

# Financial Resilience in the DACH Region

ERM Report 2024  
Empirical Evidence and Recommendations

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# Financial Resilience in the DACH Region

## Imprint

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# Foreword

Crises can cause significant damage to companies and even lead to insolvency. The consequences range from declining revenue, rising costs, and redundancies to negative economic impacts destabilizing entire industries and economies. Considering that the DACH region – comprising Germany, Austria and the non-EU member, Switzerland – contributed approximately 5.42 trillion euros to the gross domestic product (GDP) in 2023, representing about one-third of the total output of the EU-27 countries, it plays a crucial role in the economy.<sup>1</sup> Thus, it is essential to understand companies' financial resilience or vulnerability in this region in the face of crises and to implement appropriate measures to mitigate potential risks.

By identifying the key levers influencing their susceptibility and ability to manage crises, companies can enhance their risk management strategies and strengthen their financial stability. Investors are increasingly favoring companies that demonstrate resilience and remain profitable even in uncertain times and those with robust crisis management systems. These investors are willing to pay a premium for such companies. Resilient companies experience fewer significant declines in shareholder returns during crises, further highlighting the importance of effective crisis management.

Although academics and consulting firms have shown a strong interest in financial resilience and vulnerability indicators across different crises, there is a lack of empirical evidence identifying the factors that influence a company's crisis vulnerability or resilience. A 2014 study from the Deutsche Bundesbank on the financial and economic crisis suggests that high debt levels and rigid cost structures are primary drivers of crisis vulnerability. While last year's ERM report focused on the financial resilience of companies when faced with crises, with a particular focus on the COVID-19 pandemic, this year's study takes a broader perspective, examining not only financial resilience but also financial sustainability. Financial sustainability is a company's ability to remain financially resilient in the long term. The ERM Report 2024 aims to dig deeper into financial sustainability factors and examine the importance of financial, organizational, and strategic aspects in attaining and retaining financial sustainability.

**We wish you an insightful and engaging read of the ERM Report 2024.**

Prof. Dr. Stefan Hunziker  
Head Competence Center Risk and Compliance Management

Institute of Financial Services Zug IFZ

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<sup>1</sup> European Commission (2024) and Statista (2024)

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# Part I: Concept and Methodology

In Part I of the ERM Report 2024, the study's relevance and objectives are explained, and key terms and concepts are defined and clarified. In addition, the methodological approach employed in measuring and assessing financial resilience is presented.



# 1. Background and Objectives

Recent developments have showcased how external events can impact business operations and, in extreme cases, bring them to a complete halt. Since 2020, global geopolitical and economic conditions have deteriorated, starting with the COVID-19 pandemic. The pandemic forced many companies to reduce or temporarily suspend their operations significantly. The pandemic also resulted in widespread disruptions in global supply chains, further intensified by the blockage of the Suez Canal by a large container ship in March 2021. These events demonstrate that established business models are vulnerable to external shocks, highlighting the need for measures to increase resilience and better prepare for future crises. In this context, resilience has gained increasing importance in business management. Resilience refers to an organization's ability to manage adverse and disruptive events as well as negative developments and recover quickly from crises.

Up to date, the ongoing conflicts in the Near East, particularly in the Israeli and Palestinian regions, as well as the continued war of Russia against Ukraine contribute to global uncertainty with the consequences that supply chains remain unstable and the prices for raw materials and energy volatile. The imposition of further sanctions exacerbates the challenges for companies operating internationally.

The global crisis triggered by Russia's invasion of Ukraine in February 2022 has fundamentally altered the geopolitical and economic landscape for businesses. Sanctions, the energy crisis and the restructuring of international trade relations have forced many companies to adapt their business strategies and risk management systems. In addition, the sharp rise in inflation and rapid interest rate hikes in 2022 and 2023 have significantly strained cost structures.

