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Corporate Resilience in Cancel Culture Times

Rufina Evgrafova

Junior Commercial Finance Manager, Planning, ITMS, Moscow, Russia,
rufina.evgrafova@gmail.com, [ORCID](#)

Irina Ivashkovskaya ✉

Doctor of Economics, Professor, Head of Corporate Finance Center, Head of School of Finance, National Research University Higher School of Economics, Moscow, Russia,
iivashkovskaya@hse.ru, [ORCID](#)

Ekaterina Shorokhova

Junior Corporate Finance Manager, ITMS (ex BAT Russia), Moscow, Russia,
ekaterina.shorokhova@gmail.com, [ORCID](#)

Abstract

Corporate resilience has emerged as a prominent focus in international studies, particularly in the context of the COVID-19 pandemic that unfolded in 2019. This attention has been amplified by the structural shifts in the business models of Russian companies, prompted by imposed sanctions, thereby accentuating the need for comprehensive academic exploration of resilience, its driving forces, and adaptive turnaround strategies, especially in the era of cancel culture. Despite the heightened significance of resilience, the drivers underlying it during structural crises remain insufficiently studied. This paper addresses this gap by employing a combination of quantitative methods applied to a sample of publicly traded Russian companies spanning the years 2012 to 2022 (first half), alongside case studies. Our contribution to the literature is manifold. Firstly, our application of Altman's Z-score model to publicly traded companies unveils the industries with the highest and lowest resilience across the Russian market from a historical perspective. Secondly, we assert that fluctuations in the degree of resilience during turbulent times, as captured by the Z-score, offer a more adequate evaluation compared to popular market-based metrics like total shareholder returns (TSR). Thirdly, our findings reveal that higher credit ratings and state ownership have no evident impact on the degree of resilience. Conversely, the professional background of CEOs is correlated with firm performance and plays a significant role in determining company resilience amid cancel culture challenges.

Keywords: Altman Z-score, CEO, cancel culture, corporate resilience, human capital, government ownership, total shareholder return, turnaround strategies

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Introduction

The financial well-being of companies across various scales – small, medium, and large – is significantly influenced by external economic factors. The key differentiator between companies facing severe financial distress or bankruptcy and those leveraging turbulent times for restructuring lies in the efficacy of turnaround strategies implemented by visionary leaders. These strategies encompass organizational restructuring, cost reduction, asset redeployment, and market repositioning. The global market collapse induced by the COVID-19 pandemic, impacting businesses worldwide, serves as a pertinent example. The altered dynamics of corporate resilience drivers and adaptive turnaround strategies in the face of external shocks became especially pronounced during this period. While some companies navigated successfully, others grappled with severe distress. In Russia, external shocks manifested as sanctions imposed on numerous industries and companies in the early part of 2022, compounded by the effects of cancel culture. To maintain resilience, companies had to undergo extensive business process restructuring across different stages of the value chain.

Previous studies by Keenan et al., Angwin et al., Lin et al., Denis, Kruse, Kam et al., and Ashayeri et al. [1–6] have delved into turnaround strategies, while research by Cheema-Fox et al., Milano, Whately, Hidayat et al., Brand, Blaese, Lins et al., Levin et al., Markman, Venzin, Sajjad, Sarkar et al., Tarigan et al., and Rajesh [7–17] has explored factors influencing resilience. Yu, Pargendler, Tihanyi et al., and Abramov et al. [18–21] have specifically examined state ownership and its connection to firm performance. However, academic exploration of resilience in the context of external sanctions is largely lacking.

Our paper addresses this gap by investigating the factors influencing company resilience during cancel culture times in Russia, with a specific focus on the basic materials and consumer sector industries. Combining a quantitative approach for a sample of companies spanning 2021–2020 and case studies from 2022, we make several contributions to the literature. Firstly, by applying Altman's Z-score model [22] to publicly traded companies, we reveal the most and least resilient industries across the Russian market from a historical perspective based on the 2021–2020 sample. Secondly, we argue that fluctuations in the degree of resilience, as captured by the Z-score, offer a more insightful assessment compared to market-based metrics such as total shareholder returns (TSR). Thirdly, through case studies on companies in the consumer sector and basic materials industries (Nornickel, TMK, Rusolovo, M.Video, Magnit, and Pharmsynthez), we highlight successful practices for maintaining resilience in externally-driven economic turbulence. Our case analyses indicate that neither a close bank–company relationship nor state ownership or support has a direct impact on the degree of resilience. However, the professional background of CEOs is found to be correlated with firm performance during cancel culture times.

The remainder of the paper is structured as follows: Section 1 provides a literature review on turnaround strategies, factors affecting resilience, and hypothesis setting. Section 2 covers sample selection and data analysis, including Z-score metrics and variable descriptive statistics. Section 3 focuses on a summary of turnaround strategy cases in cancel culture times and the interpretation of results for the subsample. Finally, Section 4 presents and discusses the conclusions.

Theoretical Background for Turnaround and Resilience Strategies

The financial performance of companies, irrespective of size, is susceptible to economic shocks, and effective management during turbulent times is crucial to prevent financial distress. Visionary leaders can capitalize on these challenges to enhance market position and outperform competitors [1]. The turnaround strategy aims to reverse the corporate performance vector, necessitating innovative approaches to product and market development. The process typically involves restructuring leadership and organizational culture, followed by cost reduction, asset redeployment, and selective product/market strategies. The final stage focuses on repositioning, encompassing activities like product portfolio diversification and price adjustments.

A different classification of the steps in a turnaround is given by Angwin et al. [2]: traditional asset cost surgery, product-market pruning, and piecemeal strategies. Good management plays a key role in effectuating a sustained recovery.

Successful turnarounds involve complex processes influenced by environmental factors, internal resources, and corporate strategies. Operational restructuring, particularly changes in manufacturing processes, is identified as a crucial step towards recovery [3]. Cost control, including reductions in labor, research and development, and administrative expenses, is a common initial restructuring step [4]. Kam et al. [5] examined the market reaction to turnaround strategies by both state-owned and private firms in financial distress, emphasizing the impact of mergers and acquisitions, asset sales, managerial reorganization and debt restructuring. Their results showed that mergers and acquisitions involving operational restructuring elicit the greatest market reaction.

Discussing the factors for successful turnarounds, scholars have shown that downsizing can help a company faced by bankruptcy to overcome its liquidity crisis and regain confidence in its ability to repay debts [6]. However, downsizing as a tool to overcome distress also poses risks, especially when mass employee layoffs are involved. These risks grow when firms engage in multistage repetitive restructuring [3]. Striking a balance between long-term restructuring and immediate liquidity is critical for survival [6]. Firms that recover from distress tend to adopt growth-oriented

external-market focused strategies, while those that do not often resort to fire-fighting approaches [23]. Purpose-driven companies are found to be more resilient, emphasizing the importance of a clear corporate mission [8].

Factors Affecting Resilience

The COVID-19 pandemic serves as a pertinent example of a large-scale market collapse that necessitated companies to reassess their processes for resilience. Flexibility and strong stakeholder relationships emerged as crucial factors for resilience during the pandemic, according to Cheema-Fox et al. [7]. Entrepreneurial competences of the management team also played a significant role in mitigating crisis effects and surviving uncertainty [9].

The orientation towards stakeholders is central to crisis management. Purpose-driven companies exhibit more resilient financial results [8]. Lins et al. showed that social capital is linked to resilience, with firms possessing high social capital showing better profitability and growth during crises [11]. Corporate responsibility has been identified as a key factor for overcoming financial distress in a study of German and Swiss companies by Brand and Blaese [10]. Analyzing corporate resilience during banking crises, Levin et al. [12] highlighted the role of social trust in accessing finance. Markman and Venzin [13] assessed the influence of firm size, home market solidity, and product and market diversity on firm resilience.

Sajjad [14] and Sarkar et al. [15] investigated supply chain disruptions and relevant corporate responses in times of COVID-19. It has been shown that resiliency can be enhanced by establishing supply chain agility, supply chain partnerships and diversification [16]. Strategies focusing on sustainability should be implemented upstream in the supply network, while those focusing on resilience should be undertaken downstream [17]. Sajjad [14], Sarkar et al. [15] and Tarigan et al. [16] showed the importance of supply chain effectiveness in recovering from financial distress.

