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**Determinants of Strategic Resilience during Crisis:
The Case of Russian Companies**

Master's Thesis by the 2nd year student
Master in Management
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**ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ
ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ**

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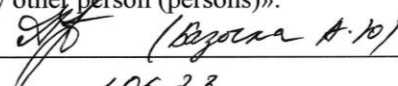
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ABSTRACT

Master Student's Name	Bazyka Anastasia
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Master Thesis Title	Determinants of Strategic Resilience during Crisis: The Case of Russian Companies
Description of the goal, tasks and main results the research	<p>The goal of this research is to identify the determinants of strategic resilience in Russian companies during crises by using the fuzzy sets method to analyze data. The research seeks to contribute to the existing literature on strategic resilience and crisis management, and provide valuable insights to managers on how to prepare their organizations for future crises.</p> <p>The tasks involved in achieving this goal include conducting a comprehensive literature review to understand the theoretical underpinnings of strategic resilience and crisis management, developing a research methodology, analyzing data using the fuzzy sets method to identify the configurations of determinants, and finally, synthesizing the findings to draw conclusions and offer practical implications for managers.</p> <p>The main results of this research are the identified configurations of determinants of strategic resilience during crises in Russian companies. The research identified three configurations of determinants that were associated with a positive outcome for strategic resilience.</p>
Keywords	Strategic resilience, determinants of strategic resilience, the fsQCA, crisis in Russia

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Описание цели, задач и основных результатов исследования	<p>Целью данного исследования является выявление факторов, определяющих стратегическую устойчивость российских компаний во время кризисов, с использованием метода нечетких множеств. Исследование призвано дополнить существующую литературу по стратегической устойчивости и антикризисному управлению и дать руководителям ценную информацию о том, как подготовить свои организации к будущим кризисам.</p> <p>Задачи, связанные с достижением этой цели, включают проведение всестороннего обзора литературы для понимания теоретических основ стратегической устойчивости и антикризисного управления, разработку методологии исследования, анализ данных для выявления конфигураций детерминант стратегической устойчивости и, наконец, обобщение полученных результатов для составления выводов и предложения практических последствий для менеджеров.</p> <p>Основными результатами данного исследования являются выявленные конфигурации детерминант стратегической устойчивости во время кризисов в российских компаниях. В ходе исследования были выявлены три конфигурации детерминант, которые были связаны с положительным результатом для стратегической устойчивости.</p>
Ключевые слова	Стратегическая устойчивость, определяющие факторы стратегической устойчивости, fsQCA, кризис в России

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INTRODUCTION

During the last decade, increased market uncertainty and environmental disasters have shifted the strategic goals of many organizations from a so-called "quest for profits" to "a quest for resilience", focusing the attention of both management scholars and practitioners on the topic of the resilience of firms. "Strategic resilience is not about responding to a one time crisis or rebounding from a setback. It's about continually anticipating and adjusting to deep, secular trends that can permanently impair the earning power of a core business. It's about having the capacity to change even before the case for change becomes obvious."(Hamel & Välikangas, 2003)

The Importance of Strategic Resilience

Research on strategic resilience is now highly relevant, as companies face an unprecedented level of volatility, uncertainty, complexity, and ambiguity (VUCA) in their business environment. The COVID-19 pandemic, political instability, economic uncertainty, and technological disruptions are just a few examples of the challenges organizations face today. This has made it increasingly important for companies to anticipate and respond to unexpected changes to maintain their competitiveness and viability.

Research on strategic resilience can help companies understand how to identify and manage risks, and how to build the capabilities and resources necessary to anticipate and respond to unexpected changes. It can also help companies understand how to create a culture of resilience within the organization and how to foster a sense of shared purpose and commitment among employees.

It can also help organizations identify the key factors that contribute to the resilience of companies and how to develop strategies to improve those factors. It can also provide insights into how organizations can build resilience through innovation and how to manage the trade-offs between short- and long-term goals.

Furthermore, research on strategic resilience is also relevant for policymakers and regulators, as it can help them understand how to create an environment that supports the resilience of companies and how to develop policies and regulations that encourage organizations to be more resilient. In summary, research on strategic resilience is relevant now, as it can provide valuable insights into how organizations can anticipate and respond to unexpected changes, and how to maintain their competitiveness and viability in a rapidly changing world.

Research gap

Organizations operating in Russia have to deal with significant economic and social challenges, including economic sanctions, volatile financial markets, political instability, and social-environmental risks. The crisis has highlighted the need for companies to be resilient - the ability to withstand, adapt to, and recover from disruptions while continuing to function effectively. The concept of strategic resilience is essential in crisis scenarios, and empirical evidence suggests that building strategic resilience can be an effective response to unpredictable and volatile business environments (Davidson & Vaast, 2010).

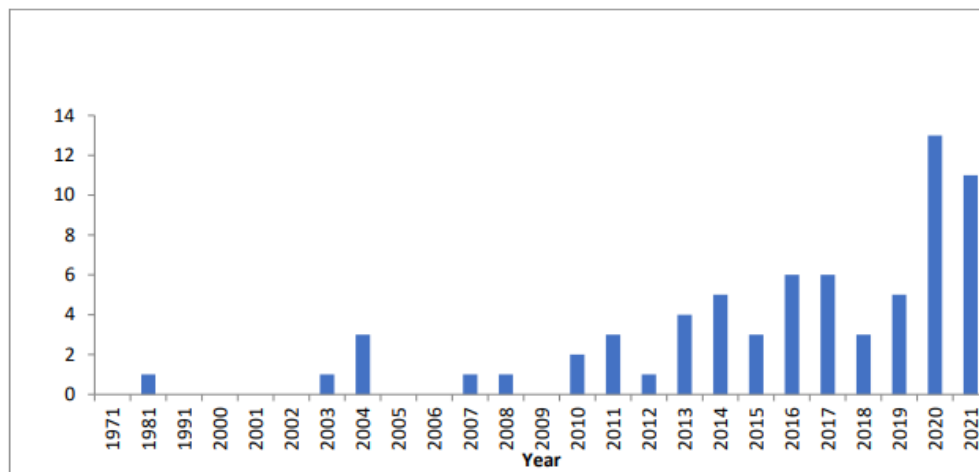


Figure 1. Publications per year (Colberg, 2022, p. 6)

As we can see in Figure 1, there has been an intensive growth of publications on this topic recently. Despite the importance of strategic resilience, a review of the academic literature on the subject reveals that there is a research gap when it comes to understanding the determinants of strategic resilience in a Russian context during a crisis scenario. Existing studies have primarily explored strategic resilience in developed countries, while few studies have investigated strategic resilience determinants in emerging markets such as Russia. Therefore, this research aims to identify the determinants of strategic resilience in Russian companies during a crisis scenario to bridge this research gap.

Russia has faced various economic challenges, and its economy has a history of experiencing significant volatility, which underscores the urgency and profound significance of studying strategic resilience in the country (Kadochnikov & Fedyunina, 2019). Theoretically, this research study can advance the field of strategic management by providing empirical evidence on the determinants of strategic resilience in a turbulent business environment. The study can also extend the literature on strategic resilience by exploring its applicability in an emerging

market context, thereby contributing to the development and refinement of existing theories on strategic resilience.

The Contributions of this Research

This study seeks to address the gap in literature by exploring the determinants of strategic resilience in Russian companies in context of a crisis. The study's empirical and theoretical significance lies in extending the current understanding of strategic resilience determinants in a turbulent environment and adding empirical evidence on its applicability in a Russian market context. The study's findings may offer practical implications for managers, policymakers, and firms in Russia, which can ultimately position them better to deal with any future crises that may arise.

Research Question

Given the practical importance, as well as the current high level of uncertainty in the Russian market, it is important to understand what companies need to focus on (what opportunities) in order to achieve strategic resilience. Thus, the following research question was formulated:

What configurations of determinants allow companies to achieve the best strategic resilience?

Goal and Objectives

The purpose of this work is to identify configurations of determinants of the strategic resilience of companies in Russia. To achieve this, the following tasks are highlighted:

1. Analyze the existing literature to determine the concept of strategic resilience
2. Investigate existing models and tools for assessing the strategic resilience of companies
3. Based on the information received, determine the factors affecting the strategic resilience of companies
4. Using appropriate tool to identify the existing configurations of determinants
5. Analyze and explain the results in the context of Russian realities

Thesis Structure

The structure of this research is organized into several sections, each with its own distinctive focus. In this section, I will describe the key components of the dissertation and summarize the contribution of each chapter.