Before these crises, the COVID-19 pandemic in 2020 forced many companies to reduce or temporarily suspend their operations significantly. The pandemic also resulted in widespread disruptions in global supply chains, further intensified by the blockage of the Suez Canal by a large container ship in March 2021. These events demonstrate that established business models are vulnerable to external shocks, highlighting the need for measures to increase resilience and better prepare for future crises. In this context, resilience has gained increasing importance in business management. Resilience refers to an organization's ability to manage adverse and disruptive events as well as negative developments and recover quickly from crises.

Crises can be either interruptive or disruptive, often triggered by external factors.<sup>2</sup> Interruptive crises temporarily disrupt business operations, with the expectation that routine business procedures will resume once the crisis subsides. In contrast, disruptive crises require fundamental changes to a company's business model to ensure long-term survival. While disruptive crises demand strategic decision-making, coping with interruptive crises requires financial preparedness.

Crises can profoundly impact the performance and success of businesses, particularly their financial stability and resilience, as evidenced by the global financial crisis. In professional literature, such crises are often called "shocks," which typically arise unexpectedly. Given the unpredictable nature of such events, companies must maintain (financial) reserves to dampen their effects. Moreover, early warning systems are essential for risk management systems, allowing for the prompt identification of potential shock events. Enterprise Risk Management (ERM) is crucial for crisis detection and prevention. ERM involves identifying, assessing, and managing all risks to which a company is exposed. With an effective ERM strategy, companies can enhance their ability to identify potential crises early, build reserves to address them and recover more quickly.

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<sup>2</sup> Töpfer (2009), pp. 180

A study conducted by the WHU Controller Panel reveals that only one-third of the surveyed companies in the DACH area felt well-equipped to handle external risks and turbulence and to adapt to them quickly and flexibly.<sup>3</sup> While 50 % of the surveyed companies reported having sufficient financial buffers, only one-third possessed robust processes for corporate governance or operational buffers. Yet, the pandemic exacerbated existing challenges. Companies already struggling before the crisis were hit harder and faced further difficulties. As a result, they were more likely to decrease their workforce and limit investments, mainly if they expected to face a medium to long-term crisis.<sup>4</sup>

The analysis conducted by the Institute of Financial Services Zug IFZ at the Lucerne School of Business and the Institute for Controlling at the Kiel University of Applied Sciences aims to assess companies' financial resilience and sustainability in Switzerland, Germany, and Austria. The ERM Report 2024 builds on the methodological approach of the 2014 study by the Deutsche Bundesbank, which examined the vulnerability of German manufacturing companies in the context of the 2007/2008 financial and economic crisis.<sup>5</sup> This study systematically analyzed the determinants of risk for non-financial companies using risk indicators derived from an extensive data set of financial statements from the Deutsche Bundesbank's database.

In contrast to the financial and economic crisis, the more recent crises, such as the COVID-19 pandemic and the war against Ukraine, were triggered by external events beyond the financial and economic system. This raises the question of whether the approach of the Bundesbank remains valid in the application to more recent crises. Using the methodological design of the Deutsche Bundesbank study, the ERM Report 2024 examines the financial resilience of non-financial companies in the DACH region between 2017 and 2023. The ERM Report 2024 can be considered a further replication study, which differs from the Deutsche Bundesbank study in several key aspects: first, we analyze companies from Germany, Austria, and Switzerland, thus expanding the analysis by two additional countries. Second, the ERM Report 2024 not only focuses on vulnerable companies (the "negative tail") but also identifies those that navigate crises particularly successfully (the "positive tail"). Third, we augment the variable set with the probability of insolvency based on Gleißner's method<sup>6</sup> and examine certain other variables that were neither included in the Deutsche Bundesbank report nor in the ERM Report 2023. Fourth, unlike the Deutsche Bundesbank study, our focus is not limited to manufacturing companies, allowing for broader industry comparisons. Finally, the ERM Report 2024 is extended by a regression analysis and interviews with company representatives and industry experts, providing interesting insights into the financial sustainability of companies in the DACH area.

