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Crises – danger and opportunity for industrial companies

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Abstract. The world economy has met the challenges of two crises in the current century: the 2007-2008 financial crisis and the 2020-2021 COVID-19 crisis. Crises inflict enormous damage on markets, destroy supply chains, change business activity, cause collapse in important consumer categories, etc. But crises are an accelerator of processes and create many opportunities: new markets and chains of added value, new options for growth, business restructuring, changing the business model, optimizing cash flows, etc. This report presents the results of an empirical study on the impact of the COVID crisis on the economy of public industrial companies. Four quantitative and qualitative economic indicators are used. The performance of different groups of companies during the crisis is compared. Trends have been revealed, conclusions have been drawn and recommendations for using the opportunities have been formed.

1 Introduction

For 20 years, the global economy has faced the challenges of two crises: the 2007-2008 financial crisis and the 2020-2021 COVID-19 pandemic sometimes referred to as the "health crisis." The crises contain many dangers but also offer many opportunities. The Chinese word for crisis is known to consist of two characters: one meaning 'danger' and the other 'opportunity'. Crises cause huge disruptions to markets, disrupt supply chains, reduce business activity, cause a collapse in important consumer categories, etc. Thus, the latest crisis created an unprecedented disruption in health, education, and food chains. This crisis has changed society.

The spread of fear has effectively become a business model from which the leading pharmaceutical companies and the controlling industry derive huge profits [1].

Analysing the impact of the crisis, Scott Galloway affirms two theses that have approximately the following content [2]:

1. The pandemic acts as an accelerant.
2. The greater and more destructive the crisis, the greater the opportunities it creates.

In support of the first thesis, the following thought is stated: "For decades nothing can happen and then the decade can happen in weeks" [3]. Although opportunities are not guarantees, crises create unprecedented conditions for successful business projects. David Rhodes and Daniel Shelter stress that "inaction is the riskiest response to uncertainty in the wake of economic crisis" [3].

Walter Frick finds that in those parts of the US where the recession has been particularly bad, companies have increased their investment in information technology. The seemingly strange effect of investing in technology during a recession when companies have more limited financial resources is explained by the fact that in a recession the foregone benefits of investing in other areas are lower than in the core business in good times. To some extent, technology adoption is cheaper in a recession. Moreover, technology makes business more transparent, more flexible, and more efficient. In general, digital and analytics technologies help reduce costs [4].

Sometimes, despite adverse market conditions, a lucrative deal can be struck. Raj Gupta, a world-famous manager of Indian origin, managed to sell the chemical company Rohm and Haas in the most difficult times of the financial crisis in 2008 [5]. In early 2000, a five-year-old online bookseller called Amazon.com sold $ 672 million in convertible bonds to shore up its financial position. One month later, the dot-com bubble burst [4].

Recessionary periods are fraught with anxious days of hardship and organizational stress, with layoffs of jobs, sections, shops, and plants. But according to Robert Sutton, if managers invest in human capital, in providing predictability, understanding, control, and compassion in times of unsettling organizational change, this investment pays for itself many times over, both during and after the crisis [6].

According to Sandra Sucher and Shalene Gupta, instead of poorly executed redundancies made on the basis of the wrong motives, an approach to change can be implemented that involves limited redundancies and ensures that when redundancies are unavoidable, the process is perceived as fair and the parties concerned are prepared to achieve success in the future. Essentially, the approach includes three components [7]:

- A restructuring philosophy that builds on the company's values and outlines the commitments and priorities the company will adhere to when implementing change;

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- A method that consists of having a methodology to look for alternatives to redundancies and to limit potential damage when it cannot be avoided;
- Options for action under different economic conditions, necessitating the development of the following three scenarios for the team restructuring strategy: favourable present; short-term economic instability and uncertain future.

Apart from the team, crises much more often require restructuring of the company. Studies show that fully successful restructurings are rare. To increase their success rate Stephen H. Robinson and Susan Haywood, suggest [8] the following five-step process of their management:

- Preparation of profit and loss account;
- Identifying the strengths and weaknesses of the organization;
- Considering various options;
- Building the right processes and systems;
- Starting the process, learning, and adjusting on the fly.