The role of government and banks in enhancing or impeding resilience varies across studies. Yu [18] found that government ownership enhances resilience due to the benefits of government support. Kam et al. [5] showed that the value added on mergers and acquisitions is enhanced when ownership is transferred from the state, while Abramov et al. [21] concluded that, if government has a dominant share, firm resilience is worse off due to increased debt burdens. Findings on the role of relationships with banks and their impact on company resilience are ambiguous. Levin et al. [12] showed that firms in countries with high levels of trust in business communications have better access to credits and therefore experience less profit loss in times of crisis.

Facing unprecedented restrictions, Russian companies had to rearrange business processes, including supply chain and distribution channels. A report by Kept (2023) on key trends and development areas for Russian industries during the geopolitical crisis [24] shows that Russian firms have succeeded in diversifying supply channels of finished products, raw materials and components and redirecting to alternative markets.

Different papers examine the role of state ownership [18–21], which is argued to have an adverse impact on company financial performance [20], while dominant state ownership affects firm results negatively by increasing the debt burden [21].

The factors driving the success of turnaround and resilience include top management team competences. Cheema-Fox et al. [7] show that companies with strong stakeholder relationships and greater flexibility are more resilient in times of distress. Hidayat et al. [9] corroborate that the entrepreneurial competences of management are key to surviving distress, while Keenan et al. [1] find that far-sighted leaders can use turbulent times to surpass competitors.

In summary, different aspects of turnaround strategies and their success in improving corporate resilience are explored in the literature. Many external factors can affect firm recovery, and researchers differ in their findings based on the sample period and country. However, the evidence regarding resilience during external shocks, particularly in a cancel culture period, is scarce. The concept of cancel culture is relatively new, and the effects of the 2022 sanctions on Russia are yet to be fully understood. However, previous work on global economic shocks and the recent COVID-19 pandemic allows us to formulate the following hypotheses:

H1: Human capital has a positive impact on company resilience during a cancel culture period.

As shown by Cheema-Fox et al. [7] and Milano and Whately [8], different factors can impact firm resilience, generally including human capital, supply networks, operation processes and corporate purpose. Notably, human capital as the non-financial and non-physical combination of skills, knowledge, education and other personal features of employees [25] positively affects organizational performance when properly managed [26], especially in the conditions of uncertainty.

H2: Companies with state ownership are more resilient during the current cancel culture period.

Scholars have shown that state-owned companies tend to grow slower and have shallower financial results than private companies [18–21], as government intervention can violate market conditions and make business less effective. However, for strategically important industries such as oil and gas or mining, government support adds to company resilience and financial performance [18]. The current structural crisis has different origins, being based on external shocks from imposed sanctions rather than the market situation. Under such conditions, firms with state ownership can hardly overcome all the problems without some sort of assistance. Hence, we posit that financial, legislative, and other means of state support strengthen firm resilience.

H3: Better relations with banks result in stronger resilience during a cancel culture period.

As debt restructuring is a proven turnaround strategy, a strong credit rating is expected to enhance transparency, risk evaluation, and negotiation leverage for favorable loan

conditions, contributing to the effectiveness of restructuring and overall company resilience [5].

Research Model and Variables

To evaluate company resilience, we have adopted Altman's Z-score model, a multiple discriminant analysis model employing five key ratios that is widely used in corporate finance, banking, and credit risk prediction. Distressed companies often employ this model as a guide for financial turnaround strategies. There are three variations of the classic Z-score model: the original 5-variable Z-score for public firms, the 5-variable Z'-score for private firms [27], and the 4-variable Z''-score for private firms [22], designed to minimize potential industry effects.

In the second variation tailored for private firms, one variable is modified – the book value of equity is used instead of market capitalization. The third version, designed for both manufacturing and non-manufacturing firms, omits the market-to-book value variable to minimize potential industry effects. An assessment of the predictive power of the different variations, including accounting-based, market-based, and hazard models, revealed minimal differences in predictive accuracy [28; 29]. Furthermore, Levy et al. [30] conducted a study on approximately 1,500 European and North American companies and concluded that Altman's Z-score provides a superior quality of distress assessment compared to stock market performance.

The Z-score model has been successfully applied to analyze companies in various emerging markets, including Pakistan [31], China [32], and Indonesia [33]. However, due to industry specifics and economic variations among countries, caution must be exercised in applying Altman's Z-score model. Bhatt [34] investigated the ability of the three versions of Altman's Z-score model to predict corporate distress in India and showed that these models have a remarkable degree of accuracy in predicting distress using financial ratios computed from the financial statements of the preceding year. Thus, the Z-score models also seem to have excellent potential for evaluating the risk of corporate distress in emerging markets.

Variables

In our research model, Hypothesis 1 focuses on the impact of human capital on resilience. To measure this, we analyzed methods commonly used for human capital valuation [35–37]. For Russian companies within the cancel culture period, it was impossible to use many human capital indicators such as turnover ratio, education expenses, and employee engagement. Instead, we utilized metrics for CEO human capital, which, given the significant role of CEOs in firm performance, especially during crises, was deemed acceptable.

For Hypothesis 2, examining the government ownership effect on corporate resilience, we analyzed the shareholder list to identify government involvement and the percentage of state ownership. Hypothesis 3, exploring the role of

the bank–company relationship, utilized credit ratings as a proxy for measuring the impact of this relationship on resilience.

Description of the Selected Model

We adopted the following model for our analysis:

$$Z = 0.012 \cdot X_1 + 0.014 \cdot X_2 + 0.033 \cdot X_3 + 0.006 \cdot X_4 + 0.999 \cdot X_5, \quad (1)$$

where X_1 is the Working Capital/Total Assets ratio;

X_2 is the Retained Earnings/Total Assets ratio;

X_3 is the Earnings before Interest and Taxes/Total Assets ratio;

X_4 is the Market Value of Equity/Book Value of Total Liabilities ratio;

X_5 is the Sales/Total Assets ratio;

Z is the overall score.

Sample Analysis

Financial data for Russian publicly traded companies for the years 2012–2020, sourced from Bloomberg, was used for our analysis. The industry profile is summarized in Table 1.

Table 1. Industry profile of companies in the sample

Industry	Number of Companies
Utilities	21
Basic Materials	19
Consumer, non-cyclical	13
Industrial	13
Energy	12
Communications	11
Consumer, cyclical	9
Financial	6
Total	104

Source: prepared by authors.

The financial metrics, including efficiency, profitability, and market value, were obtained from Bloomberg, with some adjustments made due to the absence of direct information on working capital and retained earnings. For working capital, we employed an alternative metric based on the difference between capital employed (total assets minus current liabilities) and disclosed intangibles. Working capital is important for analyzing operational liquidity to show whether a company can remain solvent. Theoretically, a business can go bankrupt even while being profitable, as it needs current assets (inventories, account receivable, and cash and equivalents) to repay current liabilities. We applied this adjustment based on capital employed net of disclosed intangibles to avoid omitting a variable that re-

flects company liquidity. The residual value after subtracting intangible assets (which should be considered illiquid) from capital employed and then dividing by total assets can serve as a proxy for the capacity to pay for liabilities. We believe that applying such an alternative metric is better than omitting the variable altogether.

For retained earnings, net income was used as a substitute in our model. The justification behind this choice for computing X_2 is that retained earnings originally come from net income (or loss). In the Z-score model, the retained earnings take cumulative profitability into account, and so the company's age is implicitly built in. Edward Altman himself warned that the use of retained earnings can discriminate against young firms, which stand a higher chance of being classified as bankrupt [38, p. 186]. The ratio of *EBIT to total assets* shows the true profitability of a firm's assets – it is commonly held that insolvency happens when total liabilities exceed a fair valuation of the company's assets calculated from the earning power of assets [38, p. 186]. The ratio of the *market value of equity to total liabilities* can be used to measure the decline in asset value, determined by

the combined sum of market value of equity and debt, before total liabilities surpass the total assets. The latter case leads to insolvency. Finally, the *sales to assets ratio* shows the revenue generating power of assets and demonstrates the management's ability to deal with competition.

The resulting adjusted model is represented by:

$$Z' = 0.012 \cdot X_1 + 0.014 \cdot X_2 + 0.033 \cdot X_3 + 0.006 \cdot X_4 + 0.999 \cdot X_5, \quad (2)$$

where X_1 is (Capital employed – disclosed intangibles)/Total assets;

X_2 is Net income/Total assets;

X_3 is Earnings before interest and taxes/Total assets;

X_4 is Market value of equity/Book value of total liabilities;

X_5 is Sales/Total assets;

Z' is the Overall adjusted score.

