis of the interrelationships between the budget deficit and the interest rate set by “market forces,” “administratively” (as a result of central bank intervention), and by the market as a result of “artificial demand” generated by the public sector, was conducted by Gikas and Hyż (1993). In their opinion, balance in the credit market is an important factor for economic growth, because “the interest rate determined by market forces corresponds to the point of equilibrium between the demand for and supply of credit” (Gikas, Hyż, 1993, p. 18-22), and an increase in interest rates as a result of “artificial demand” causes a decline in the volume of loans granted to private sector entities. According to these researchers, central bank measures aimed at keeping interest rates unchanged (i.e., below the equilibrium level that would satisfy credit needs) lead to a decline in the supply of credit available to private sector entities. The authors also emphasized the sensitivity of the private sector to “interest rate fluctuations.”

The reduction in interest rates during the Covid-19 pandemic, which translated into lower principal and interest payments, as well as the introduction by many banks of the possibility of suspending principal payments for a period of 3 to 6 months, contributed to a temporary relief for customers' budgets, who were able to use these funds to cover other, more urgent liabilities. The improvement in the monthly closing levels of the WIG-Banki index began in November 2020 and continued for the next year until October 31, 2021. The cycle of interest rate hikes that began at that time contributed to a reduction in bank lending. An important factor conditioning the next correction, which began in early 2022, was the outbreak of the Russian-Ukrainian war. This time, however, the decline in the closing levels of the WIG-Banki index, which continued uninterrupted until September 30, 2022, did not reach previous lows, and from October 31, 2022, until the end of the analysis period, the index returned to a growth path.



**Figure 6. WIG-Spożywczy index quotations between January 31, 2018, and June 30, 2023, source: own study based on WSE data.**

*source: Own study.*

Analysis of the data presented in Figure 6 showed that the rate of change in the closing levels of the WIG-Spożywczy index was -45.4% during the research period and changed at an average monthly rate of -0.93%. The correlation coefficients calculated for the WIG-Spożywczy index and the WIG, WIG-20, and WIG-Banki indices proved to be statistically significant and amounted to 0.55, 0.68, and 0.40, respectively. The rate of change in the closing levels of the WIG-Spożywczy index was lower than the rate of change in the closing levels of the WIG index (1.9%) and also lower than the rate of change in the WIG-Banki index (-10.7%) and WIG-20 (-19.3%). The lowest closing value of the WIG-Spożywczy index occurred at the end of October 2022. Significant information is also provided by the interpretation of the beta coefficient calculated on the basis of the rates of return of the WIG-Spożywczy index and the WIG index (as a market portfolio), which in the research period took the value of 0.87, indicating lower volatility of this index in relation to market volatility.

The inclusion in the research of the index representing companies operating in the food sector is a consequence of the fact that they perform a special function in the economy, which, in simple terms, can be attributed to the universal and reproducible nature of the needs satisfied by the goods they produce. The purpose and result of the operating activities of food sector companies is to supply goods in quantities that satisfy consumer needs and of a quality that has a positive impact on their health (Kaliszuk, 2009, p. 38), (Szczepaniak, Wigier, 2019, p. 243). The findings of an analysis of data showing the share of gross value added by the food sector in the total value of industrial processing in 2005-2018 confirm the thesis that companies in the food sector play a special role in the economic system. The data reveals that during this period, this share ranged from nearly 15% to 19% and was the highest among all industrial sectors in Poland (CSO, 2015-2018).

The food sector also has a qualitative impact on the economy, resulting from the role it plays in the production and supply of food products. Changes in the scale of its manufacturing activities affect the supply and demand situation in agriculture, transport, trade, and related services, thus determining the level of employment in these sectors and, consequently, the income situation of the population. In addition, the demand reported by food sector companies for innovations that enable them to achieve advantages in manufacturing or supply chain management stimulates the development of innovative enterprises, which are particularly important for the country's economic development and its position on the international stage.

The special role played by food sector companies in the economic system is also indicated by the results of an analysis of data on the structure of consumer spending on food products. An analysis of the weights used in the calculation of consumer price indices showed that the share of food and non-alcoholic beverages in the structure of household consumption expenditure was the highest among all categories of goods and services throughout the entire research period. The average share of this category of goods accounted for nearly 25% of household consumption expenditure in 2005-2018, which means that, on average, nearly a quarter of household expenditure in the analyzed period was related to satisfying their food needs. The significant share of food expenditure in the basket of purchased consumer goods and services may be a factor in the low closing levels of

the WIG-Spożywczy index, particularly in the period from the first quarter of 2022 to the end of the research period, when the CPI index reached double-digit levels.

This points to the important and potentially stimulating role of the state's monetary policy in terms of increasing the efficiency and, consequently, the value of companies operating in this sector. This policy plays an important role in stimulating domestic demand, which affects the financial performance of food industry companies. The negative impact of the inflation rate on financial efficiency in the food sector may also, over time, adversely affect the structure of the range of goods produced. This phenomenon may be caused by the simultaneous impact of the inflation rate on the revenues and costs of the companies surveyed. The increase in the average price level of goods and materials used in the production process could translate into an increase in the prices of final products, which, in conditions of delayed adjustment of wages to the price level in the economy, may lead to a decline in consumer demand and a change in the structure of demand towards an increase in the share of goods with lower income elasticity. An analysis of the closing levels of the WIG-Spożywczy index in the final phase of the research period may indicate that the economic effects of the Covid-19 pandemic and the Russian-Ukrainian war continue to have a negative impact on the value of entities operating within this sector.