The primary objective of the ERM Report 2024 is to assess companies in the DACH region from various industries over seven years, using selected key indicators to evaluate their financial vulnerability and sustainability. This analysis aims to identify potential influencing factors and highlight essential implications for ERM. This evaluation is significant for individual companies, as well as for the overall economy of the DACH area, as the stability and growth of businesses are closely related to the region's economic success. This highlights the importance of examining corporate financial resilience and sustainability and its implications for ERM.

The findings of the ERM Report 2024 aim to serve as a foundation for developing more effective risk management strategies, thereby contributing to the stability and sustainability of the economy across the DACH area. Robust corporate resilience strengthens the stability of the financial and economic system, thereby mitigating potential negative impacts on the broader economy. Investors and financial institutions benefit from increased transparency and deeper insights into the financial resilience of companies, enabling them to make more informed investment decisions. Regulatory authorities can leverage these insights to enhance supervisory and regulatory measures and develop effective crisis prevention and resolution mechanisms.

<sup>3</sup> Reimer et al. (2020), pp. 15

<sup>4</sup> Buchheim et al. (2020)

<sup>5</sup> Deutsche Bundesbank (2014)

<sup>6</sup> Gleißner (2022), pp. 433

## 2. Fundamentals

The chapter outlines the essential terms and establishes the definitions and theoretical frameworks underlying the ERM Report 2024. Where appropriate, the terms are interrelated and systematically classified. The chapter concludes with a concise overview of recent legal developments in Switzerland, Germany, and Austria.

### 2.1 Financial Sustainability

Financial sustainability refers to an organization's ability to maintain long-term financial health by generating sufficient revenue to cover operational costs, meet financial obligations, and continue to grow or invest in future initiatives. Financial sustainability can be understood as a long-term view of financial resilience. Furthermore, financial sustainability can be interpreted as a complex risk measure contributing to a company's robustness.<sup>7</sup> This concept is integral to the corporate and public sectors and closely linked with sustainable development goals, emphasizing financial stability and social and environmental factors.

Critical factors for financial sustainability:

1. A company does not shrink in real terms in the long term (and the return on equity is greater than the growth rate in the medium term to secure the equity ratio),
2. The risk-dependent probability of insolvency ( $p$ ) is low ( $p < 1\%$  p.a.),
3. The earnings risk, expressed by the coefficient of variation  $V$  of profits, is low ( $V < 40\%$ ),
4. The return on capital is higher than the cost (derived from  $V$ ).<sup>8</sup>

### 2.2 Resilience

Resilience is a term of broad scope widely employed across various scientific disciplines.<sup>9</sup> It is applied in natural and social sciences, often focusing on different aspects. The term's origins lie in the Latin verb "resilire," meaning "to rebound," which inherently captures the classical concept of a material, system, or society returning to its original state following a substantial disruption. This concept of resilience extends beyond the simple recovery from challenges or acute crises; it also encompasses restoring an entity to its initial condition over the long term and, ideally, achieving improvements in the medium term.

The definition provided by Wieland and Durach characterizes resilience as the capacity to endure, adapt to, or transform in response to changes, events or shocks.<sup>10</sup> The concept has gained increasing attention in the academic discourse, particularly following the financial and economic crisis of 2007/2008. It has become an indispensable aspect of ERM, especially in the context of ongoing crises such as the Eurozone crisis, the COVID-19 pandemic, the

<sup>7</sup> Gleißner (2023)

<sup>8</sup> Gleißner (2023), p. 10

<sup>9</sup> The following sections on resilience are based partly on Behringer (2020) and the literature cited therein. See also the extensive discussion in Pinkwart et al. (2022), pp. 764

<sup>10</sup> Wieland & Durach (2021), p. 315

Ukraine conflict, and the associated challenges in the energy market. Financial resilience specifically addresses the financial impacts of **unexpected exogenous events or shocks on organizations**. Such shocks are unforeseen external forces that profoundly affect liquidity, equity, or profitability. One of the primary aims of ERM is to mitigate the risk of liquidity challenges or insolvencies, which frequently lead to bankruptcy proceedings. Experts consider the enhancement of financial resilience a critical component of risk management, which is crucial for preventing acute or imminent insolvency and excessive indebtedness, thereby ensuring the long-term viability of organizations.