Descriptive Statistics

The descriptive statistics for each variable are presented in Table 2.

Table 2. Descriptive statistics of variables, 2012–2020

		2012	2013	2014	2015	2016	2017	2018	2019	2020
X_1 – (Capital employed – disclosed intangibles)/ Total assets	Maximum	0.93	0.93	0.91	0.91	0.90	0.94	0.93	0.92	0.92
	Minimum	-1.51	-1.03	-0.70	-1.06	-0.98	-0.85	-0.83	-1.79	-1.51
	Range	2.44	1.96	1.61	1.97	1.87	1.79	1.76	2.70	2.43
	Average	0.54	0.49	0.45	0.43	0.44	0.46	0.44	0.44	0.46
X_2 – Net income/Total assets	Maximum	0.20	0.18	0.27	0.32	0.65	0.27	0.32	0.70	0.22
	Minimum	-0.19	-2.47	-1.76	-3.48	-0.26	-1.62	-0.85	-20.48	-2.13
	Range	0.39	2.65	2.03	3.80	0.91	1.89	1.17	21.19	2.35
X_3 – Earnings before interest and taxes/Total assets	Average	0.04	-0.01	-0.03	-0.04	0.07	0.02	0.02	-0.23	0.00
	Maximum	0.25	0.24	0.24	0.41	0.44	0.33	0.42	0.43	0.42
	Minimum	-0.13	-0.71	-0.33	-2.97	-0.24	-1.56	-0.85	-18.90	-0.97
X_4 – Market value of equity/ Book value of total liabilities	Range	0.37	0.95	0.57	3.37	0.68	1.89	1.27	19.33	1.39
	Average	0.08	0.06	0.06	0.04	0.10	0.05	0.07	-0.19	0.05
	Maximum	15.38	13.08	10.49	12.03	12.41	13.01	21.87	25.36	15.19
	Minimum	0.09	0.06	0.02	0.04	0.06	0.06	0.05	0.05	0.07
X_5 – Sales/Total assets	Range	15.29	13.02	10.47	11.99	12.35	12.95	21.81	25.32	15.13
	Average	1.36	1.23	1.01	1.03	1.43	1.53	1.41	1.56	1.48
	Maximum	2.79	4.39	2.15	3.36	3.21	3.42	3.51	3.47	5.14
X_5 – Sales/Total assets	Minimum	0.08	0.06	0.02	0.08	0.00	0.00	0.04	0.09	0.11
	Range	2.71	4.33	2.13	3.29	3.21	3.42	3.47	3.39	5.03
	Average	0.82	0.85	0.72	0.78	0.81	0.84	0.82	0.79	0.79

Source: calculated by authors.

For the period 2012–2020, no clear trend is observed in the average value of X_1 , representing capital employed net of intangibles divided by total assets. This variable shows the share of liquid assets that can be used for debt repayment. The range (the difference between maximum and minimum) increased in 2019, coinciding with an increase in the number of companies with lower X_1 . True profitability of assets (X_2) also lacked a clear trend during 2012–2020. Overall, the average values for all variables decreased from 2012 to 2015, followed by a slight increase until 2018–2019 and a subsequent fall in 2020, reflecting economic turbulence. The calculated Z-scores for 65–75 companies (based on yearly data availability) for the period 2012–2020 are shown in Appendix 1. The aggregated results for each

year are presented in Table 3, indicating no clear trend in Z-score values during the period. The average increased in 2012–2014, followed by a fall in 2015 and a new increase through 2016–2018. The first decrease in the Z-score in 2015 is associated with sanctions imposed in 2014. The second drop in 2019 may be partially explained by the fact that the two additional companies available for analysis in 2019 had scores of 0.5, driving down the annual average. The range, which indicates the difference of maximum and minimum annual scores, is greater for 2020 than for other periods. Such dynamics indicate the effect of the COVID-19 pandemic. The median, which corresponds to the point with an equal number of observations above and below, had no clear trend in 2012–2020.

Table 3. Aggregated results for the Z-score

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of analyzed companies	65	66	66	68	69	72	72	74	75
Maximum	2.79	4.40	2.19	3.36	3.20	3.42	3.51	3.47	5.14
Minimum	0.10	0.06	0.02	-0.07	-0.01	-0.07	0.03	-0.22	0.09
Range	2.69	4.35	2.17	3.43	3.21	3.49	3.48	3.68	5.05
Average	0.84	0.87	0.87	0.80	0.84	0.86	0.84	0.80	0.82
Median	0.71	0.68	0.64	0.69	0.78	0.72	0.73	0.72	0.64

Source: calculated by authors.

Table 4. Z'-score analysis by industry, 2012–2020

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Utilities	0.69	0.72	0.70	0.86	0.91	0.91	0.92	0.90	0.82
Basic materials	0.73	0.70	0.66	0.71	0.78	0.78	0.87	0.75	0.73
Consumer, non-Cyclical	1.08	1.28	0.71	0.79	0.85	0.93	0.77	0.76	0.73
Industrial	0.63	0.67	0.51	0.49	0.65	0.67	0.67	0.63	1.21
Communications	0.66	0.60	0.62	0.61	0.69	0.68	0.60	0.51	0.71
Energy	0.89	0.79	0.70	0.69	0.66	0.69	0.79	0.74	0.57
Consumer, cyclical	1.88	2.18	1.46	1.43	1.48	1.36	1.10	1.18	1.29
Financial	0.52	0.47	0.55	0.47	0.30	0.52	0.63	0.50	0.52

Source: calculated by authors.

The average scores for industries are presented in Table 4. The financial sector performs least favorably in terms of the altered Z-score, while the consumer cyclical sector is a top performer. The consumer non-cyclical sector could also be considered a top performer, showing a clear advance in 2012–2013, followed by a decline later on. In contrast, the industrial sector appears worse off in 2014, followed by a score comparable to the consumer cyclical sector in 2020.

In our comprehensive analysis, we incorporated Total Shareholder Returns (TSR) into the model to assess in-

dustry trends alongside the Altman Z-score for the year 2020. TSR, considered a highly representative metric of a firm's financial performance from an investor's perspective, was intended for potential use in resilience measurement if rankings aligned with those derived from the Z-score. The study encompassed 69 companies from our Z-score sample, acknowledging data inconsistencies for some companies.

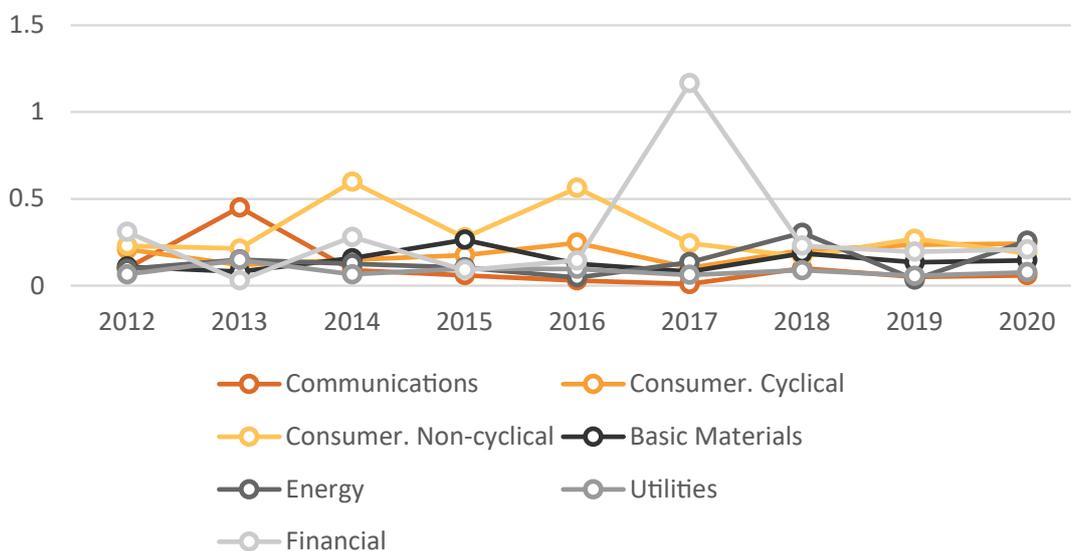
The complete TSR results for the period 2012–2020 are detailed in Appendix 2. A condensed representation of

industry average results for each year is graphically presented in Figure 1. Notably, TSR scores demonstrated considerable instability throughout the observation period, displaying significant fluctuations from year to year. An overarching decline was observed in the COVID-im-

pacted year of 2020, serving as the baseline for comparison.