During times of crisis, cash flow from operating activities significantly decreases. As such, the recommendations from Eddie Yoon and Christopher Lochhead on how to generate cash flow during a crisis are particularly relevant [9]:

- Secure sales by taking risks related to warranties and return of purchased goods;
- Introduce new revenue generation and pricing models;
- Accelerate innovation;
- Reduce the cost of marketing activities;
- Experiment with new methods to attract customers.

Cost-cutting is a tempting strategy in times of crisis.

The experience of Patrick Daoust and Paul Simon convincingly shows [10] that when company leaders act from the bottom up, they not only reduce costs significantly, but also achieve their goals faster because managers and employees are motivated to help them.

2 Materials and methods

It is of certain scientific and practical interest to investigate the impact that the COVID-19 pandemic had on the economy of Bulgarian companies. To this end, we conducted an empirical study in the specific conditions of Bulgarian companies. The object of this study is not all companies, but selected representatives of them. The selection was made on the basis of the following principles:

- Company publicity;
- National and international recognition;
- Leading positions in the sector;
- Reliability of available information;
- Proven corporate social responsibility.

Our preference for publicly traded industrial companies is due to the advantages they possess, detailed in Analysis of the economic activity of industrial companies [11]. The studied companies are divided into the following three groups:

Group I – publicly traded companies from the food industry;

Group II – publicly traded companies from the tourism industry;

Group III – publicly traded companies from other types of industries.

The analysis focuses on the following four types of performance and budget contribution indicators:

- Net Sales Revenues (NSR);
- Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA);
- Earnings After Tax (EAT);
- Taxes on Profits (Taxes).

The methodology involves using data for the last two years before the crisis (2018-2019) and the two years of the crisis period (2020-2021).

3 Results and discussion

Based on the methodology thus presented and using the data for publicly traded companies in the food industry [12], is introduce next information (Table 1).

Table 1. Basic economic performance of the publicly traded companies in the food industry (in thousands of BGN)

Companies and indicators	Before the crisis			Crisis period			Difference
	2018	2019	Average	2020	2021	Average	
1. Bulgartabak – Holding AD							
1.1 NSR	9692	3873	6782	15001	22170	18585	11803
1.2 EBITDA	3076	2502	2789	27406	15248	21327	18538
1.3 EAT	549	125	337	23932	13381	18656	18321
1.4 Taxes	97	208	152	2354	1493	1923	1771
2. Vinzavod AD							
2.1 NSR	3049	2333	2691	2364	3094	2729	38
2.2 EBITDA	-620	-357	-488	116	271	193	681
2.3 EAT	-1478	-986	-1232	-547	-422	-484	747
2.4 Taxes	-	-	-	-4	-18	-11	-11
3. Zarneni hrani Bulgaria AD							
3.1 NSR	1329	2303	1816	2706	922	1814	-2
3.2 EBITDA	4352	1684	3018	2911	4123	3517	499
3.3 EAT	1254	3254	2254	865	544	704	-1549
3.4 Taxes	-	-	-	64	59	61	61

4. Zaharni zavodi AD							
4.1 NSR	111384	126972	119178	67882	66982	67432	-51746
4.2 EBITDA	5242	9650	7446	10932	7100	9016	1570
4.3 EAT	-1810	2371	280	5619	1683	3651	3371
4.4 Taxes	149	92	120	402	319	360	240
Average for the company							
1. NSR	31369	33870	32619	21988	23292	22640	-9979
2. EBITDA	3012	2509	2760	10341	6685	8513	5753
3. EAT	-371	1191	410	7 467	3769	5618	5222
4. Taxes	61	47	54	704	463	583	529

The last four rows of the table are obtained by dividing the sum of the companies' actual results for the respective years by the number of companies.

Of particular interest is the analysis of the results presented in the last column of these rows. They show that the turnover (NSR) of these companies has decreased by more than 30% compared to the pre-crisis period. The level of the other three indicators proves conclusively that the crisis has provided opportunities that companies have skilfully exploited:

- The maximum possible profit (EBITDA) increased more than 2 times;
- Net profit (EAT) has increased many times over: more than 12 times;
- The contribution to the national budget has increased as expected in relation to the level of these qualitative economic indicators: almost 10 times.

The specific analysis reveals that the managers of Bulgartabak – Holding AD have pursued an optimal depreciation policy, have significantly reduced asset impairment and have restructured the capital by focusing on equity and low-interest foreign capital. The economic performance of Vinzavod AD is strongly influenced by the raw material base and especially by the wine market.