Introduction lays out the research problem, objectives, and research questions that the dissertation seeks to address. This chapter also provides a relevance of the research and outlines the structure of the dissertation.

Chapter 1 provides a comprehensive literature review of strategic resilience and crisis management. This chapter covers the theoretical underpinnings for the thesis and highlights key existing research in the field. It also examines existing models to identify potential determinants.

Chapter 2 describes the research methodology used in this study, which is based on open data of Russian companies. I outline the research design and sampling methods, describe data collection process, and provide a detailed discussion of the data analysis techniques used, including the fuzzy sets method employed to identify strategic resilience determinants.

Chapter 3 presents the findings of the study. In this chapter, I outline the configurations of strategic resilience determinants identified in the analysis and discuss this results for organizations operating in crisis environments. In this chapter, I highlight the practical implications of the research for managers looking to improve the strategic resilience of their organizations during times of crisis. I also identify limitations of the study and suggest areas for future research.

Finally, I provide a conclusion to the thesis and summarize the key findings, implications, and contributions of the study.

CHAPTER 1. THEORETICAL RESEARCH ON THE STRATEGIC RESILIENCE

In today's complex and unpredictable world, organizations face a wide range of emergencies and crises that can significantly impact their operations and survival. This theoretical review aims to delve into key concepts and theories relevant to understanding and managing organizations in emergency and crisis contexts. Specifically, I will explore the concept of resilience within the resource-based theory and the interplay between resilience, sustainability, and vulnerability. This review draws upon scholarly research to provide a comprehensive understanding of this topic.

1.1 Resource-based theory

In this article, the key concept is the strategic resilience of companies. Resource-based theory is a strategic management framework that focuses on the internal resources and capabilities of a firm as the primary sources of competitive advantage. It suggests that a firm's unique combination of tangible and intangible resources, such as physical assets, human capital, intellectual property, and organizational processes, can lead to sustained competitive advantage and superior performance. An important achievement of this theory is the understanding of the company's resources, as well as the fact that not all firms have the same resources or possess them in the same quantities. Such heterogeneity allows certain firms to gain a competitive advantage over others.(Barney, 2001)

It is important that a resource-based view can help in analyzing the organizational capabilities and strategic resilience of a company. In other words, with the help of this conceptual framework, it is necessary to understand which areas of activity of companies help them to achieve competitive advantage not only in financial terms, but also to remain resilient and successful in the context of uncertainty and constant crises. A resource potentially capable of creating a competitive advantage must meet a number of criteria, including value, rarity, imitability and organization. Resources and capabilities are considered valuable if they enable an organization to both exploit opportunities and counter threats. Therefore, these resources should allow the organization to meet the factors that are crucial for success in its business environment.(Barney, 2001)

In the context of crisis situations in the business sphere, resource-based theory can be applied to guide strategic decision-making. During crises, firms may face resource constraints,

uncertainty, and increased competition. The theory helps firms identify and leverage their unique resources to navigate these challenges effectively.

In a crisis, resource-based theory suggests that firms should assess their resource portfolio and focus on key resources and capabilities that provide a competitive advantage. This may involve reallocating resources to areas of the business that are more resilient or aligning resources with changing market demands.

Additionally, firms can use the theory to identify new resources or capabilities that may be valuable in the crisis context. This could involve developing new technologies, enhancing the skills of employees, or strengthening relationships with suppliers or partners. By applying resource-based theory, firms can strategically manage their resources, adapt to crisis situations, and position themselves for long-term success even in challenging environments.

Resource-based theory emphasizes the importance of an organization's internal resources and capabilities in achieving and sustaining a competitive advantage. According to (Wernerfelt, 1984), "a firm is said to have a competitive advantage when it is implementing a value-creating strategy not simultaneously being implemented by any current or potential competitors." In the context of emergencies and crises, this theory becomes particularly relevant as organizations must effectively mobilize and utilize their resources to respond to and recover from disruptive events.

1.2 Planning and Operation in a Turbulent Environment

In today's fast-paced and ever-changing business environment, organizations are operating in a world that is becoming increasingly unpredictable and complex due to technological advancements, changing market trends, and global socio-political tensions. As a result, a critical area of focus for organizations is planning and operation in turbulent environments.

The concept of a turbulent environment was first introduced by Karl Weick in 1979, who defined it as an environment in which "change is so fast and so multifaceted that no single response can be expected to be appropriate for any length of time". In other words, a turbulent environment is characterized by uncertainty, ambiguity, and rapid changes, which can make planning and decision-making challenging for organizations.

Successful organizations need foresight to plan for the future in a turbulent environment and identified strategic planning as a tool to accomplish this. (Bennis & Nanus, 1997). For

planning in turbulent environments, researchers suggest a process called "sensemaking." Sensemaking refers to a continuous search for environmental clues to identify changes and exploit opportunities to cope with uncertain situations.(Mitroff et al., 1987; Weick et al., 2005)

Organizations can use several strategies to plan and operate effectively in turbulent environments. One approach is to adopt an agile methodology which prioritizes adaptation and continuous exploration to cope with environmental uncertainty. (Aguirre et al., 2016) An additional strategy is scenario planning which entails incorporating future possible situations and responses in planning endeavors.

In conclusion, turbulence is an increasingly prevalent feature of today's business environment, making planning and operation challenging for organizations. Planning in turbulent environments requires unconventional approaches and requires ongoing foresight coupled with deliberation informed by relevant information. Strategies such as sensemaking, agile methodology, and scenario planning have shown to be useful for planning effectively under these challenging conditions.

1.3 Concept of Resilience

Since in the modern world, confronting the conditions of the crisis is a daily task of any company, the focus in business management has shifted from exclusively financial indicators. Now the new reality is focusing the attention on the topic of the resilience of firms (Baggio et al., 2015; Carmeli & Markman, 2011; Woods, 2015)

Strategic resilience belongs to the field of strategic management theory. Strategic management is the process of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its objectives. Strategic resilience refers to an organization's ability to adapt and thrive in the face of unexpected and potentially disruptive changes such as economic downturns, technological innovations, or natural disasters. The theory of strategic resilience is a subfield of strategic management theory, which focuses on how organizations can anticipate and respond to changes in the environment and mitigate the negative impact of these changes to maintain their competitiveness and viability.

Resilience in business refers to an organization's ability to quickly adapt and recover from disruptions, such as natural disasters, economic downturns, or cyberattacks. It involves having a solid contingency plan in place as well as the resources and capabilities to execute that plan effectively. Resilient businesses are better able to withstand and recover from unexpected events, which can help them maintain their competitive advantage and protect their bottom lines.

This concept encompasses several key elements such as risk management, crisis management, and business continuity planning.

Resilience has been conceptualized quite differently across studies, meaning that the different research streams have developed their own definitions, theories and understandings of resilience. In the scientific community, the concept of resilience is considered from the point of view of different perspectives. This is how, for example, the following definitions stand out: "...view resilience either as (1) organizational responses to external threats, (2) organizational reliability, (3) employee strengths, (4) the adaptability of business models, or (5) design principles that reduce supply chain vulnerabilities and disruptions.» (Linnenluecke, 2017)

Back in the early 1980s, researchers began to think about how business functions in the face of threats (Staw et al., 1981), as well as how it can adapt to changing circumstances and the environment (Meyer, 1983). Those articles were not directly related to sustainability, but laid the foundation for the development of research in this area. The study suggested that organizations can display adaptability in the form of two different types of responses: resiliency (resiliency) and retention (retention). Resiliency is influenced by an organization's strategy and its slack resources, while retention is shaped by organizational ideologies and constrained by organizational structures. (Meyer, 1983). Also here very important that "...Meyer was the first to expressly use "resiliency" as a concept within the business and management literature" (Linnenluecke, 2017)

In 1980-1990 researchers and practitioners were focused on solving internal threats in companies. However, after the September 11 disaster, the focus and attention shifted to external sources of threats. The business environment faced questions: can organizations avoid vulnerability to threats and "activate" resilience in response to threats, and how can resilience be successfully improved at the individual, group and organizational levels of analysis. The changed circumstances gave impetus to the development of the concept of resilience in new directions. It should be noted that "...these streams have developed in relative isolation from each other." (Linnenluecke, 2017).