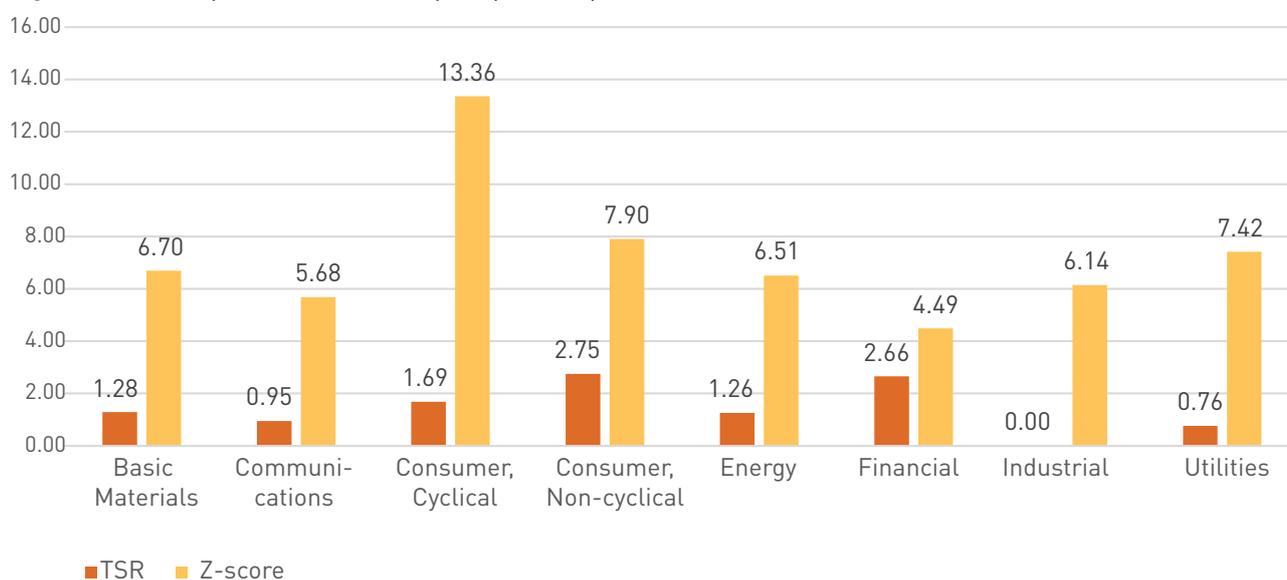
The top-performing sectors, as indicated by TSR, were the financial and consumer non-cyclical sectors, while utilities and energy emerged as the bottom performers.

Figure 1. TSR analysis by industry, 2012–2020



Source: prepared by authors.

Figure 2. TSR analysis and Z-score analysis by industry, 2012-2020



Source: prepared by authors.

The ranking of companies from our sample based on Z-score and TSR reveals notable disparities in industry positions, as depicted in Figure 2. The financial sector, a top performer in TSR, occupies the bottom-performer position when assessed by Z-score. Conversely, utilities exhibit the opposite trend. Interestingly, only the energy and communications industries share identical, al-

beit low, rankings. This suggests that TSR may not be a reliable metric for gauging resilience levels, particularly during times of crisis. This observation aligns with the findings of Levy et al. [31], who demonstrated, using data from developed markets, that the Z-score is a more effective indicator of company resilience than market performance.

Testing Hypotheses through a Case Approach

Sample Selection for a Case Approach

To scrutinize the impact of key drivers on resilience and evaluate performance under the influence of imposed sanctions, a case approach was employed. This involved selecting a few companies from the basic materials and consumer goods sectors to compare turnaround strategies under the pressure of imposed sanctions. We began by examining cases in the basic materials sector. This sector has a broad definition, usually being described as “an industry category made up of businesses engaged in the discovery, development, and processing of raw materials”, e.g., firms operating with chemical products, metals, mining, and forestry. In response to sanctions targeting import and export processes in 2022, the basic materials sector experienced varied subsector performances. Metallurgy and chemicals maintained production levels, whereas forestry production significantly declined.

We then turned to the consumer sector. Subject to fewer damaging restrictions compared to basic materials and energy, the consumer goods sector demonstrated a slight decline in the first half of 2022 due to supply chain disruptions and financial limitations. However, a performance stabilization occurred in the second half as firms adapted to the new reality, creating new market opportunities for local producers after the exit of foreign companies.

For resilience analysis in 2022, case studies focusing on top-performers and bottom-performers in these industries were conducted based on Z'-score results from the most comparable period of 2020. Due to state-imposed limitations in financial data disclosure in 2022, the analysis concentrated on companies publishing results for at least the first six months of the previous year. Our decision to compute the Z'-score for six months is based on the assumption that most of the damage arising from sanctions had the worst impact on company performance during the first six months, after which companies in these industries launched adaptation policies and began to recover from the crisis [24]. New restrictions were mostly imposed at the end of the year, and their full effect was seen only in 2023, so we assume that the second half of 2022 was a time of stabilization for business. Moreover, resilience analysis at the peak of the structural crisis is more representative for the purposes of our study.

Case Study Companies

Six companies across the Russian market were selected for case studies, representing top and bottom performers:

- 1) Magnit: One of the largest food retail companies, owing 26,731 stores in 67 Russian regions¹.
- 2) M.Video-Eldorado (M-Video): E-commerce and consumer electronics retailer with over 1,200 stores in 370 Russian regions (business strategy is currently focused on online sales development)².
- 3) Pharmsynthez: Pharmaceutical company engaged in R&D and medical production.
- 4) Nornickel: Global metal and mining leader, specializing in nickel and palladium production as well as mining silver, gold, platinum and other metals and minerals³.
- 5) TMK: Operates in steel piping, piping solutions, and supporting services for energy, chemical, construction and other sectors with 11 plants across Russia⁴.
- 6) Rusolovo: Involved in tin, tungsten concentrates, and copper production⁵. Part of the Seligdar Holding Company since 2013.

Z'-Score Results

The computed Z'-score results for FY'2020 and HY1'2022 are presented in Table 5, indicating trends for the sample. Notable observations include:

- In HY1'2022, among consumer sector companies, Magnit and M.Video exhibited the best results, while Pharmsynthez displayed the lowest Z'-score, mirroring the same positions observed for FY'2020.
- In the basic materials sector, Nornickel was the leader in 2020 yet demonstrated the same Z'-score as TMK in HY1'2022, signaling potential changes in resilience (Nornickel's level of resiliency might have fallen or TMK may have improved its performance). Rusolovo has a better half-year Z'-score than its full-year result in 2020, which might be a sign of an increase in resilience. The average score was 0.82 in 2020 (see Table 4), and so both Magnit and M.Video can definitely be described as resilient companies, Nornickel and TMK as partially resilient, and Rusolovo and Pharmsynthez as non-resilient. For the first half of 2022, the resilience trend appears to be the same.

Table 5. Z'-score for case study companies, 2020, 2022

Industry/ Company name	Z'-score FY'20	Z'-score HY1'22
Basic Materials/Nornickel	0.77	0.48
Basic Materials/TMK	0.54	0.48

¹ Magnit at a glance – PJSC “Magnit”.

² M.Video-Eldorado at a Glance (mvideeldorado.ru).

³ Meet Nornickel – Nornickel.

⁴ Where we operate: TMK (tmk-group.com).

⁵ Tin Mining Company JSC (rus-olovo.ru).

Industry/ Company name	Z'-score FY'20	Z'-score HY1'22
Basic Materials/Rusolovo	0.22	0.25
Consumer/M.Video	1.06	0.68
Consumer/Magnit	1.66	0.95
Consumer/Pharmsynthez	0.09	0.16

Source: calculated by authors.