The managers of the plant have successfully managed the inventories of production and work in progress, as a result of which they have prevented a reduction in turnover, increased gross profit and significantly reduced the loss after tax.

The managers of Zarneni hrani Bulgaria AD have allowed a marginal decrease in earnings, but have taken a very interesting opportunity to increase net cash flows from operating activities by implementing a successful asset valuation strategy. As a result, the company has formally worsened its financial position by drastically reducing its net profit by nearly BGN 1.6 million, but they have actually increased their cash flow, which has allowed them to operate with less costly capital raised.

The managers of Zaharni Zavodi AD have allowed a drastic reduction in net sales revenue – BGN 50 million. The analysis showed that this result was due to the insufficiently successful policy in terms of inventory management and especially asset sales (without produce). At the same time, they increased the level of both profit indicators by improving the policies on valuation and depreciation of assets.

The second group includes four emblematic for our economy publicly traded tourism companies [12].

After processing their data according to the presented methodology, the following results were obtained (Table 2).

Table 2. Basic economic performance of the publicly traded companies in tourism industry (in thousands of BGN)

Companies and indicators	Before the crisis			Crisis period			Difference
	2018	**2019**	**Average**	**2020**	**2021**	**Average**	
1. Albena AD							
1.1 NSR	100434	95966	98200	32328	54332	43330	-54870
1.2 EBITDA	30429	38009	34219	8049	21341	14695	-19524
1.3 EAT	10984	16639	13811	-10265	2922	-7343	-21154
1.4 Taxes	985	1635	1310	-	-	-	-1310
2. Zlatni pyasatsi AD							
2.1 NSR	11425	9960	10692	6095	14437	10266	-426
2.2 EBITDA	1411	743	1077	-185	8374	4094	3017
2.3 EAT	-2350	-3251	-2800	-3992	4018	13	2813
2.4 Taxes	-186	114	-36	-368	476	54	90
3. Sv. sv. Konstantin i Elena AD							
3.1 NSR	10860	9661	10260	4795	5404	5099	-5161
3.2 EBITDA	3691	6286	4988	2554	3555	3054	-1934
3.3 EAT	1134	4092	2613	906	1836	1371	-1242
3.4 Taxes	155	288	221	-	-	-	-221
4. Slanchev bryag AD							
4.1 NSR	3766	3705	3735	2633	3058	2845	-890
4.2 EBITDA	892	442	667	1408	276	842	175
4.3 EAT	-116	-543	-329	386	-707	-160	169
4.4 Taxes	-	-	-	-	-	-	-

Average for the company							
1. NSR	31621	29823	30722	11462	19308	15385	-15337
2. EBITDA	9106	11370	10238	2956	8386	5671	-4567
3. EAT	2413	4098	3255	-3241	2017	-612	-3867
4. Taxes	238	1821	1029	-92	119	13	-1016

The overall averages of all companies presented in the last four rows of the table reflect the large decline in performance during the crisis. Thus, net sales revenue (NSR) declined by nearly 50%, EBITDA declined by nearly 45%, EAT declined by nearly 120%, and Taxes declined by nearly 100%. These are drastic reductions that illustrate the real impact of the “crisis” threat on marine tourism companies. Against the background of the overall negative results, the opportunities exploited by two companies stand out. The managers of Zlatni pyasatsi AD have realized the opportunity to diversify the nomenclature of their production by focusing on the items outside the tourist services. The managers of Slanchev bryag AD have taken advantage of the specific nature of the company’s operations by realising significant financial returns outside their core business. Thus, both companies, despite the decrease in turnover, have improved the level of profit indicators.

The third group includes the following 15 companies from other types of industries: Alkomet AD, Korado Bulgaria AD, Sirma Group AD, Lavena AD, Yuri Gagarin AD, Monbat AD, Hydraulic Systems and Elements AD, Elhim Iskra AD, EMKA AD, Sofarma AD, M+S Hidravlik AD, KRZ Odesos AD, Neohim AD, Chayka Farma AD, Fazerles AD. These are the leading companies in their respective sub-sectors meeting the criteria presented at the beginning of the report. In addition, some of them participate in the calculation of stock indices and form a significant part of stock trading on the main market.

After using the same methodology applied to study the other two groups of companies, the results of these companies were obtained [12]. Due to the large matrix size, the results are presented in Table 3.