### 2.3 Resilience in Organizational Theory

Financial resilience is an integral component of the overarching concept of organizational resilience. Within business administration, the concept of “organizational resilience” encompasses the capabilities of organizations to **respond flexibly to crises, survive these challenges, and potentially emerge in a strengthened position**.<sup>11</sup> It involves preparation for the unforeseen. Although the exact nature of risks that may impact an organization is unknown, some form of risk will probably affect it. The processes and techniques that assist an organization in adapting to crisis conditions are developed in response to immediate situations and through pre-established strategic planning. The capacity to act requires the organization to master the art of dealing with uncertainty and managing losses. McManus et al. define organizational resilience as a “critical component of communities’ ability to plan for, respond to, and recover from emergencies and crises; (...) a source of competitiveness and a driver of cultural capacity”.<sup>12</sup>

The components of organizational resilience according to the WHU Corporate Resilience Framework are illustrated in Table 1:

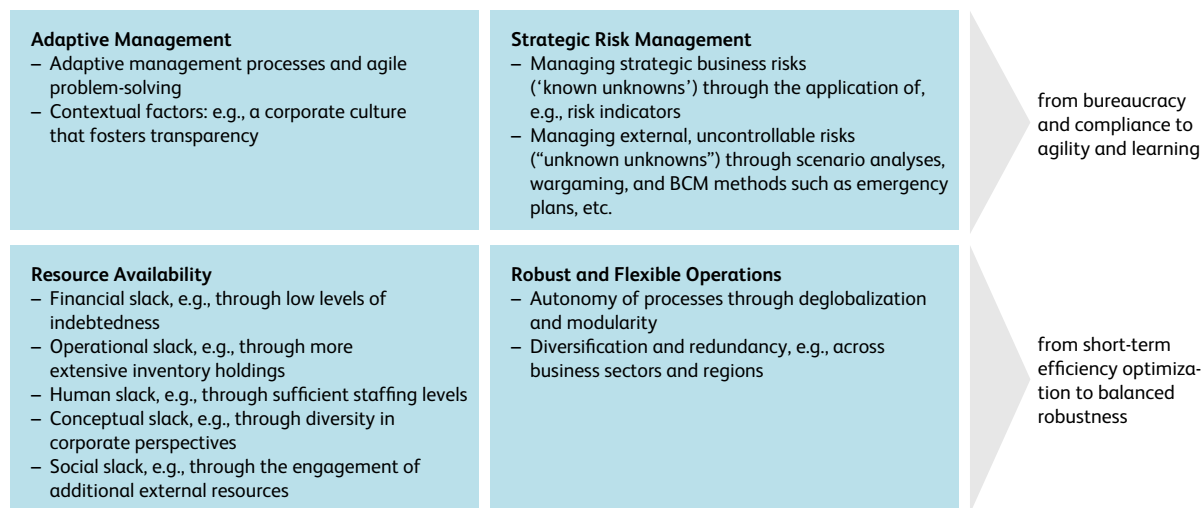


Table 1: WHU Corporate Resilience Framework<sup>13</sup>

Furthermore, organizational resilience involves turning an **emergency into an advantage**. The organization aims to emerge from the crisis with enhanced strength. Therefore, the focus is on organizational and human resource adjustments and methods.

<sup>11</sup> Bertelsmann Stiftung (2017), pp. 9

<sup>12</sup> McManus (2021), p. 88

<sup>13</sup> In close reference to Schäffer (2020), p. 10

## 2.4 Similarities in the Use of the Term Resilience

Several points are common to the various scientific applications of the term “resilience”:<sup>14</sup>