Hypothesis Testing

To examine the influence of human capital on resilience and test Hypothesis 1, we focused on CEO data categorized into three groups:

- Personal information: age, gender, education (including major and level of education), and citizenship;
- External working experience: finance experience, other CEO experience, public service experience and same industry experience;
- Position in the company: ownership, tenure and board participation. Internal experience and motivation connected with firm ownership should

also demonstrate the CEO's role in managing financial performance.

Research was conducted for five out of six companies, with Rusolovo excluded due to the unavailability of relevant data. Despite Rusolovo being considered non-resilient, the absence of analysis for this company does not hinder testing the impact of human capital on growing resilience.

Regarding personal characteristics, age variations were notable, with an average CEO age of 49 years, ranging from 34 to 63. The CEO of M.Video, the youngest among the sample, has a tenure of less than a year and is relatively less experienced, which is atypical for a CEO of such a large firm. All CEOs in the sample are male, and only the CEO of Magnit is a foreign citizen. Educational backgrounds vary, with two CEOs having an economic major and others specializing in law, management, and biology.

In terms of professional expertise, only one CEO has finance experience, while four CEOs previously worked in the same industry. Three CEOs have prior experience as CEOs, and one has a background in public service.

Only one CEO is a member of the board, and none in the sample have ownership in their respective companies. No data on ownership was available for Nornickel in 2022, but historical information indicates no ownership by the CEO.

Table 6. CEO human capital

	Nornickel	TMK	Rusolovo	M.Video	Magnit	Pharmsynthez
Age	61	48	No data	34	63	41
Gender	Male	Male	No data	Male	Male	Male
Level of education	2	2	No data	2	3	1
Major	Economy	Economy	No data	Law	Management	Biology
Citizenship	Russian	Russian	No data	Russian	Foreign	Russian
Work experience in finance	Yes	No	No data	No	No	No
Previous work experience in the industry	No	Yes	No data	Yes	Yes	Yes
Previous CEO experience	No	Yes	No data	No	Yes	Yes
Experience in public service	Yes	No	No data	No	No	No
Tenure	10	3	No data	Less one year	3	2
Board participation	No	No	No data	No	No	Yes
Ownership	No data	No	No data	No	No	No

Source: collected from Bloomberg.

Table 6 reveals that CEOs of resilient and partially resilient companies exhibit an age gap. However, age and personal maturity are not consistent drivers of resilience within the case sample.

If we compare education majors to the sector of the company's activity, PharmSynthez's CEO stands out as the only one with a background directly relevant to the sector profile. Interestingly, PharmSynthez, despite this relevance, registers low resilience. This suggests that a background-sector profile relationship is not a prerequisite for success in turnaround strategies during structural crises. Similar observations are made for M.Video, which belongs to the most resilient subgroup, and for the partially resilient subgroup, where CEOs in the basic materials sector have economic majors.

In terms of professional expertise, CEOs in the most resilient group (M.Video, Magnit) and TMK possess prior sector experience, indicating that industry knowledge may positively influence turnaround strategy results and resilience.

Analysis of CEO tenure demonstrates that CEOs of resilient and partially resilient firms have been in their positions for more than 3 years. This suggests that depth of working experience becomes a positive driver for companies during turbulent times, as demonstrated during the COVID pandemic. A 3-year tenure means that these CEOs have gone through COVID pandemic turbulence for their businesses. Thus, CEOs with relevant professional background and expertise add to their firms' ability to deal with cancel culture.

To test Hypothesis 2 on the role of state ownership and support types during cancel culture times, we examined the list of shareholders in our case sample, along with disclosed information on government subsidies and government relations (i.e., political donations, shared projects, etc.).

Nornickel's shareholder list does not include any government shares. Its major shareholder is Interros (37%), a private investment company⁶. The company did not receive significant government subsidizing in 2021, and no information on subsidies or legislative support has been disclosed for 2022. Nornickel has taken part in various government-related projects and, as of December 12, 2021, was a member of 25 government committees and expert groups. The company has not participated in political donations.

TMK's shareholder list lacks government shares, with the parent company TMK Steel Holding Limited (91%) being the major shareholder⁷. While there is no disclosed infor-

mation on direct financial assistance, government support to the industry is mentioned as a boosting factor in a press release for H1 2021. TMK is involved in several projects with government and state-owned companies, including 15 projects with Rosatom according to an agreement of 2019⁸. In 2020, TMK organized a 100-million-rouble fundraising project with the non-profit organization Sinara, aimed at supporting hospitals during the pandemic.

Rusolovo's shareholder list excludes government shares. The 2021 annual report contains no information on financial support from the government. Rusolovo does not seem to be involved in government projects as much as TMK or Nornickel, yet it is actively engaged in community support through donations and programs, including relocation packages for employees and donations for local culture.

Thus, our subsample for the basic materials industry does not include companies with government ownership. One of the reasons is that such companies as Alrosa (state-owned company) and Mechel (one of whose shareholders, Gazprom, has government ownership) have not published annual reports since 2021, so it was impossible to calculate their Z-score for 2022 for the purposes of identifying a trend for hypothesis testing. As noted above, TMK and Nornickel are classified as partially resilient companies based on the altered Z'-score model (Table 8), while Rusolovo is classified as non-resilient, with its score increasing from 2020 to 2022. The score may stabilize in second half of 2022 for Nornickel and TMK, so further analysis is needed to fully comprehend the resilience of these companies to the 2022 sanctions. It is also important to note that Nornickel is not on the sanctions list, even though its CEO Vladimir Potanin is under sanctions. Rusolovo was not included on the sanctions list, either, while the director of Seligdar (owner of Rusolovo) was included. As for TMK, the company was not included on the sanctions list, while its ex-owner Dmitry Pumpyansky was.

In the consumer industry subsample, M.Video's shareholder list does not include government or state-owned companies. The major shareholder, Mr. Gutseriev, plans to dispose of his stake to a group of Russian businessmen⁹. M.Video received income from subsidized loan forgiveness from VTB in 2022¹⁰. Thus, M.Video is a company that has no stakes held directly or indirectly by the government yet receives state support through subsidies.

Magnit's shareholder list also lacks government ownership. However, major stakes are held by Marathon Group, owned by Aleksandr Vinokurov, who was included in the personal sanctions list in 2022 as a person affiliated with the government¹¹.

⁶ Shares and ADRs – Nornickel (nornickel.ru).

⁷ Share capital structure: TMK (tmk-group.ru).

⁸ The TMK annual report 2020 https://report2020.tmk-group.ru/download/full-reports/ar_en_annual-report_pages_tmk-group_2020.pdf

⁹ M.Video-Eldorado on changes in the composition of the Group's Board of Directors (mvideoeldorado.ru).

¹⁰ The annual report of M.Video-Eldorado 2021 GQ2021 M.Video-EHldorado.pdf (mvideoeldorado.ru).

¹¹ Largest shareholder of Magnit came under EU sanctions. Kommersant Krasnodar (<https://www.kommersant.ru/doc/5250512>).

Table 7. Relationship of government participation and resilience levels

	Nornickel	TMK	Rusolovo	M.Video	Magnit	Pharmsynthez
Industry sector	Basic Materials			Consumer		
Resilience classification	Partially resilient		Non- resilient	Resilient		Non-resilient
Z'-score, FY'20	0.77	0.54	0.22	1.06	1.66	0.09
Z'-score, HY'22	0.48	0.48	0.25	0.68	0.95	0.16
Government or state-owned companies as shareholders	No	No	No	No	No	Yes
Government subsidies	No	No	No	Yes	Yes	No
Participation in state projects	Yes	Yes	Yes	N*	N*	No*

* Information not disclosed in annual reports.

Source: prepared by authors.

According to its annual reports, it has received subsidies from the government in the form of a subsidized loan (at a lower interest rate)¹², with a reported income of 123 million rubles over H1 2022¹³. Thus, Magnit is a company with indirect government affiliation, receiving support through subsidies.

Pharmsynthez has Rosnano (more than 25%) as a government-owned shareholder¹⁴. Its 2021 annual report shows that government procurement drove revenue growth by providing additional funding for national projects and allocating funds for the purchase of drugs for treating the coronavirus infection¹⁵. Therefore, Pharmsynthez is a company with government ownership.

The results are summed up in Table 7.