Table 3. Basic economic performance of the publicly traded industrial companies from other sectors (in thousands of BGN)

Companies and indicators	**Before the crisis**			**Crisis period**			**Difference**
	2018	**2019**	**Average**	**2020**	**2021**	**Average**	
1. M+S Hidravlik AD							
1.1 NSR	123815	108956	116385	102485	151482	126983	10598
1.2 EBITDA	23950	21807	22878	25102	30451	27776	4898
1.3 EAT	14576	12763	13669	15202	18921	17061	3392
1.4 Taxes	1635	1431	1533	2113	1708	1910	377
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.							
.							
7. Chayka Farma AD							
7.1 NSR	38059	34724	36391	40388	42555	41471	5080
7.2 EBITDA	16017	6719	11365	5090	5714	5402	-5963
7.3 EAT	11199	2568	6883	604	1399	1001	-5881
7.4 Taxes	1397	356	876	196	317	256	-619
.							
.							
.							
15. Yuri Gagarin AD							
15.1 NSR	108175	102344	105259	120057	119592	119824	14565
15.2 EBITDA	10834	12714	11774	7764	7681	7722	-4052
15.3 EAT	2992	1929	2460	822	852	837	-1623
15.4 Taxes	227	112	169	15	103	59	-110
Average for the company							
1. NSR	81909	84934	83421	82556	98101	90328	6907
2. EBITDA	12783	13657	13219	12363	13220	12791	-428
3. EAT	7015	6442	6728	5851	5697	5774	-954
4. Taxes	855	709	782	759	687	723	-59

The determination of the performance of this group of companies was carried out in three variants:

Option I – all 15 companies, where the average results for one company are as follows: NSR = 13158 thousand BGN, EBITDA = 2730 thousand BGN, EAT = 1729 thousand BGN, Taxes = 89 thousand BGN.

Option II – 14 companies (excluding Neochim AD), the average results are NSR = BGN 10472 thousand, EBITDA = BGN -728 thousand, EAT = BGN -1600 thousand, Taxes = BGN -77 thousand.

Option III – of 13 companies (excluding Neochim AD and Alkomet AD), the average results for one company took the following form.

In the first option, all performance indicators of industrial companies improve during the crisis period. One of the main reasons for this is the large and disproportionate increase in the performance of Neochim AD: revenues grew by nearly 20% and profits by more than 10 times. A decisive influence on these results was the changes in the price of natural gas during the crisis period. Natural gas is a key production raw material for Neochim AD, which has always had a significant impact on profitability and reported financial results. About 74% of the cost of production in 2021 is formed by this raw material, and in 2020 – 65%. During the crisis period, Bulgaria decided to subsidise the entire Bulgarian industry by allowing it to buy gas at prices "regulated" by Bulgargaz EAD instead of keeping the very cheap Azeri gas for the winter. In addition, the Energy and Water Regulatory Commission (EWRC) approved a reduction in the price of natural gas retroactive to 05.08.2019. Thus, in order to protect industrial companies from the energy crisis, the state caused a double positive effect of the reduction in the price of natural gas for Neochim AD:

- On the one hand, as the main production raw material;
- On the other hand, as an energy source.

As a result, the company achieved record profits.

In the third option, in addition to the data of Neochim AD, the data of Alkomet AD are also removed due to the strong influence of stock market factors. The company's net sales revenues for 2021 amount to BGN 519653 thousand, with revenues from sales of production amounting to BGN 513928 thousand, which represents a nearly 50% increase compared to 2020 and the pre-crisis period. The main reason for this is the increased values of the main raw material: for 2020, the average price of aluminium on the London Metal Exchange is EUR 1469/MT, and for 2021 it is EUR 2097/MT – an increase of around 41%, with aluminium averaging EUR 2460/MT in the last quarter of 2021. As a result of these alterations, the prices of finished products are increasing, leading to a rise in revenues. However, costs are also increasing, ultimately resulting in a significant decrease in profits.

The significant increase in the cost of the primary raw material is the main factor behind the rise of finished product prices. Specifically, the average price of aluminium on the London Metal Exchange was EUR 1469/MT in 2020, increasing to EUR 2097/MT in 2021, indicating a 41% increase. In the last quarter of 2021, aluminium averaged EUR 2460/MT. The consequence of these changes is that while revenues are increasing, costs are also rising, leading to a significant decrease in profits.