- A short-term disruption occurs. Resilience does not refer to a gradual deterioration of a situation but to an abrupt and at least stressful event or even a shock that negatively impacts the company’s objectives. These events or shocks differ in their probability of occurrence, their amplitude, their time frames and their frequencies.<sup>15</sup> Töpfer<sup>16</sup> also describes this as a sudden or eruptive corporate crisis, which can immediately decline a company’s profitability and liquidity and potentially have long-term strategic consequences for its entire business model.
- The event impacts the company from the outside. The environment changes negatively.
- Resilience does not have a preventive character. On the contrary, resilience refers to the ability of an individual, organization, or system to survive the negative effects of a shock or event, to adapt to and to manage a crisis that has occurred. This requires a willingness to learn, agility, flexibility, and buffers of critical financial and non-financial resources to adapt quickly and successfully to sudden challenges.
- Resilience should be distinguished from robustness, which only describes an organization’s ability to withstand events potentially causing damage.<sup>17</sup> Resilience goes beyond this and enables companies to develop new opportunities and potential for success arising from challenges and crises.

## 2.5 Financial Resilience

Multiple crises since 2019 have shown that companies can sometimes find it difficult to survive a crisis caused by an external event or even shock. In this context, financial resilience means, on the one hand, positioning oneself financially in such a way that there are sufficient financial buffers to survive the negative impacts of a crisis event. This could be done, for example, by identifying external crisis events early to limit their negative financial impact. On the one hand, financial slack, for instance, can help absorb the effects of increasingly impactful risks. On the other hand, financial resilience involves improving profitability after the crisis, at the least reaching the same level as before the crisis – in other words, being prepared for the future. Thus, financial resilience refers to the ability to withstand a crisis and the capacity to emerge from the crisis in a stronger state.

Core elements of financial resilience include maintaining sufficient liquidity to address immediate challenges and securing adequate equity to handle medium- to long-term issues. Additionally, the company’s finance, accounting, and controlling processes and financial expertise significantly influence its ability to withstand crises and ensure future viability.

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<sup>14</sup> Bertelsman Stiftung (2017), pp. 9

<sup>15</sup> Pinkwart et al. (2022), p. 764

<sup>16</sup> Töpfer (2009)

<sup>17</sup> Gleißner (2022), pp. 45

## Liquidity

Companies must be able to meet their payment obligations at any time. The acute or potential threat to solvency is one of the main reasons for filing for insolvency, leading to a withdrawal from the market. Liquidity is not a maximization goal, as holding excess liquidity always comes at the expense of a company's profitability. In the magic triangle of liquidity, profitability, and security,<sup>18</sup> there must be a balance between the three cornerstones.

One of the lessons learned from the pandemic-related closures was that many companies had underestimated the importance of liquidity, and cash quickly became scarce. Due to their lower diversification, small and medium-sized enterprises are more likely to suffer a relevant loss (e.g., due to illness, which leads to the company's closure). Therefore, these companies should have liquidity safety reserves (including unused credit lines). However, it should be noted that a crisis also makes it more challenging to access credit from banks and other lenders. It is not without reason that the liquidity crisis is considered the final stage in crisis typology, immediately preceding insolvency.<sup>19</sup>

A traditional criterion for maintaining financial balance is the golden balance rule, which stipulates that long-term assets should be financed through equity or long-term debt. Adhering to this principle alleviates pressure on the company's liquidity position.

The liquidity ratios reflect the safeguarding of short-term liquidity. However, a common issue with many liquidity indicators is that they only reflect the liquidity structure at a specific point in time. In addition, target values<sup>20</sup> discussed in the literature can only be regarded as benchmarks, as the individual conditions of companies can differ. For instance, a target value for cash liquidity (current ratio), which relates the balance sheet item of liquid assets to short-term liabilities, is indicated to be between 20 % and 25 %. The company's short-term receivables are added in the case of second-degree liquidity. To the numerator. These become available gradually as they are paid by debtors to settle liabilities. A target value of 100 % is often cited here. Third-degree liquidity includes inventories in the numerator. The justification here is that inventories can quickly be converted into cash and thus be available to settle short-term liabilities. Depending on the industry, a target value of 120–200 % is indicated here.

## Equity Capital

Equity capital represents the company's capacity to absorb losses. Profits or losses impact equity capital through their effect on retained earnings. When a profit is realized, equity capital increases; conversely, it decreases in the event of a loss. Should equity capital be entirely exhausted, meaning it reaches zero or turns negative, the company's assets will no longer cover its liabilities. This scenario represents a state of over-indebtedness.