Table 7 shows that the only company in our subsample that has a state-owned corporation as a shareholder belongs to the least resilient subgroup. Several companies have direct or indirect owners included in the sanctions list as people affiliated with the government. Other companies have received different types of financial, legislative or other support from the state. Our results show that government ownership does not significantly affect company resilience in cancel culture times. In further analysis, it might be useful to expand the sample to include more state-owned corporations; however, there is limited data available at this point, as information has not been disclosed for most of these corporations for 2022.

Improving relations with banks is a key factor in enhancing resilience, as posited by Hypothesis 3. Previous research

suggests that firms in high-trust countries tend to enjoy improved access to credit, resulting in decreased profit reduction during times of crisis [12]. To measure this driver, we utilized credit ratings, considering them crucial in negotiating favorable terms for debt financing. Given the absence of international rating agencies in Russia, we relied on RA Expert ratings.

Although Nornickel's credit rating for 2023 is undisclosed on the rating agency's website, it maintained a ruAAA rating with a stable prognosis from 2018 to 2022. This highest category signifies the company's very high ability to meet financial obligations. TMK, with a ruA rating, experienced a positive trend in 2021 (ruA+) but reverted to ruA in 2022 and 2023. This rating indicates a moderately high ability to fulfill obligations, albeit with increased sensitivity to external economic factors.

M.Video's credit rating, reviewed annually in March, was ruA- in 2018, remained ruA- in 2019–2020 with a positive prognosis, and rose to ruA+ in 2021–2022 before returning to ruA in 2023. This rating group likewise suggests a moderately high ability to meet obligations. Magnit's rating, disclosed in September–October, was assessed at ruAA- in 2018 with a positive prognosis before being changed to stable and then fully revoked in October 2018. For Rusolovo and Pharmsynthez, RA Expert did not assign credit ratings. Table 8 provides a summary of the data, comparing ratings and resilience across different groups.

¹² The annual report of Magnit <https://www.magnit.com/ru/disclosure/annual-reports/>.

¹³ The financial statements of PJSC Magnit (magnit.com).

¹⁴ PJSC PHARMSINTEZ, Vsevolozhsk district (TIN 7801075160), details, extract from the Unified State Register of Legal Entities, address, mail, website, telephone, financial indicators (spark-interfax.ru).

¹⁵ The annual report of Pharmsintez 2021 2015 (pharmsynthez.com).

Table 8. Credit ratings and resilience groups

	Nornickel	TMK	Rusolovo	M.Video	Magnit	Pharmsynthez
Industry Sector	Basic materials		Basic materials		Consumer	
Resilience lassification	partially resilient		non-resilient	resilient	resilient	non-resilient
Z'-score, FY'20	0.77	0.54	0.22	1.06	1.66	0.09
Z'-score, HY'22	0.48	0.48	0.25	0.68	0.95	0.16
2023	-	ruA	-	ruA	-	-
2022	ruAAA	ruA	-	ruA+	-	-
2021	ruAAA	ruA+	-	ruA+	-	-
2020	ruAAA	ruA	-	ruA-	-	-
2019	ruAAA	ruA	-	ruA-	-	-

Source: credit ratings by RAexpert.

Thus, better credit rating does not necessarily mean better resilience. Notably, the revoked credit rating of Magnit in 2018 did not hinder its classification as resilient according to the altered Z'-score model. Similarly, M.Video, characterized by a moderately high ability to meet obligations, is also classified as resilient. On the other hand, TMK, despite sharing the same credit rating, is only deemed partially resilient. Intriguingly, Nornickel, holding the highest credit rating, is classified as partially resilient. Therefore, the hypothesis that better bank relations lead to stronger resilience cannot be confirmed.

Conclusions

Our study undertook an empirical assessment of resilience levels across various industry sectors during both the pre-sanctions and the cancel culture periods. By employing an adjusted 5-variable Altman Z-score model, we categorized companies into distinct classes based on resilience criteria. Interestingly, when juxtaposing these resilience metrics with market-based returns, specifically total shareholder returns (TSR), we observed an inconsistency in rankings during cancel culture times. TSR fails to accurately reflect resilience levels and does not align with the identified corporate classes.

To delve deeper into the drivers influencing firm resilience, we examined a subsample of six companies categorized as top-performers and bottom-performers across three resilience levels. While initially hypothesizing that human capital, particularly the combination of skills, knowledge, and education, would positively impact resilience during structural crises in line with previous research [7; 8; 25; 26], our analysis of CEO characteristics such as age, education, experience, and tenure did not yield strong evidence for this conjecture. However, we found that CEOs with relevant professional backgrounds contribute to their firms' ability to navigate crises.

For Hypothesis 2, which posited that financial, legislative, and other government support influences *resilience* in line with prior studies [18], our evidence challenges the notion

that companies with government ownership or financial assistance are inherently stronger in terms of resilience. Additionally, we explored banks as potential drivers, expecting that better relations with them would provide financing flexibility and enhance resilience. However, our study reveals that a better credit rating does not necessarily correlate with better resilience. The limitations of this conclusion lie in the limited availability of credit rating data, assessed from a single agency due to the revocation and non-disclosure of ratings by international agencies for Russian companies.

Our findings hold significance for financial management and governance practices, particularly during turbulent times and structural crises. The paper lays a foundation for further research on trends in corporate resilience classes and their correlation with industry types.

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Appendix 1.**Computation results of Z'-score for 2012–2020**

Company	Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
AFKS RM Equity	Communications	0.695	0.787	0.422	0.535	0.530	0.637	0.612	0.431	0.523	0.493
AFLT RM Equity	Consumer, Cyclical	0.931	1.332	1.396	1.154	1.323	1.672	0.665	0.640	0.736	0.300
AKRN rm Equity	Basic Materials	0.580	0.472	0.480	0.394	0.427	0.481	0.527			
ALRS RM Equity	Basic Materials	0.599	0.519	0.497	0.559	0.542	0.715	0.683	0.776	0.591	0.458
APTK RM Equity	Consumer, non-Cyclical	0.987	0.669	1.409	0.580	1.163	1.011	1.189	1.329	1.115	0.735
AQUA RM Equity	Consumer, non-Cyclical	2.787	2.794	3.415	0.230	0.096	0.456	0.983	0.514	0.721	0.475
BANERM Equity	Energy	1.139	1.172	1.284	1.235	1.197	1.041	0.940	1.166	1.074	0.604
BELU RM Equity	Consumer, non-Cyclical	0.910	0.878	0.781	0.822	0.870	0.954	0.919	0.906	0.898	1.004
CHMF RM Equity	Basic Materials	0.827	0.931	0.646	0.748	0.943	1.038	1.142	1.370	1.071	0.942
DIOD RM Equity	Consumer, non-Cyclical	0.438	0.374	0.417	0.512	0.481	0.612	0.572	0.559	0.474	0.398
DSKY RM Equity	Consumer, Cyclical							2.234	1.287	1.402	1.488
ENRU RM Equity	Utilities	0.526	0.539	0.543	0.541	0.803	0.952	0.940	0.893	0.955	0.591
FEES RM Equity	Utilities	0.141	0.127	0.171	0.195	0.202	0.250	0.231	0.227	0.211	0.193
FLOT RM Equity	Industrial										0.188
GAZA RM Equity	Energy	2.303		1.577	1.185	1.268	1.391	1.478	1.478	1.478	1.478
	(blank)		1.766								
GAZP RM Equity	Energy	0.447	0.418	0.410	0.384	0.371	0.376	0.372	0.411	0.366	0.284
GEMA RM Equity	Financial									0.452	0.395
GMKN RM Equity	Basic Materials	0.726	0.627	0.624	0.633	0.564	0.576	0.589	0.730	0.770	0.770
HYDR RM Equity	Utilities	0.463	0.362	0.382	0.388	0.389	0.473	0.416	0.401	0.410	0.424
IRAO RM Equity	Utilities	1.028	1.064	1.300	1.275	1.473	1.508	1.380	1.340	1.399	1.161
irgz rx Equity	Utilities	0.956	0.978	0.997	0.939	1.016	0.893	0.893	0.647	0.600	0.370
IRKT RM Equity	Industrial	0.581	0.590	0.795	0.428	0.442	0.467	0.467	0.249	0.445	
ISKJ RM Equity	Consumer, non-Cyclical	0.295	0.451	0.600	0.457	0.378	0.381	0.474	0.579	0.607	0.736
KMAZ RM Equity	Consumer, Cyclical	1.389	1.550	1.419	1.154	0.887	1.008	0.981	0.961	0.930	0.939
KUBE RM Equity	Utilities		0.718	0.575	0.548	0.712	0.712	0.670	0.688	0.741	0.665
KZOS RX Equity	Basic Materials	0.844	1.094	1.195	1.160	1.226	1.253	1.195	1.199	1.170	0.945
LIFE RM Equity	Cyclical	0.274	0.345	0.142	0.201	0.124	0.119	0.187	0.085	0.062	0.091
LKOH RM Equity	Energy	1.142	1.222	1.076	1.009	1.048	0.965	1.068	1.331	1.273	0.888
LNTA RM Equity	Consumer, Cyclical				1.392	1.439	1.373	1.495	1.499	1.292	1.614