The considerations presented warrant a focus on the third option of the third group of companies. The specific analysis shows that six of these companies exploit original opportunities to address the challenges of the crisis and improve their economic performance. Thus, Lavena AD exploited the opportunity to diversify production. M+S Hidravlik AD flexibly exploited changes in the global market, introducing radical changes in its distribution policy, resulting in the acquisition of its main foreign distributor. Monbat AD successfully expanded its own recycling capacity to manage the risk of price changes in its main raw material, lead, and also expanded its market diversification. Alongside this, the company is building up a production reserve for capacity utilisation and future increased demand, focusing on production in segments with growing demand and benefiting from "Measure 60/40" government subsidies. EMCA AD is focusing on two opportunities: investing in new machinery and equipment and attracting new customers due to the reduction of production in Western Europe. KRZ Odesos AD increased its revenues and profits significantly as a result of a significant investment in a new floating dock for larger ships for repairs.

4 Conclusions

The conducted research accompanied by empirical studies allows drawing the following main conclusions:

1. Crises cause significant market disruption, supply chain interruptions, disturbance in essential consumer categories, as well as reduction in revenue and heightened volatility in financial and commodity markets. Research conducted of publicly traded companies of food industries shows that a substantial proportion of them encounter declines in their revenues and profits. The pandemic's adverse effect on the tourism industry is particularly severe. Of the 15 companies surveyed from other industry sectors, 8 worsen their scores.
2. Except the threats, crises also create great opportunities that managers can successfully exploit. Empirical research shows that almost half of publicly traded company of food industry increased sales or profits. Despite falling revenues, a one part of travel companies managed to increase profits in the years following the pandemic. About 50% of companies in other industries also increased their revenues and profits.
3. The specific research shows that from the wide variety of possibilities, the publicly traded industrial companies of Bulgaria mainly used the following options:
   - Optimisation of depreciation policy;
   - Change in asset valuation strategy;
   - Capital restructuring;
   - Change in inventory management policy;
   - Change in cash flow management strategy;
   - Product mix diversification;
   - Focus on financial revenue and operations;
   - Successful exploitation of government energy policies;
   - Successful exploitation of sudden changes in stock prices;
   - Active and aggressive distribution policy;
   - Creation of recycling capacity;
   - Accumulation of production reserves for capacity utilization in forecast of increased demand;
   - Focus on segments with growing demand;
   - Risky investments in new machinery and equipment, etc.

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These are opportunities that managers can utilize, but with significant risks, to increase revenue and profits from specific campaigns.

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References

1. M. Ullrich, *The Great Zeroing. The World of 2030* (Iztok-Zapad, Sofia, 2022) [in Bulgarian]
2. S. Galloway, *Post Corona. From Crisis to Opportunity* (Iztok-Zapad, Sofia, 2021) [in Bulgarian]
3. D. Rhodes, D. Stelter, *HBR's 10 Must Reads: On Managing in a Downturn* (Harv. Bus. Rev., Boston, 12, 2020)
4. W. Frick, *HBR's 10 Must Reads: On Managing in a Downturn* (Harv. Bus. Rev., Boston, 35, 2020)
5. R. Gupta, *HBR's 10 Must Reads: On Managing in a Downturn* (Harv. Bus. Rev., Boston, 67, 2020)
6. R. I. Sutton, *HBR's 10 Must Reads: On Managing in a Downturn* (Harv. Bus. Rev., Boston, 79, 2020)
7. S. J. Sucher, S. Gupta, Harv. Bus. Rev. **96**, 122 (2018)
8. S. Robinson, S. Heywood, *HBR's 10 Must Reads: On Managing in a Downturn* (Hermes, Plovdiv, 121, 2022) [in Bulgarian]
9. E. Yoon, C. Lochhead, *HBR's 10 Must Reads: On Managing in a Downturn* (Hermes, Plovdiv, 205, 2022) [in Bulgarian]
10. P. Daoust, P. Simon, *HBR's 10 Must Reads: On Managing in a Downturn* (Hermes, Plovdiv, 221, 2022) [in Bulgarian]
11. A. Konarev, S. Konstantinova, *Analysis of the* Economic *Activity of Industrial Companies* (KSI, Plovdiv, 2017) [in Bulgarian]
12. Bulgarian Stock Exchange (Sofia, 2023)