## Conclusion

The aim of this study was to compare the WIG, WIG-20, WIG-Banki, and WIG-Spożywczy indices listed on the Warsaw Stock Exchange in the years 2018-2023. The study period covered unprecedented events, i.e., the Covid-19 pandemic and the outbreak of war in Ukraine, which had a significant impact on the activities of all market participants, as well as on the assumptions of the country's socio-economic policy. The research shows that these events had a negative impact on the value of the indices studied. Of the indices analyzed, only the WIG index recorded a slight increase in value during the research period, while the WIG-20, WIG-Banki, and WIG-Spożywczy indices recorded a decline in value. One of the conclusions that is important from the point of view of investors interested in using portfolio strategies is the relatively low volatility of the WIG-Spożywczy index in relation to the market. An analysis of the factors influencing changes in index values also showed that the inflation rate was a significant factor during the research period. This points to the important role of the state's monetary policy in relation to the possibility of increasing the value of companies listed on the capital market by stimulating domestic demand, which determines the financial performance of enterprises.

Research has also revealed significant differences between the banking and food sectors in response to external conditions. These differences may result from different business profiles of enterprises operating in the manufacturing or service sector. Manufacturing companies often have different levels of assets than service companies, which affects the structure of their balance sheet. The costs of purchasing materials are also of significant importance for manufacturing companies, as they often determine the profitability of their business, which is particularly important in the case of higher inflation. In service sectors, where banks operate, these costs play a less significant role. Differences between the banking and food sectors may also result from their different responses to changes in macroeconomic parameters, such as interest rates. For food industry companies, changes in interest rates affect the level of financing costs, which is important for their financial efficiency. In the case of banks, changes in interest rates may affect the creditworthiness of customers and, consequently, the scale of lending. An increase in interest rates may lead to a decline in new bank lending while simultaneously increasing interest income from loans granted, while in the food sector this can lead to higher financing costs. The results of the study also indicate the validity of adapting economic policy tools to the conditions of individual sectors, due to their potentially different responses to demand and supply shocks occurring in the external environment.

## References

- Barro, R. J., Ursúa, J. F., Weng, J. (2020). The coronavirus and the great influenza pandemic: Lessons from the „spanish flu” for the coronavirus’s potential effects on mortality and economic activity. National Bureau of Economic Research. NBER working papers, 26866.
- Boot, A. W., Carletti, E., Haselmann, R., Kotz, H. H., Krahen, J. P., Pelizzon, L., Schaefer, S.M. Subrahmanyam, M. G. (2020). The coronavirus and financial stability. SAFE Policy Letter 78
- Czech, K., Karpio, A., Wielechowski, M., Woźniakowski, T., Żebrowska-Suchodolska, D., (2020) Polska gospodarka w początkowym okresie Pandemii Covid-19, SGGW w Warszawie.
- CSO (Central Statistical Office), Statistical yearbook for industry 2005-2018 [accessed: September, 2025]
- CSO (Central Statistical Office), Wskaźniki cen towarów i usług konsumpcyjnych we wrześniu 2022 roku [Online], [Retrieved October 22, 2025] <https://stat.gov.pl/obszary-tematyczne/ceny-handel/wskazniki-cen/wskazniki-cen-towarow-i-uslug-konsumpcyjnych-we-wrzesniu-2022-roku,2,131.html?pdf=1>

- De Gregorio J., (1992), The effect of inflation on economic growth, *European Economic Review*, t. 36, z. 2-3, 417-425.
- Fisher S., (1993), The role of macroeconomic factors in growth, *Journal of Monetary Economics*, t. 32, z. 3, 485-512.
- Gikas G., Hyż A., (1993), Stopa procentowa a podaż kredytów i deficyt sektora publicznego, *Bank i Kredyt*, no. 2, 18-22.
- Gospodarowicz A., Nosowski A., (red.), (2012), *Zarządzanie instytucjami kredytowymi*, Wydawnictwo C.H. Beck, Warszawa.
- Gossling, S., Scott, D., Hall, C. M. (2020). Pandemics, tourism and global change: a rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 1–20
- Kaliszuk E., (2009), Konsekwencje systemowe akcesji Polski do Unii Europejskiej dla obrotów towarowych, [in:] *Wpływ członkostwa w Unii Europejskiej na stosunki gospodarcze Polski z zagranicą*, Kaliszuk E., Marczewski K. (red.), IBRKK, Warszawa
- Luszniwicz, A., Słaby, T. (1996). *Statystyka stosowana*. Polskie Wydawnictwo Ekonomiczne, Warszawa.
- McKibbin, W., Fernando, R. (2020). The economic impact of COVID-19. [in:] *Economics in the Time of COVID-19*, R. Baldwin, B. Weder di Mauro (red.). Centre for Economic Policy Research (CEPR), Londyn, 45–51.
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International journal of surgery (London, England)*, 78, 185–193
- Parlińska M., Parliński J., (2007), *Badania statystyczne z Excelem*, wydanie I, SGGW, Warszawa.
- Peternek, P., & Kośny, M. (2011). Kilka uwag o testowaniu istotności współczynnika korelacji. *Zesz. Nauk. WSB Wroc*, 20, 341-350
- Szczepaniak I., Wigier M., (2019), Polski biznes rolno-spożywczy wczoraj i dzisiaj – czynniki sukcesu [in:] *Instytucjonalne i strukturalne aspekty rozwoju rolnictwa i obszarów wiejskich*, R. Przygodzka, E. Gruszewska (red.), Wydawnictwo Uniwersytetu w Białymstoku, PTE Oddział w Białymstoku
- Witkowska D., (2006), *Podstawy ekonometrii i teorii prognozowania*, Podręcznik z przykładami i zadaniami, Wydawnictwo Oficyna Ekonomiczna, Kraków.
- WSE (Warsaw Stock Exchange) [online] <https://www.gpw.pl/archiwum-notowan> [accessed: August, 2025]