Company	Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
LSRG RM Equity	Financial	0.424	0.454	0.407	0.461	0.447	0.434	0.564	0.577	0.429	0.431
MAGN RM Equity	Basic Materials	0.535	0.594	0.662	0.685	0.816	0.987	1.002	1.070	0.984	0.863
MFON RM Equity	Communications		0.797	0.710	0.707	0.686	0.698	0.580	0.668	0.514	0.440
MGNTRM Equity	Consumer, non-Cyclical	1.947	2.055	2.202	2.189	2.402	2.399	2.197	1.413	1.453	1.657
MRKCRM Equity	Utilities	0.917	0.797	0.983	0.939	0.817	0.828	0.889	0.880	0.815	0.811
MRKK RM Equity	Utilities	0.703	0.627	0.530	0.559	0.661	0.691	0.727	0.707	0.950	0.962
MRKPRM Equity	Utilities	0.951	0.834	1.021	0.903	0.892	0.997	1.034	0.927	0.897	0.832
MRKSRM Equity	Utilities	1.080	0.984	1.166	1.240	0.863	0.844	0.888	0.874	0.826	0.789
MRKU RM Equity	Utilities	0.982	0.904	0.939	0.910	0.912	1.002	1.077	1.240	1.178	0.955
MRKV RM Equity	Utilities	1.214	1.040	0.991	0.895	0.952	1.061	1.154	1.212	1.090	0.994
MRKZ RM Equity	Utilities	0.900	0.806	0.877	0.862	0.795	0.872	0.994	1.277	1.006	0.997
MSNGRM Equity	Utilities	0.632	0.609	0.474	0.475	0.529		0.608	0.629	0.477	0.462
MSRS RM Equity	Utilities	0.534	0.482	0.467	0.425	0.420	0.427	0.465	0.484	0.478	0.472
MSTT RM Equity	Industrial						1.204	1.312	1.300	0.847	5.142
MTLR RM Equity	Basic Materials	0.600	0.612	0.594	0.647	0.724	0.842	0.933	0.952	0.913	1.356
MTSS RX Equity	Communications	0.723	0.852	0.847	0.701	0.667	0.816	0.820	0.497	0.582	0.549
MVID RM Equity	Consumer, Cyclical	2.107	2.313	2.301	1.892	1.851	1.833	1.637	1.129	1.047	1.056
NFAZ RM Equity	Consumer, Cyclical	2.010	2.753	4.403	1.985	1.981	2.133	2.458	1.966	2.672	3.552
NKNC RM Equity	Basic Materials		1.712	1.525	1.539	1.441	1.236	1.157	0.950	0.861	0.593
NLMK RM Equity	Basic Materials	0.644	0.690	0.669	0.685	0.776	0.847	0.964	1.136	1.084	0.949
NVTK RM Equity	Energy			0.546	0.549	0.574	0.620	0.616	0.760	0.520	0.407
ODVA RM Equity	Communications	0.369	0.101	0.056	0.020	0.067	-0.010	0.067	0.033	0.216	1.131
OGKB RM Equity	Utilities	0.810	0.712	0.684	0.595	0.532	0.634	0.670	0.686	0.612	0.557
ORUP RM Equity	Consumer, cyclical							0.576	0.522	0.504	0.356
PHOR RM Equity	Basic Materials	0.950	0.945	0.852	0.705	0.911	0.854	0.747	0.842	0.846	0.818
PIKK RM Equity	Financial	0.365	0.584	0.543	0.646	0.501	0.173	0.471	0.684	0.609	0.603
PLZL RM Equity	Basic Materials									0.535	0.735
RBCM RM Equity	Communications	1.136	0.891	1.050	1.221	1.304	1.446	1.551	1.467	1.125	1.078
RNFT RX Equity	Energy						0.503	0.588	0.716	0.682	0.682
ROLO RM Equity	Basic Materials			0.775	0.314	0.127	0.632	0.605	0.798	0.202	0.224
ROSN RM Equity	Energy	0.807	0.774	0.618	0.627	0.535	0.458	0.496	0.634	0.677	0.383
RSTI RM Equity	Utilities	0.734	0.339	0.395	0.392	0.369	0.410	0.417	0.418	0.401	0.379

Company	Industry	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
RTKM RM	Communications	0.599	0.535	0.532	0.557	0.551	0.546	0.556	0.504	0.547	0.557
SELG RM Equity	Basic Materials	0.365	0.244	0.274	0.226	0.313	0.391	0.270	0.319	0.397	0.460
SIBN RM Equity	Energy	1.127	0.951	0.832	0.687	0.605	0.624	0.678	0.727	0.670	0.483
SMLT RM Equity	Financial										0.637
SNGS RM Equity	Energy	0.522	0.445	0.382	0.294	0.273	0.282	0.296	0.321	0.320	0.203
SVAV RM Equity	Consumer, Cyclical	1.424	1.432	1.387	1.167	1.125	0.872	0.823	0.783	0.894	0.979
TGKA RM Equity	Utilities		0.438	0.479	0.473	0.462	0.513	0.554	0.568	0.551	0.483
TGKN RM Equity	Utilities					1.143	1.091	1.073	1.124	1.081	1.058
TNSE RM Equity	Utilities					3.362	3.203	3.419	3.508	3.467	3.361
TRMK RM Equity	Industrial	0.877	0.905	0.851	0.712	0.793	0.782	0.814	0.686	0.720	0.540
TRNFP RX Equity	Energy	0.378	0.385	0.374	0.330	0.326	0.327	0.326	0.325	0.338	0.306
UNAC RM Equity	Industrial	0.289	0.363	0.405	0.381	0.386	0.429	0.429	0.420	0.345	0.436
UPRO RM Equity	Utilities	0.635	0.672	0.697	0.688	0.693	0.802	0.709	0.677	0.672	0.645
URKA RM Equity	Basic Materials	0.283	0.309	0.265	0.252	0.368	0.293	0.316	0.310	0.322	0.312
UTAR RM Equity	Industrial	0.752	0.829	0.733					1.064	1.125	0.681
VSMO RM Equity	Industrial		0.557	0.565	0.513	0.341	0.381	0.318	0.326	0.329	0.272

Source: prepared by authors.

Appendix 2.

Detailed computation of Z'-score for the first half of 2022 and forecast for the full year of 2022

Company	Capital Employed/Total Assets	NI/Total Assets	EBIT/Total Assets	Market Cap/Total Liabilities	Sales/Total Assets	Z'- score HY1'22	Z'- score FY'22
Rusolovo	0.78	0.06	0.07	2.24	0.23	0.25	0.48
TMK	0.46	0.03	0.07	0.18	0.47	0.48	0.96
Nornickel	0.70	0.24	0.33	2.34	0.44	0.48	0.93
Magnit	0.58	0.02	0.06	0.43	0.94	0.95	1.89
Pharmsynthez	0.01	-0.05	-0.02	1.29	0.15	0.16	0.31
M Video	0.21	-0.01	0.2	0.11	0.68	0.68	1.35

Source: prepared by authors.

Appendix 3.