One of the directions of the study was the influence of employees and their satisfaction on the resilience of companies. So there is an idea that it is the abilities of employees that influence the construction of strategic resilience. (Coutu, 2002) On the other hand, many authors noted that it is necessary to develop the psychological strength of employees, which will then help companies to maintain resilience in crisis situations. (Luthans, 2002). In the early 00s,

Luthans developed the concept of employees resilience “the capability of individuals to cope successfully in the face of significant change, adversity, or risk” and as “the positive psychological capacity to rebound, to ‘bounce back’ from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility. (Luthans, 2002, p. 702). The PsyCap concept is important for the development of strategic resilience, since it was in these studies that the positive correlations between resilience to crisis situations and “...and job satisfaction, work happiness, organizational commitment and performance” were first studied. (Luthans et al., 2007). Also, studies have revealed negative correlations between the resilience and stress of employees, intentions to quit and behavior in job search (Avey et al., 2009). It also marked the beginning of a meeting of constant feedback from employees with the possibility of their assessment of a particular situation.

Post-9/11 research has focused on understanding how companies adjust, adapt and reinvent their business models in an ever-changing environment . Authors renewed their interest in the organizational processes that can either lead to a functional and dysfunctional (or successful and unsuccessful) response to adverse, external change . The authors defined resilience as “positive adjustment under challenging conditions”(Sutcliffe & Vogus, 2003). The authors investigated major airlines’ responses to 9/11 and found that the post-9/11 layoff (intended to improve economic performance) actually inhibited long-term business recovery . Organizations need a viable business model that allows financial reserves (or slack resources) to be built up, so that these resources can be used to provide a strong commitment to employees during the times of crises and sustain relationships that act as enabling conditions for organizations to quickly return to full performance . Organizations are more likely to be resilient if enabling conditions are present (broader information processing, loosening of control, utilization of slack) as they create the continuing ability to use internal and external resources successfully.(Mitroff, 2005; Vogus & Sutcliffe, 2007)

(Hamel & Välikangas, 2003) further refined the concept of strategic resilience, emphasizing that it involves not only bouncing back from crises but also bouncing forward, i.e., learning, adapting, and exploiting new opportunities. They argued that strategic resilience requires organizations to cultivate capabilities such as strategic flexibility, preemption, and resourcefulness. (Gittell et al., 2005) focused on the social dimensions of strategic resilience, highlighting the role of relational coordination and collaboration among employees and across organizational boundaries.

However, for a long time in the scientific literature there was not a significant confusion among the definitions of resilience

Because of these differences, attempt to distinguish between states of resilience. However, he came to the conclusion that the deficit can be observed at the strategic level of organizational sustainability. The four aspects of resilience can be defined as follows:

“...(1) resilience as the ability of a system to absorb, adapt and recover from internal or external adversity;

(2) organizational resilience as the capability of managers to react absorptively, adaptively, and restoratively to uncertainty and unexpected events;

(3) operational resilience as the capability of managers to exploit the given resources to maintain functions and recover from adversity;

(4) strategic resilience as the (dynamic) capability of managers to explore opportunities and threats to prepare the company strategically to ensure longterm sustainability ”(Iborra et al., 2019)

Several theoretical frameworks have contributed to the understanding of strategic resilience. (Luthans et al., 2007) integrated positive organizational behavior, psychological capital, and the resource-based view to propose a model of psychological resilience, emphasizing the role of individual and collective psychological resources in building strategic resilience. (Shin et al., 2012) drew on the dynamic capabilities perspective and argued that strategic resilience relies on the ability to sense, seize, and transform opportunities in a rapidly changing environment.

(Morais-Storz et al., 2018) examined the role of leadership in fostering strategic resilience, highlighting the importance of leaders' proactive behaviors, sensemaking, and strategic decision-making. (Hillmann, 2021) explored the impact of stakeholder engagement and corporate social responsibility on strategic resilience, highlighting the importance of aligning the interests of multiple stakeholders in building resilience.

(Slagmulder & Devoldere, 2018) proposed a comprehensive framework for measuring strategic resilience, encompassing dimensions such as risk management, operational flexibility, learning, and innovation. They emphasized the need for dynamic measurement tools that capture both the organization's current resilience and its potential for future resilience. (Iborra et al.,

2019) developed a typology of indicators to assess strategic resilience, including financial indicators, operational indicators, and organizational learning indicators, providing a practical approach for evaluating resilience in different contexts.

Finally, at the moment, researchers are focused on how to achieve resilience before the crisis, that is, how to use the resources and capabilities of the company for this. This study will also contribute to this area of research.

1.4 Resilience, Sustainability, and Vulnerability

The relationship between resilience, sustainability, and vulnerability is critical in understanding an organization's capacity to navigate emergencies and crises. "Resilience is closely tied to the concepts of vulnerability and sustainability"(Holling, 1993). Resilience helps organizations address vulnerabilities and mitigate the negative impacts of crises. Moreover, integrating sustainability practices can enhance an organization's resilience by ensuring long-term viability and adaptability in the face of evolving challenges.

This theoretical review has explored several key concepts and theories related to organizations in emergency and crisis contexts. The resource-based theory highlights the significance of internal resources for organizations' competitive advantage. In these contexts, organizations must demonstrate an effective response by employing instrumental and reputational strategies. Building resilience is crucial to ensure an organization's ability to recover, adapt, and thrive in the face of adversity. Finally, considering the interplay between resilience, sustainability, and vulnerability can further enhance an organization's capacity to withstand and respond to emergencies and crises. By understanding and integrating these concepts, organizations can proactively navigate disruptive events and safeguard their long-term success.

1.5 Models of organizational Resilience

McManus was one of the first to develop a full-fledged model of organizational resilience. McManus's definition and indicators of organisational resilience, which she called, Relative Overall Resilience. ROR is based on a definition of organisational resilience as,

“...a function of an organisation's overall situation awareness, keystone vulnerability and adaptive capacity in a complex, dynamic and interdependent system”. (McManus et al., 2008, p. 82)

This definition identifies three components or dimensions of organisational resilience; situation awareness, management of keystone vulnerabilities, and adaptive capacity. McManus (2007)

goes on to present fifteen indicators of organisational resilience, five for each dimension, which can be seen in Table 2.

Resilience Indicators					
Situation Awareness		Management of Keystone Vulnerabilities		Adaptive Capacity	
SA ₁	Roles and Responsibilities	KV ₁	Planning Strategies	AC ₁	Silo Mentality
SA ₂	Understanding of Hazards and Consequences	KV ₂	Participation in Exercises	AC ₂	Communications and Relationships
SA ₃	Connectivity Awareness	KV ₃	Capability and Capacity of Internal Resources	AC ₃	Strategic Vision and Outcome Expectancy
SA ₄	Insurance Awareness	KV ₄	Capability and Capacity of External Resources	AC ₄	Information and Knowledge
SA ₅	Recovery Priorities	KV ₅	Organisational Connectivity	AC ₅	Leadership, Management and Governance Structures

Table 2. Relative Overall Resilience Model (McManus et al., 2007, p. 3)

Situation Awareness It is not enough to be aware of a situation or business environment. An organisation must actively draw on that intelligence when making decisions and planning strategically. Situation awareness must include internal and external factors. If the organisation only looks externally or internally the awareness is incomplete.

Management of Keystone Vulnerabilities It is important to differentiate between risk and vulnerability, risk being event focused and vulnerability which focuses on factors that make organisations more susceptible to risks. The focus of the definition should be on the management of the vulnerabilities and not just a list of possible vulnerabilities an organisation might face. What are the financial, environmental and social drivers of the management of vulnerabilities? What criteria must a vulnerability meet for it to be a keystone vulnerability?

Adaptive Capacity The importance of drivers to infuse adaptive behaviour. Adaptive behaviour, in relation to resilience, is a time-critical entity. The organisation must adapt before the case for change becomes critical or obsolete. Adaptive behaviour provides the most benefit when integrated into the culture of an organisation.