According to German insolvency law, this scenario leads to insolvency if there is no optimistic forecast for the company's continued existence. To withstand a crisis involving losses, adequately capitalizing on equity during prosperous times is essential. The allocation of equity capital often competes with the distribution preferences of shareholders. Therefore, crisis scenarios and financial resilience must be thoroughly discussed between management and shareholders during periods of stability, ensuring that equity capital remains sufficiently capitalized. However, excessive earnings retention can lead to principal-agent problems, whereby managers withhold dividend payments and utilize retained capital to advance their interests.<sup>21</sup> Companies operating in industries with high exposure to

<sup>18</sup> Binder & Högsdal (2016)

<sup>19</sup> Müller (1986)

<sup>20</sup> Rinker & Müller (2022)

<sup>21</sup> Perridon et al. (2022), p. 615

economic cycles should maintain larger equity buffers to mitigate the effects of potential economic fluctuations.<sup>22</sup> This way, equity capital is a buffer for financial and thus for organizational resilience.<sup>23</sup>

The strong relationship between equity capital and liquidity must also be considered: Equity capital serves a **critical trust function**, signaling the company's solvency and financial strength. Potential creditors and business partners assess a company's equity capital before entering into agreements. This evaluation can limit the company's ability to secure additional liquidity, particularly during a crisis.

## Processes in Finance, Accounting, Controlling, and Risk Management

Core processes in controlling, as well as in finance and accounting, significantly influence **liquidity** and, consequently, **equity capital**. For instance, accounts payable and accounts receivable processes substantially affect cash flow. Increased dynamics and volatility in the business environment necessitate the continuous adaptation of financial and accounting processes. A key driver of this adaptation is digitalization,<sup>24</sup> which facilitates a much faster implementation of working capital processes for liquidity adjustments. Conversely, ineffective financial processes can result in companies receiving information too slowly, rendering them unable to adjust as swiftly as their competitors.

In particular, the timely identification of potential crisis events, the simulation of their impacts, the reduction of dependencies, and the establishment of corresponding safeguards (e.g., financial buffers) are of central importance in risk management and controlling. As opportunities change, so do stakeholder expectations: customers, owners, suppliers, and others now expect different and faster responses from finance managers. Effective and efficient **working capital management** can thus sustainably enhance a company's liquidity, profitability, and, consequently, its equity capital.

Companies must proactively address the processes within their finance departments ahead of a crisis. This proactive approach ensures they can respond effectively during adverse times. Moreover, banks increasingly focus on the quality of financial processes and expect a markedly higher standard from their borrowers than in the past. This expectation extends to the provision of reliable accounting data to creditors. Such data fosters trust in the company and decreases the likelihood of creditors withdrawing funds during a crisis.

**Financial controlling and risk management** also play a pivotal role in actively managing crises once they arise. Drawing on lessons from the COVID-19 pandemic, the International Controller Association (ICV) proposes a four-phase model for crisis management: securing survival, stabilization, revising the business model, and restarting.<sup>25</sup> Securing liquidity and achieving greater risk transparency are paramount in the initial phase. In contrast, the subsequent phases focus on enhancing cost efficiency and profitability, realigning business strategies, and building organizational and financial resilience for future crises.

<sup>22</sup> Schultz & Titze (2011)

<sup>23</sup> Felbermayr & Kooths (2020), p.5

<sup>24</sup> Egle & Keimer (2017)

<sup>25</sup> ICV Ideenwerkstatt (2020), pp.3

## Business Management Know-How

Analyses of corporate insolvencies often identify a **lack of business management know-how** as a primary cause.<sup>26</sup> This issue pertains to both entrepreneurs and their financial departments. Consequently, entrepreneurs and financial professionals must remain current with developments in the field. The advancing technological capabilities of digitalization continuously introduce newer and improved applications that quickly establish themselves as standards. Furthermore, SMEs require transparency to facilitate effective decision-making. This transparency can be achieved through management reports, which serve as a foundation for informed decision-making.