TSR 2012–2020

Company	Industry	2012	2013	2014	2015	2016	2017	2018	2019	2020
AFKSRM Equity	Communications	0.10	0.45	0.09	0.06	0.03	0.01	0.10	0.05	0.06
AFLT RM Equity	Consumer. Cyclical	0.60	0.15	0.10	0.30	0.19	0.07	0.15	0.11	0.55
AKRN rm Equity	Basic Materials	0.09	0.05	0.10	0.23	0.03	0.06	0.15	0.06	0.04
ALRS RM Equity	Basic Materials	0.10	0.12	0.23	0.08	0.41	0.13	0.09	0.21	0.07
APTK RM Equity	Consumer. Non-cyclical	0.31	0.58	2.06	0.67	0.44	0.05	0.07	0.18	0.08
AQUA RM Equity	Consumer. Non-cyclical	0.14	0.13	0.92	0.43	1.86	1.11	0.01	0.80	0.07
BANERM Equity	Energy	0.09	0.06	0.13	0.04	0.03	0.13	0.28	0.01	0.46
BELU RM Equity	Consumer. Non-cyclical	0.06	0.01	0.07	0.09	0.17	0.04	0.16	0.18	0.23
CHMF RM Equity	Basic Materials	0.06	0.31	0.07	0.22	0.01	0.16	0.18	0.02	0.06
DIOD RM Equity	Consumer. Non-cyclical	0.26	0.01	0.13	0.25	0.08	0.09	0.03	0.15	0.21
DSKY RM Equity	Consumer. Cyclical	0.20	0.30	0.26	0.33	0.31	0.22	0.14	0.16	0.11
ENRU RM Equity	Utilities	0.11	0.05	0.07	0.05	0.02	0.03	0.02	0.10	0.33
FEES RM Equity	Utilities	0.01	0.13	0.10	0.08	0.37	0.05	0.05	0.02	0.05
FLOT RM Equity	Industrial	0.02	0.04	0.45	0.88	0.01	0.19	0.09	0.21	0.19
GAZPRM Equity	Energy	0.03	0.10	0.06	0.09	0.01	0.07	0.26	0.07	0.17
GMKN RM Equity	Basic Materials	0.10	0.02	0.25	0.14	0.06	0.04	0.37	0.20	0.28
HYDR RM Equity	Utilities	0.18	0.05	0.05	0.05	0.08	0.07	0.03	0.02	0.04
IRAO RM Equity	Utilities	0.04	0.19	0.12	0.12	0.04	0.00	0.11	0.07	0.04
irgz rx Equity	Utilities	0.19	0.13	0.07	0.17	0.07	-	0.10	0.03	0.02
IRKT RM Equity	Industrial	0.01	0.28	0.09	0.29	0.28	0.24	0.29	0.10	0.81
ISKJ RM Equity	Consumer, non-cyclical	0.14	0.40	0.14	0.14	0.26	0.27	0.30	0.30	0.30
KMAZ RM Equity	Consumer, cyclical	0.11	0.04	0.03	0.12	0.37	0.17	0.19	0.02	0.12
KUBE RM Equity	Utilities	-	0.22	0.13	0.33	0.06	0.01	0.10	0.10	0.03
KZOS RX Equity	Basic Materials	0.24	0.02	0.18	0.26	0.10	0.05	0.10	0.08	0.13
LIFE RM Equity	Consumer, non-cyclical	0.36	0.08	0.54	0.12	1.00	0.09	0.52	0.17	0.28
LKOH RM Equity	Energy	0.10	0.05	0.24	0.10	0.08	0.15	0.37	0.01	0.30
LSRG RM Equity	Financial	0.18	0.01	0.54	0.01	0.16	0.30	0.06	0.25	0.07
MAGNRM Equity	Basic Materials	0.06	0.10	0.18	0.16	0.05	0.17	0.17	0.05	0.06
MFON RM Equity	Communications	-	-	-	-	-	-	-	-	-
MGNTRM Equity	Consumer, non-cyclical	0.33	0.29	0.32	0.24	0.13	0.06	0.08	0.11	0.14
MRKC RM Equity	Utilities	0.01	0.33	0.07	0.07	0.07	0.06	0.03	0.01	0.03
MRKK RM Equity	Utilities	0.12	0.00	0.01	0.09	0.11	0.03	0.07	0.08	0.30
MRKPRM Equity	Utilities	0.07	0.29	0.10	0.01	0.13	0.16	0.04	0.02	0.00
MRKS RM Equity	Utilities	0.05	0.29	0.05	0.26	0.08	0.11	0.06	0.04	0.02
MRKU RM Equity	Utilities	0.04	0.10	0.05	0.01	0.07	0.09	0.24	0.06	0.17
MRKV RM Equity	Utilities	0.04	0.07	0.06	0.04	0.11	0.11	0.07	0.01	0.04

Company	Industry	2012	2013	2014	2015	2016	2017	2018	2019	2020
MRKZ RM Equity	Utilities	0.00	0.34	0.05	0.10	0.07	0.05	0.35	0.24	0.02
MSNG RM Equity	Utilities	0.02	0.01	0.04	0.06	0.11	0.03	0.01	0.05	0.05
MSRS RM Equity	Utilities	0.03	0.03	0.01	0.03	0.06	0.07	0.06	0.01	0.02
MSTT RM Equity	Industrial	0.25	0.06	0.29	0.05	0.22	0.19	0.01	0.31	0.31
MTLR RM Equity	Basic Materials	0.10	0.18	0.10	0.04	0.09	0.08	0.02	0.05	0.08
MTSS RX Equity	Communications	–	–	–	–	–	–	–	–	–
MVID RM Equity	Consumer, cyclical	0.19	0.11	0.17	0.06	0.13	0.08	0.62	0.14	0.14
NFAZ RM Equity	Consumer, cyclical	0.11	0.06	0.12	0.05	0.41	0.07	0.02	0.51	0.40
NKNC RM Equity	Basic Materials	0.04	0.03	0.09	0.14	0.02	0.06	0.16	0.08	0.14
NLMK RM Equity	Basic Materials	0.10	0.08	0.16	0.22	0.04	0.15	0.29	0.10	0.02
NVTK RM Equity	Energy	0.20	0.41	0.20	0.33	0.13	0.09	0.43	0.04	0.18
ODVA RM Equity	Communications	–	–	–	–	–	–	–	–	–
OGKB RM Equity	Utilities	0.01	0.07	0.04	0.03	0.20	0.05	0.01	0.06	0.10
PHOR RM Equity	Basic Materials	0.05	0.01	0.18	0.54	0.01	0.03	0.29	0.06	0.02
PIKK RM Equity	Financial	0.44	0.05	0.02	0.17	0.13	2.03	0.40	0.14	0.35
PLZL RM Equity	Basic Materials	0.22	0.11	0.16	0.55	0.22	0.03	0.16	0.40	0.41
RBCM RM Equity	Communications	–	–	–	–	–	–	–	–	–
ROSN RM Equity	Energy	0.13	0.52	0.18	0.06	0.02	0.20	0.37	0.05	0.33
RSTI RM Equity	Utilities	0.03	0.16	0.01	0.01	0.18	0.05	0.08	0.01	0.03
RTKM RM Equity	Communications	–	–	–	–	–	–	–	–	–
SELG RM Equity	Basic Materials	0.08	0.15	0.05	0.47	0.39	0.03	0.37	0.39	0.51
SIBN RM Equity	Energy	0.05	0.03	0.11	0.04	0.05	0.25	0.29	0.00	0.20
SNGS RM Equity	Energy	0.08	0.01	0.06	0.13	0.02	0.15	0.32	0.01	0.32
SVAV RM Equity	Consumer, cyclical	0.06	0.06	0.22	0.20	0.07	0.00	0.10	0.47	0.14
TGKA RM Equity	Utilities	0.04	0.12	0.01	0.01	0.14	0.11	0.05	0.05	0.09
TGKN RM Equity	Utilities	–	0.25	0.06	0.03	0.06	0.02	0.04	0.02	0.00
TRMK RM Equity	Industrial	0.05	0.01	0.13	0.09	0.12	0.15	0.08	0.07	0.11
TRNFP RX Equity	Energy	0.09	0.02	0.03	0.05	0.04	0.04	0.11	0.09	0.10
UNACRM Equity	Industrial	0.06	0.29	0.34	0.18	0.20	0.08	0.09	0.15	0.23
UPRO RM Equity	Utilities	0.14	0.05	0.01	0.01	0.02	0.02	0.02	0.03	0.06
URKA RM Equity	Basic Materials	0.19	0.14	0.30	0.39	0.20	0.06	0.07	0.04	0.08
UTAR RM Equity	Industrial	0.44	0.04	0.08	0.08	0.07	0.01	0.10	0.03	0.33
VSMO RM Equity	Industrial	–	0.17	0.23	0.26	0.13	0.02	0.15	0.04	0.14

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