The Dimensions and Indicators of Organisational Resilience model is a framework developed by Stephenson, Vargo, and Seville to measure and compare the level of organisational resilience in Auckland. The model identifies three dimensions that are critical to organisational resilience, which are further broken down into specific indicators. The model is presented below in Table 3.

Resilience Ethos					
RE ₁	Commitment to Resilience				
RE ₂	Network Perspective				
Organisational Resilience Factors					
Situation Awareness		Management of Keystone Vulnerabilities		Adaptive Capacity	
SA ₁	Roles & Responsibilities	KV ₁	Planning Strategies	AC ₁	Silo Mentality
SA ₂	Understanding & Analysis of Hazards & Consequences	KV ₂	Participation in Exercises	AC ₂	Communications & Relationships
SA ₃	Connectivity Awareness	KV ₃	Capability & Capacity of Internal Resources	AC ₃	Strategic Vision & Outcome Expectancy
SA ₄	Insurance Awareness	KV ₄	Capability & Capacity of External Resources	AC ₄	Information & Knowledge
SA ₅	Recovery Priorities	KV ₅	Organisational Connectivity	AC ₅	Leadership, Management & Governance Structures
SA ₆	Internal & External Situation Monitoring & Reporting	KV ₆	Robust Processes for Identifying & Analysing Vulnerabilities	AC ₆	Innovation & Creativity
SA ₇	Informed Decision Making	KV ₇	Staff Engagement & Involvement	AC ₇	Devolved & Responsive Decision Making

Table 3. Updated Dimensions and Indicators of Organisational Resilience (Stephenson et al., 2010, p. 28)

As we can see, the gray color indicates what has changed compared to the McManus model. There are 6 new indicators. It should be especially noted that innovation appears here for the first time as a factor of strategic resilience, as well as external and internal monitoring

1.6 OrgRes: the ‘Resilience Benchmark Tool’

The Resilience Benchmark tool is an approach developed to assess and enhance organizational resilience. It is designed to help organizations understand and improve their ability to withstand and recover from disruptions, crises, and other challenging situations. This tool incorporates a set of indicators that provides a comprehensive assessment of an organization's resilience capabilities.

The indicators assess various dimensions of organizational resilience. These indicators are derived from extensive research and practical experience in the field. They are designed to capture critical aspects that contribute to an organization's ability to anticipate, respond, and adapt to disruptions effectively. OrgRes tool (Fig.4) consists of three interdependent attributes

and 13 indicators that can be used to measure resilience. Here are the indicators included in the OrgRes tool:



Figure 4. Resilience Indicators

<https://www.resorgs.org.nz/about-resorgs/what-is-organisational-resilience/>

Leadership: It assesses the effectiveness of leaders in guiding the organization through challenges, fostering a resilient culture, and making strategic decisions that promote resilience.

Staff engagement: The level of involvement, commitment, and motivation of employees in supporting resilience efforts. It evaluates whether employees are actively engaged in resilience-building activities and initiatives.

Situation awareness: It refers to the organization's ability to monitor, comprehend, and interpret the external and internal environment. It assesses how well the organization stays informed about potential risks and disruptions.

Decision making: This indicator evaluates the organization's decision-making processes and whether decisions align with resilience goals and strategies.

Innovation and creativity: Indicators of an organization's ability to adapt and find new solutions in challenging situations. This indicator assesses the organization's capacity for generating innovative ideas and implementing creative approaches to enhance resilience.

Effective partnerships: The organization's ability to collaborate with external stakeholders, such as suppliers, customers, government agencies, and community organizations. It evaluates the strength and quality of these partnerships in supporting resilience efforts.

Leveraging knowledge: This indicator measures the organization's ability to capture, share, and leverage knowledge from past experiences, incidents, and lessons learned. It assesses the presence of systems and practices that promote learning and knowledge transfer.

Breaking silos: Breaking silos assesses the organization's ability to break down departmental or functional barriers and promote cross-functional collaboration and communication. It evaluates the extent to which information and resources are shared across the organization.

Internal resources: The organization's capacity to allocate and manage resources effectively during disruptions. It assesses the availability and utilization of physical, financial, and human resources to support resilience efforts.

Unity of purpose: the degree of alignment and shared vision within the organization regarding resilience goals and strategies. It assesses whether all members of the organization understand and are committed to the organization's resilience objectives.

Proactive posture: The organization's proactive approaches to identify potential risks, anticipate challenges, and take preventive actions. It evaluates the organization's preparedness to address potential disruptions before they occur.

Planning strategies: the organization's ability to develop and implement effective plans and strategies to manage disruptions. It evaluates the comprehensiveness, feasibility, and flexibility of the organization's planning efforts.

Stress testing plans: the organization's practice of testing and validating its resilience plans and strategies through simulated scenarios or exercises. It assesses whether the organization regularly assesses the effectiveness of its plans and makes necessary adjustments.

Overall, RESORGs is a comprehensive tool for assessing organizational resilience, examining the strength of leadership, planning, operational processes, and external relationships. Using this tool's results, organizations can improve their resilience to adapt to future challenges and thrive amidst adversity. (Lee et al., 2013)

1.7 Dimension of CSR Matters to Organizational Resilience

The article "What Dimension of CSR Matters to Organizational Resilience? Evidence from China" published in the journal Sustainability examines the relationship between Corporate Social Responsibility (CSR) and organizational resilience in Chinese firms, specifically looking at the dimensions of CSR that are most associated with higher levels of resilience.

The authors found that there is a significant positive correlation between CSR and organizational resilience. They state, "CSR has an overall positive influence on organizational resilience"(Lv et al., 2019, p. 2). The research identified that the CSR dimensions of environmental, ethical and philanthropic responsibility are the most influential in promoting organizational resilience, while economic responsibility had no significant relation.

The article concludes that "CSR practice is a proactive and farsighted measure to enhance organizational resilience in Chinese firms" and suggests that the integration of environmental responsibility, ethical responsibility, and philanthropic responsibility into CSR practice can help organizations adapt and thrive in uncertain environments with dynamic changes in economic, social, and political conditions(Lv et al., 2019, p. 11).

The article highlights the importance of CSR in enhancing organizational resilience, suggesting that environmental, ethical, and philanthropic dimensions are closely linked to resilience. The findings of the study provide insights for the development of CSR policies and practices, particularly in the context of rapidly changing and uncertain business environments.(Lv et al., 2019)

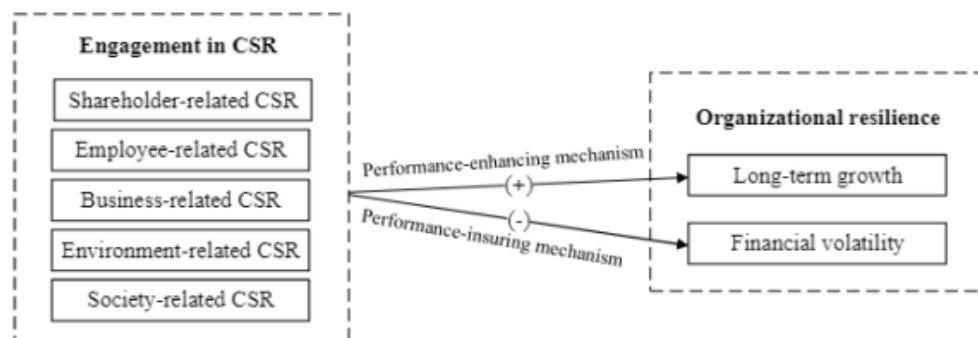


Figure 5. The dimensions of CSR

1.8 Identifying Indicators of Strategic Resilience

Based on the studied theoretical models, the following indicators were identified for this study that determines the strategic resilience of companies in Russia. In this study, only external sources of information about companies will be used, so some indicators mentioned in the above models will not be included in the analysis. The following indicators will be used for future analysis:

Company's Innovativeness

A large number of scientific studies provide insights on how innovation can be a key element for companies to increase their strategic resilience and cope with environmental changes, and also how the innovation process can be a source of resilience for the company.

Innovation can help companies become more resilient in the face of technological disruptions. They can quickly render existing technologies and business models obsolete. In this context, innovation can play a critical role in helping companies adapt to change and improve their resilience. One of the ways that innovation can help companies become more resilient is by enabling them to develop new technologies and products that better meet the changing needs of customers and the market.. By investing in research and development and introducing new products, companies can position themselves to better withstand technological disruptions and remain competitive. (Chen et al., 2019)

Employees Satisfaction

Employee satisfaction plays a crucial role in building strategic resilience within organizations. Numerous studies have highlighted the positive relationship between employee satisfaction and organizational outcomes. Satisfied employees are more likely to engage in proactive behaviors, exhibit higher job performance, and demonstrate greater adaptability during times of crisis.(Saks, 2006) Moreover, satisfied employees contribute to the development of a positive organizational climate, which fosters resilience and adaptive capacity. These findings suggest that investing in employee satisfaction can significantly enhance the strategic resilience of companies.

Research consistently demonstrates the positive impact of employee satisfaction on organizational outcomes. For example, a study by (Harter et al., 2002)found that employee satisfaction positively relates to customer satisfaction, financial performance, and employee productivity. Furthermore, research by (Wright & Cropanzano, 2000) highlighted the role of employee satisfaction in fostering positive organizational attitudes, such as commitment and engagement, which contribute to strategic resilience during crises.

Internal resources

According to resource-based theory, organizations use a variety of resources to develop organizational resilience. Research on organizational resilience has begun to analyze the positive impact of slack resources on organizations. In the short term, organizations lacking slack resources are more profitable, but organizational slack is necessary for long-term organizational

survival, according to research on organizational resilience. The effective allocation of resources can help organizations to thrive better.

Slack resources, defined as "the resources available to a firm that are not fully utilized in the short-term," can play a critical role in enhancing the resilience of firms in the face of unexpected events or disruptions. Firms with higher levels of slack resources are better able to respond to and recover from unexpected events such as financial crises or changes in government policies. (Kim et al., 2018). The relationship between slack resources and resilience is contingent on a number of factors, including the size and age of the firm, the industry context, and the type of slack resources available. (Conz et al., 2023)

The concept of slack resources can be utilized to enhance organizational resilience. Organizations that have a certain degree of slack resources, such as financial resources, human resources, and knowledge, are better able to respond to unexpected events and disturbances. Slack resources can be an important factor in enhancing organizational resilience, but they also acknowledge that there are certain limitations to this approach, such as the risk of resource misallocation and the potential for reduced motivation among employees. (Mao et al., 2023)

Planning and Monitoring

Continuous planning and monitoring are critical processes that enable organizations to identify potential threats and adapt their strategies accordingly. Companies with effective planning processes are better equipped to respond to crises and maintain their competitive advantage. Similarly, monitoring both internal and external environments allows organizations to detect early warning signs and proactively address emerging risks. (Sutcliffe & Vogus, 2003) Firms with robust monitoring mechanisms exhibit higher levels of strategic resilience. Therefore, the integration of continuous planning and monitoring practices is vital for enhancing strategic resilience during crises. (Lengnick-Hall et al., 2011)

Activities within ESG

Companies with higher ESG scores tend to be more innovative and thus more adaptable to change, which can enhance their resilience. The researchers emphasize that that companies that prioritize ESG issues tend to have better stakeholder engagement and are more likely to adopt a long-term perspective, both of which can contribute to strategic resilience. Additionally, companies with stronger ESG practices tend to have better risk management strategies, which can improve their ability to cope with disruptions and enhance their resilience.

A company's ESG performance is an important factor in determining its resilience to systemic risks, such as climate change, social unrest, and financial crises. Companies with higher ESG performance are better equipped to deal with these risks and are more likely to sustain their long-term value. (Eccles et al., 2014)

Companies with a higher ESG (Environmental, Social, and Governance) rating are more resilient to crises due to several reasons. Firstly, these companies have strong ESG practices in place that ensure they are well-prepared to manage unexpected events. For example, companies with strong environmental practices are likely to be more resilient to natural disasters and resource shortages. Similarly, companies with good social practices are likely to have stronger relationships with their employees, customers, and suppliers, which can help them navigate through crises.

Secondly, companies with a higher ESG rating are often better at managing risks. ESG practices involve identifying and managing a wide range of risks, including environmental risks, social risks, and governance risks. By doing so, companies are better equipped to identify and mitigate risks before they turn into crises.

Thirdly, companies with a higher ESG rating are often better at adapting to change. ESG practices often involve a focus on innovation, which means that companies are more likely to have the flexibility and agility to respond to changing circumstances.

CHAPTER 2. DETERMINANTS OF STRATEGIC RESILIENCE DURING CRISIS: EMPIRICAL EVIDENCE OF RUSSIAN COMPANIES

2.1 Methods of research

Considering the complexity and non-linearity of the relationships between strategic resilience and studied determinants, I apply a fuzzy set Qualitative Comparative Analysis (fsQCA) as it allows researchers to identify the critical combinations of factors that lead to a particular outcome rather than focusing on a single cause-and-effect relationship.

The Fuzzy Set Qualitative Comparative Analysis (fsQCA) method is a comparative method used to analyze patterns of complex causality in social sciences. It was first introduced by Charles C. Ragin in the early 2000s as an expanded version of the Qualitative Comparative Analysis (QCA) method (Ragin, 2000). Compared to other methods of data analysis like regression analysis and correlation analysis, fsQCA is especially useful when dealing with complex and multi-causal phenomena, as it focuses on finding necessary and sufficient

conditions for an outcome to occur (P. Fiss, 2011). In this way, fsQCA provides a middle ground between quantitative and qualitative methods, and it is especially beneficial for analyzing small sample sizes and complex causality (P. C. Fiss, 2007).

The fsQCA method starts with the identification of variables that may affect a particular outcome. The researcher then formulates a theoretical model that hypothesizes how these variables influence the outcome. The next step is the development of a truth table that contains all possible combinations of the variables and describes the presence or absence of the outcome for each combination.

Based on the truth table, the researcher then proceeds to conduct a calibration test to determine the values of the calibration parameters. The calibration test determines the degree of overlap or fuzzy set membership function for each variable and includes a set of mathematical procedures used to transform raw data into values that can be mathematically analyzed. Following calibration, the next step involves the analysis of the data using the Boolean algebraic rules of necessary and sufficient conditions. The researcher identifies the necessary and sufficient conditions that lead to the outcome, which are called configurations. The analysis of configurations allows researchers to identify the causal combinations of variables that are sufficient for the outcome and the combinations of variables that are necessary for the outcome. The fsQCA method has several advantages over traditional regression analysis and correlation analysis. One significant advantage is that it allows for the identification of multiple, non-linear causal paths to an outcome, which is particularly useful when dealing with complex causality (Ragin, 2000). Furthermore, fsQCA focuses on identifying the necessary and sufficient conditions for outcomes, which provides insight into the different causal configurations that can lead to the outcome, rather than establishing a linear causal relationship between variables (P. C. Fiss, 2007).

QCA is a flexible method that can be useful to identify complex causal mechanisms underlying social phenomena, and it can be applied to different fields such as management, sociology, and other social sciences. The method's focus on identifying the necessary and sufficient conditions for an outcome to occur allows researchers to delve deeply into causality, providing insight into the different causal configurations of variables that can lead to an outcome.

2.2 Operationalisation and Data Collection

Data from 18 Russian public companies were collected for analysis. All companies studied were leaders in their respective sectors. The main criterion was the availability of accessible and open reporting by companies for the required period as well as the inclusion of companies in the main domestic and foreign ratings related to sustainable development and corporate social responsibility.

General information about the Firm:

1. Name
2. Industry
3. Size (employees in the company)

This section is necessary for further interpretation of the information obtained during the analysis. It gives the ability to make generalizations for certain sectors of the economy and other characteristic features of the studied cases. In the Appendix section, Table 1, you can see information about all the companies that were included in the analysis.

Dependent variable:

The dependent variable in this study was the strategic resilience of companies in a crisis. Various studies have presented different ways of evaluating it. Below I will present one of approaches that exist in academic discussion.

The most important assumption is that organizations that attain high scores in profitability and organizational performance indicators also achieve high scores in organizational resilience. This connection exists because crisis management skills are the same skills required for gaining a competitive advantage (Mitroff et al., 1987, p. 280).

rsl: Strategic Resilience	Indicator
Growth rate	%
Volatility (The standard deviations of monthly stock returns)	%

Organizational resilience in this paper is operationalized as long-term growth and financial volatility. I chose this approach to measuring resilience, referring to the work of (Lv et al., 2019; Ortiz-De-Mandojana & Bansal, 2016). Financial volatility was measured as stock return volatility (Schwert, 1990). I measured long term growth as the revenue growth rate over

three years. I selected three years as the time period as to measure firms' long term growth.(Lv et al., 2019; Thomas et al., 2015; Tognazzo et al., 2016).

Since the indicators of strategic resilience consist of two parts, then I needed to accumulate the results obtained. To do this, I developed a 7-point scale for each indicator and relative to the results of the sample, the company could get from 1 to 7 points for each indicator. It is important that for the growth rate, the higher the percentage, the higher the score. While the higher the percentage of volatility, the lower the score on the scale. Then the arithmetic mean was calculated, which is the level of strategic resilience of the company. A detailed calculation of this indicator can be found in Table 4 in the Appendix section.

Independent variables:

inv: Innovations	Indicator
R&D costs (or НИОКР costs)	Billion rub

R&D costs serve as a well-established indicator of a company's commitment to innovation. Research studies have linked R&D investments to various innovation outcomes and performance measures. There is a positive relationship between R&D intensity (R&D expenses relative to sales) and firm innovation performance. Companies with higher R&D costs tend to develop more new products, technologies, and processes, which enhances their capacity to adapt and respond to crises. (Chen et al., 2019)

Furthermore, the positive impact of R&D costs on a firm's ability to generate and exploit technological knowledge, leading to higher innovation capabilities. These findings provide support for the operationalization of R&D costs as an indicator of innovativeness. By quantifying and analyzing the investment in R&D costs, researchers can gain insights into a company's commitment to innovation and its potential to build strategic resilience.

uos: Internal resources	Indicator
Current ratio	TA/TL

The utilization of slack resources can be operationalized by employing the current ratio, which is calculated by dividing current assets by current liabilities. This ratio provides a measure of a company's ability to meet short-term obligations and manage uncertainties.

Studies have explored the relationship between slack resources and organizational resilience. Higher levels of slack resources, represented by a higher current ratio, enhance an organization's ability to respond flexibly to unforeseen events and adapt its operations during crises. (Boone & Hendriks, 2009) Similarly, slack resources facilitate organizational learning and improvisation, which are crucial for strategic resilience. (Sitkin et al., 2010)

By operationalizing slack as a current ratio, researchers can assess the level of resources available to an organization relative to its short-term liabilities. This indicator provides insights into a company's financial flexibility and its capacity to withstand disruptions and recover quickly during crises.

empl: Employees satisfaction	Indicator
Rating Forbes	“A+”-“C” scale to 1-5 scale

Measuring employee satisfaction through the rating of best employers is a widely accepted operationalization method. Various reputable organizations publish annual lists of best employers based on employee surveys and evaluations. These ratings provide an external benchmark and comparative measure of employee satisfaction across different companies and industries.

pln: Planning n Monitoring	Indicator
RSPP Perspective Index ¹	“A+”-“C” scale to 1-5 scale
RSPP Responsibility and Openness Index ²	“A+”-“C” scale to 1-5 scale

It is quite difficult to assess with the help of external indicators how much the company uses planning and clear goal positioning. In this study, the index “Perspective” will be used. To compile the index, the statements of companies about the goals for the near, medium and long term in relation to the main areas of CSR were analyzed. The presence of specific measurable targets that translate declarations of commitment to the principle of social responsibility into the language of practical decisions and actions can act as an integral indicator of the quality of management in this area.

The presence and clarity of goals were assessed on the following scale:

¹ <https://rspp.ru/download/94399514088c11f73084253a85e50f21/>

² https://rspp.ru/upload/content/242/zyin6mfuo00qgip1q5ekna5j8ambq4q/Indeksy-RSPP_v02.pdf

The index was calculated as the ratio of the actual sum of points for the entire sample to the maximum possible number of points: $I=Q/2N$, where Q is the calculated sum of points for the entire sample, N is the number of companies in the sample.

Thy second indicator assesses how much the company openly and constantly keeps records. How complete are these reports, and prepared in accordance with the standards.

env: Environmental	Indicator
Sustainalitics	“0”-“40+” scale to 1-5 scale
Raex	“AA”-“CCC” scale to 1-5 scale

ESG risk ratings measure a company's exposure to industry-specific significant ESG risks and how well the company manages these risks. In other words, how successfully the company operates in the context of environmental and other risks. This indicator will help to assess the importance of the company's activities in the field of ESG to achieve strategic resilience.

Sustainalytics rating is absolute, i.e. companies from different industries can be compared with each other. Scale: 0 (minor risk) – 40+ (serious risk). Sources of information: public corporate reporting. 83,000 media sources, third-party sources (specialized suppliers, industry publications, well-known NGOs). (Article PWC)

Since the ratings values for the same company often have significant differences in different agencies (Article, PWC), I will use two different sources in the analysis. Depending on the rating, points from 1 to 5 will be set. And then the arithmetic mean for two sources is calculated.

2.3 Calibration of Outcome Variable and Causal Conditions

The calibration of outcome variables and causal conditions is a crucial step in the fsQCA method, as it involves transforming the raw data into values that can be mathematically analyzed. Calibration involves assigning "fuzzy set" membership values to each variable, which indicates the degree of overlap between each case and a theoretical ideal type or concept.

The calibration procedure used in fsQCA involves identifying the upper and lower thresholds for each variable, which are based on the median value for the variable plus or minus one standard deviation. The intersection point between the upper and lower thresholds corresponds to the median value for the variable.

The choice of this approach is particularly suitable for small sample sizes, as it accounts for the uncertainty and variability inherent in the data. Small sample sizes often have disproportionate standard errors due to the limited sample size, which affects the validity and reliability of statistical inferences. The fuzzy set approach used in fsQCA allows researchers to address this issue by incorporating the degree of uncertainty and variability in the analysis, thus minimizing the impact of small sample sizes.(Ragin, 2000)

The fuzzy set membership values in fsQCA range from 0 to 1, reflecting the degree of overlap between a particular case and a theoretical ideal type or concept. The degree of membership indicates the degree to which the case is considered sufficient or necessary for the outcome.

The calibration of the variable thresholds is not an exact science, and researchers may encounter some challenges in determining the appropriate thresholds. For example, small sample sizes may not allow for the identification of a clear intersection point, or the distribution of the data may not be normal, making it inappropriate to use the median and standard deviation.(P. Fiss, 2011)

	Upper thresholds	Crossover points	Lower thresholds
Innovativeness	0.5	0.3	0.15
Internal Resources	2.9	2	1
Employees Satisfaction	4	3	2
Planning and Monitoring	5	3.5	2
Environment	3.3	2.5	2
Strategic Resilience	5.4	4.2	3

Table 6. Thresholds for fsQCA analysis

CHAPTER 3. INTERPRETATION AND DISCUSSION RESULTS

3.1 Results of analysis

I set up a frequency cutoff of 1 and a consistency cutoff of 0.75 (~0.8). According to the analysis, one core condition was identified that formed a ‘parsimonious’ solution (Appendix, Figure 8). This means that the company needs to develop at least this activity in order to achieve strategic resilience. A core condition according to the analysis was the activity in the field of ESG (raw coverage 0.84, unique coverage 0.85, consistency 0.86). This means that it is especially important for the company to implement ESG practices in its operational activities.

At the next step, namely ‘intermediate’ solution was retrieved, which provided sufficient conditions for high level of strategic resilience (Table 7). The ‘intermediate’ solution provided 3 configurations of the independent variables’ values and insights into factors influencing strategic resilience in companies. The intermediate solution presents the major benefit of the QCA; namely, it enables researchers to capture all three aspects of causal complexity: conjunction, equifinality, and causal asymmetry (Misangyi et al., 2016).

<i>Indicators</i>	<i>Configurations</i>		
	Solution 1	Solution 2	Solution 3
Innovativeness	.	.	⊗
Internal Resources	⊗		.
Employees Satisfaction	.	.	⊗
Planning/ Monitoring		.	.
Environment and Social	•	•	•
Consistency	0.899083	0.966667	0.75
Raw coverage	0.352518	0.417266	0.219424
Unique coverage	0.125899	0.13789	0.110312
Overall solution coverage: 0.653477			
Overall solution consistency: 0.862342			

Notes: «●» - presence of core condition, «» - lack of core condition; «. » - presence of peripheral condition, «⊗ » - lack of peripheral condition

Table 7. Truth Table Analysis by fsQCA 4.0 Windows Software

In this study, these configurations form sufficient conditions to achieve high strategic resilience. Specifically, configuration 1 shows that the most strategically resilient companies in Russia are characterized by a high level of innovation (or at least aspiration and development in the field of innovation), a high level of employee satisfaction and responsibility in the field of the environment and society, but absence of internal resources.

Configuration 2 reflects that the most strategically resilient companies in Russia are characterized by innovation, employee satisfaction (the company invests a lot of effort to create comfortable workplaces), constant planning and monitoring of external and internal events, as well as the introduction of ESG practices into the company's activities.

Finally, configuration 3 shows us that a slack of internal resources, constant planning and monitoring, as well as attention to environmental and social issues helps companies in Russia to achieve a high level of resilience. However, this configuration highlights the lack of innovation in such companies, as well as the absence (or low level) of employee satisfaction.

An important result of this work was the fact of the mandatory presence of a variable associated with the implementation of ESG principles in the work of companies. As you can see in the table, this variable is present in all three configurations.

With the help of these configurations, it is possible to draw a logical conclusion that companies in Russia either need to be innovative, which means to develop their flexibility and adaptability to changing conditions and crises. The second option is to have a sufficient level of internal resources to be able to survive in a crisis.

3.2 Research Findings and Discuss results

Overall, these configurations provide valuable insights into the factors that contribute to strategic resilience in companies, highlighting the importance of innovation, internal resources, employee satisfaction, consistent planning and internal monitoring, and the company's activity in ESG. The existing literature on this issue has already emphasized the importance of these factors for achieving a high level of strategic resilience. However, the configurations described above give a more complex understanding.

The main conclusion that can be drawn for Russian business is that companies have two main ways to resist crisis circumstances, to learn to be more adaptive with the help of innovative processes (stops, management and the products themselves), or to have enough resources to survive turbulence. If we look at the data on companies, we can see that this is especially inherent in large resource-producing companies.

Of course, in this work there are limitations on the absolute generalization of the results, since a small sample was used. Also, only large companies, leaders in their sectors, were used in the analysis, medium and small businesses were not taken into account in the analysis, for which these configurations may become irrelevant.

3.3 Theoretical Contribution

This work allowed us to identify a certain configurations of determinants of the strategic resilience of companies in Russia. I summarize findings and formulate the following prepositions:

1. Companies' innovativeness, employee satisfaction and implementation of ESG practices help them strengthen strategic sustainability, even if there are no slack of resources.
2. The presence of innovation, satisfaction of their employees, paying special attention to constant monitoring (and planning) and implementation of ESG practices enhance their strategic resilience
3. The presence of a high level of internal resources, continuous planning and monitoring, and implementing ESG practices, in the absence of innovation and employee satisfaction, is not a barrier to achieving their strategic resilience.

The research can be further developed by conducting a comparative analysis across different industries and regions to identify variations in factors that contribute to strategic resilience. Future research can also examine specific strategies that companies can adopt to foster innovation and employee satisfaction, which are crucial factors in promoting strategic resilience.

Separately, I would like to note that this analysis has shown that responsibility in the field of the environment and society is a core condition for achieving the sustainability of companies. However, this indicator is not taken into account in existing models and indicators.

3.4 Practical Contribution

From a practical perspective, the research provides useful insights for companies seeking to enhance their strategic resilience. Executives can use these findings to assess their company's

performance against the identified criteria and identify areas for improvement. For instance, they can establish innovation teams, implement employee fertilization programs, and engage in ESG initiatives to improve their company's strategic resilience.

In a crisis, companies are not able to develop equally well in all areas since the resources of any company are limited, there is always a question of what you need to invest more in. If a company is faced with the task of improving its resilience, this research is a ready-made set of their activities of companies that together give the best result for the resilience of firms.

CONCLUSION

In conclusion, this master's thesis has used the fuzzy sets method to identify the determinants of strategic resilience in Russian companies during crises. Based on the analysis, three configurations of determinants have been identified that are associated with a positive outcome for strategic resilience.

The first configuration highlights the importance of a high level of innovation, employee satisfaction, and a company's engagement in ESG activities, in the absence of slack internal resources. The second configuration emphasizes the significance of high levels of innovation and employee satisfaction, along with constant planning and monitoring within the company and engagement in ESG. Finally, the third configuration shows that companies should have available reserves of internal resources, and focus on engagement in ESG activities, while at the same time ensure continuous planning and monitoring. These findings support previous research on strategic resilience during crisis situations.

The results of this study have practical implications for managers in Russian companies. Understanding the determinants associated with strategic resilience can help managers to prepare their organizations for future crises, and to consider the appropriate measures for building resilience in preparation for uncertain situations. For example, companies might develop internal programs focusing specifically on these configurations.

Furthermore, this study contributes to the literature on strategic resilience by identifying configuration of the determinants. The use of fuzzy set method provides a more nuanced and detailed understanding of the interplay between different factors affecting strategic resilience and highlights the differing levels of importance of various determinants of strategic resilience.

Despite the contributions of this study, it is important to acknowledge its limitations. The study is limited in scope to Russian companies, and the findings may not be applicable to companies in other countries or regions. Future studies could address these limitations by exploring the determinants of strategic resilience across a wider range of companies. Additionally, researchers could use alternative methods to provide a more comprehensive understanding of the factors that contribute to strategic resilience during crises.

In conclusion, this study has shown that companies in Russia that have high levels of innovation, employee satisfaction, planning and monitoring, resource utilization, and engagement in ESG activities in specific configurations are better able to build strategic resilience during crises. Further research is needed to provide insight into the optimal balance of these determinants in building strategic resilience for companies.

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APPENDIX

Table 1.

Company	ID	Industry	Size (thousand)
PJSC Gazprom	GAZP	Oil & Gas Producers	479,2
PJSC Lukoil	LKOH	Oil & Gas Producers	100,8
PJSC Sberbank	SBER	Finance/Banks	287,9
PJSC Rosneft	ROSN	Oil & Gas Producers	355,9
Yandex LLC	YNDX	IT	10,2
PJSC VTB Bank	VTBR	Finance/Banks	79,2
PJSC Magnit	MGNT	Food Retailers	316,1
Ozon	OZON	IT	45,9
PJSC Novatek	NVTK	Oil & Gas Producers	16,8
X5 Retail Group	FIVE	Food Retailers	339,7
PJSC Mobile TeleSystems	MTSS	Telecommunication	60,6
LSR Group	LSRG	Real Estate	10,1
OJSC MMC Norilsk Nickel	GMKN	Metals & Mining	73,6
PJSC Aeroflot	AFLT	Transportation	36,6
UC Rusal	RUAL	Metals & Mining	62,0
PJSC Uralkali	URKA	Metals & Mining	20,1

Table 2.

	Volatility												Mean (-3)	St.Dev(-3)	Vol	
	1	2	3	4	5	6	7	8	9	10	11	12				
GAZP	212,71	214,7	219,33	228,4	232,2	261,97	281,85	287,88	306,6	358,45	350,2	338,51	274,4	54,47934004	20%	2
LKOH	5238,5	5420	5623	6152,5	5824	6021	6770	6308,5	6300	6866	7265	6600	6199,041667	612,4412201	10%	4
SBER	274,67	260	273	292	298,7	312,6	306	306,23	328,87	339,21	356,15	312,3	304,9775	28,03825183	9%	4
ROSN	435,85	475,1	527,55	574,1	526,9	535,2	568,85	545	537,1	611	637,3	573,35	545,6083333	54,50646264	10%	4
YNDX	5187,8	4786,4	4860	4886	4913,8	4954	5180	4994	5621,2	5774	5860,8	5412	5202,5	376,4768881	7%	6
VTBR	0,0381	0,0368	0,037255	0,043	0,05189	0,0489	0,048565	0,0489	0,052995	0,0512	0,05275	0,047735	0,0465075	0,00612052	13%	3
MGNT	5700	4942	4958	5357	5135	5480	5284,5	5361	5540	6014,5	6525	5754	5504,25	451,8847148	8%	5
OZON	3269,5	3700	4467	4262	4595	3940	4310	3820,5	3830	3660	3200	3001	3837,916667	510,2189741	13%	3
NVTK	1258,8	1280	1291	1487	1363	1455	1610	1639,8	1731	1917	1798,4	1639	1539,166667	217,4377041	14%	3
FIVE	2753,5	2707,5	2463	2448	2324	2231	2530	2398	2445	2341	2395,5	2080	2426,375	185,0334276	8%	5
MTSS	322	350	314,8	326,35	321,3	339	391,3	316,85	330,3	329,6	311,35	214	322,2375	40,3131612	13%	3
LSRG	871	951	869	830	818,8	777,6	777,6	771	784,8	757	749,4	753,8	809,25	61,38481453	8%	5
GMKN	23820	24588	23778	23804	25828	26520	24812	25400	24120	21700	22180	21998	24045,66667	1518,879691	6%	6
AFLT	51,76	70,28	79,9	67,56	84,4	70,1	98,62	67,64	69,58	69,9	88,48	60,58	73,23333333	12,6984733	17%	2
RUAL	45,2	45,1	49,44	49,3	51,6	57,31	49,53	52,7	53,5	58,995	50,15	58,5	51,77708333	4,660246023	9%	5
URKA	104,25	102,9	101,5	101,2	101,1	100,55	100,12	100,18	99,66	98,43	97,65	98,35	100,4908333	1,898714677	2%	7

Table 3.

Revenue Growth Rate						(MCΦO)	
	2019	2020	2021			Av.Growth, %	
GAZP	7659	6321	10241	-17,4696436	62,0155	22	5
LKOH	7841	5639	9431	-28,0831527	67,24597	20	5
SBER	2013	2182	2501	8,39542971	14,61962	12	4
ROSN	8676	5757	8761	-33,6445367	52,17995	9	3
YNDX	175,4	218,3	356,2	24,4583808	63,16995	44	6
VTBR	610,4	609	822,7	-0,2293578	35,09031	17	4
MGNT	1369	1554	1856	13,5135135	19,43372	16	4
OZON	60,1	104,4	178,2	73,7104825	70,68966	72	7
NVTK	852,2	711,8	1157	-16,4750059	62,54566	23	5
FIVE	1734	1978	2205	14,071511	11,47624	13	4
MTSS	476,1	494,9	534,4	3,94875026	7,98141	6	2
LSRG	110,4	118,1	130,5	6,97463768	10,49958	9	3
GMKN	877,8	1117	1317	27,249943	17,9051	23	5
AFLT	677,9	302,2	491,7	-55,4211536	62,70682	4	1
RUAL	627,9	618	883,7	-1,57668419	42,99353	21	5
URKA	203,6	198,2	298,5	-2,65225933	50,60545	24	5

Table 4.

Strategic Resilience								
	1	2	3	4	5	6	7	
GAZP		X			X			3,5
LKOH				X	X			4,5
SBER				XX				4,0
ROSN			X	X				3,5
YNDX						XX		6,0
VTBR			X	X				3,5
MGNT				X	X			4,5
OZON			X				X	5,0
NVTK			X		X			4,0
FIVE				X	X			4,5
MTSS		X	X					2,5
LSRG			X		X			4,0
GMKN					X	X		5,5
AFLT	X	X						1,5
RUAL					XX			5,0
URKA					X		X	6,0

Table 5.

Case_ID	invnt	uos	empl	plmnt	env	rsl
GAZP	0,12	2,7	3	3	1,5	3,5
LKOH	0,19	2,9	2	4	3	4,5
SBER	0,51	1,1	3	3	2	4
ROSN	0,14	2,1	3	5	2,5	3,5
YNDX	0,76	1,4	4	3	3	6
VTBR	0,12	2,3	4	3	1,5	3,5
MGNT	0,50	1,2	4	2	2,5	4,5
OZON	0,51	1,3	3	4	3	5
NVTK	0,23	4,5	3	5	2,5	4
FIVE	0,64	1,1	4	4	4	4,5
MTSS	0,13	1,0	2	5	2	2,5
LSRG	0,2	2,0	2	3	2	4
GMKN	0,52	2,9	3	6	4	5,5
AFLT	0,21	1,0	3	3	2	1,5
RUAL	0,42	2,7	4	6	3	5
URKA	0,32	2,8	3	3	4	6
Median	0,28	2,06	3,00	3,50	2,50	4,25
St.Dev	0,20699	0,986826	0,718795	1,204159	0,831039	1,196784
Upper thresholds	0,48	3,05	4,00	5	3,33	5,45
Lower thresholds	0,15	1,07	2,00	2	2	3,05

Figure 6. Calibration variables

```

compute: rsl_cal = calibrate(rsl, 5.4, 4.2, 3)
compute: invnt_cal = calibrate(invnt, 0.55, 0.3, 0.15)
compute: uos_cal = calibrate(uos, 2.9, 2, 1)
compute: empl_cal = calibrate(empl, 4, 3, 2)
compute: pmt_cal = calibrate(plmnt, 5, 3.5, 2)
compute: env_cal = calibrate(env, 3.3, 2.5, 2)

```

Figure 7. Complex Solution

```

*****
*TRUTH TABLE ANALYSIS*
*****

File: C:/Users/Home/Desktop/Original.csv
Model: rsl_cal = f(invt_cal, uos_cal, empl_cal, pmt_cal, env_cal)
Algorithm: Quine-McCluskey

--- COMPLEX SOLUTION ---
frequency cutoff: 1
consistency cutoff: 0.75

                raw          unique
                coverage     coverage   consistency
                -----     -
invt_cal*~uos_cal*empl_cal*env_cal    0.352518    0.125899    0.899083
invt_cal*empl_cal*pmt_cal*env_cal      0.417266    0.13789    0.966667
~invt_cal*uos_cal*~empl_cal*pmt_cal*env_cal  0.219424    0.110312    0.75
solution coverage: 0.653477
solution consistency: 0.862342

```

Figure 8. Parsimonious Solution

```

*****
*TRUTH TABLE ANALYSIS*
*****

File: C:/Users/Home/Desktop/Original.csv
Model: rsl_cal = f(invt_cal, uos_cal, empl_cal, pmt_cal, env_cal)
Algorithm: Quine-McCluskey

--- PARSIMONIOUS SOLUTION ---
frequency cutoff: 1
consistency cutoff: 0.75

                raw          unique
                coverage     coverage   consistency
                -----     -
env_cal          0.846523    0.846523    0.863081
solution coverage: 0.846523
solution consistency: 0.863081

```

Figure 9. Intermediate Solution

```

*****
*TRUTH TABLE ANALYSIS*
*****

File: C:/Users/Home/Desktop/Original.csv
Model: rsl_cal = f(invt_cal, uos_cal, empl_cal, pmt_cal, env_cal)
Algorithm: Quine-McCluskey

--- INTERMEDIATE SOLUTION ---
frequency cutoff: 1
consistency cutoff: 0.75
Assumptions:

                raw          unique
                coverage     coverage   consistency
                -----     -
invt_cal*~uos_cal*empl_cal*env_cal    0.352518    0.125899    0.899083
invt_cal*empl_cal*pmt_cal*env_cal      0.417266    0.13789    0.966667
~invt_cal*uos_cal*~empl_cal*pmt_cal*env_cal  0.219424    0.110312    0.75
solution coverage: 0.653477
solution consistency: 0.862342

```

Table 10. Alternative thresholds

	Upper thresholds	Crossover points	Lower thresholds
Innovativeness	0.4	0.3	0.2
Internal Resources	2.5	1.5	1
Employees Satisfaction	4	3	2
Planning Monitoring	5	3.5	2
Environment	3.3	2.5	2
Strategic Resilience	5	4	2

Table 11. Alternative results

<i>Indicators</i>	<i>Configurations</i>		
	Solution 1	Solution 2	Solution 3
Innovativeness	.	.	⊗
Internal Resources	⊗	.	.
Employees Satisfaction	.	.	⊗
Planning Monitoring	.	.	.
Environment	.	.	.
Consistency	0.949664	0.988406	0.843206
Raw coverage	0.284995	0.343404	0.243706
Unique coverage	0.109768	0.128902	0.191339
Overall solution coverage: 0.644512			
Overall solution consistency: 0.91954			