## 2.6 Enterprise Risk Management (ERM)

While traditional risk management tends to analyze individual risks in isolation and largely overlooks the risk interdependencies, a practice often referred to as **silos thinking**, ERM represents a holistic and integrated approach. Identifying, assessing, managing, and integrating risks and opportunities into decision-making processes are central to this framework. The ERM approach explicitly considers the potential impacts of uncertainties on the ability and likelihood of achieving **corporate objectives**. Consequently, the COSO framework defines ERM as:

«culture, capabilities, and practices, integrated with strategy-setting and its execution, that organizations rely on to manage risk in creating, preserving, and realizing value».<sup>27</sup>

This definition of ERM underlines that risks and opportunities can only be effectively managed when:

- The organizational culture and capabilities are considered;
- A connection to the strategy and its implementation is established;
- Risk management is aligned with the strategy and corporate objectives, thereby being decision-oriented and;
- A linkage to corporate value creation and preservation is established.

By informing executives and their supervisory bodies about enterprise-wide risks and opportunities, the aim is to enhance decision-making processes and create value for various stakeholders. Ultimately, the modern ERM approach emphasizes the consistent integration of risk management with stakeholder-oriented corporate governance.

In this report, ERM is defined in line with the considerations mentioned above as follows:

Modern ERM is the enterprise-wide identification, assessment, management, reporting, and monitoring of risks and opportunities to create value for all stakeholders, implement corporate strategy, and achieve organizational objectives. The integration of risk information into decision-making processes is imperative.<sup>28</sup>

<sup>26</sup> Hummel & Zander (2008)

<sup>27</sup> COSO (2017), p. 10

<sup>28</sup> Hunziker (2019)



## 2.7 ERM and Financial Resilience

ERM and financial resilience management are closely interconnected concepts that enable organizations to identify crisis-inducing events early on and withstand them by building financial slack and improving their adaptability. Building financial resilience focuses primarily on strengthening the organization's financial stability and robustness.<sup>29</sup>

Financial resilience, thus, refers to an organization's ability to withstand the financial impact of shocks without experiencing significant internal crises or facing insolvency. A financially resilient organization can effectively absorb economic downturns, increased market volatility, supply chain disruptions, significant payment defaults, liquidity shortages, and other disruptions. This capability ensures business continuity, financial stability, and long-term success.<sup>30</sup> ERM plays a critical role in fostering financial resilience against emerging risks. Through comprehensive risk analysis and assessment, ERM supports the identification of potential risks and the evaluation of their financial impacts. In order to improve a company's resilience, strategic dependencies and bottleneck areas of its own business model in particular must be identified, their impact on the company's success modeled and evaluated using suitable scenarios and, if necessary, reduced. This enables organizations to implement targeted measures to mitigate or avoid these risks. ERM also encompasses the establishment of risk tolerances and strategies to ensure that the organization can absorb financial disruptions and recover swiftly. Even financially sound and well-established companies may find their capacity to withstand financial risks compromised by exogenous or endogenous risk factors, potentially leading to restructuring or insolvency.<sup>31</sup>

Another critical aspect of ERM is establishing a robust and adaptive risk management process, which allows for continuous monitoring of risk factors, timely identifying newly emerging risks and adjusting strategies and measures in response to changing market conditions and risk scenarios. This promotes resilience to corporate crises by enabling the organization to respond swiftly to potential financial threats and implement appropriate countermeasures.<sup>32</sup> Furthermore, ERM cultivates a risk-conscious culture within the organization, where all employees are aware of risks, proactively report them, and perceive risk management as an integral component of their daily work. This contributes to fostering a general mindset of resilience, empowering the organization to adapt flexibly to changes and effectively respond to stressful external events and other shocks.

Overall, financial resilience and ERM are highly interrelated and mutually reinforcing. ERM provides the framework, methods, and tools for identifying, assessing, and managing financial risks and determining risk-bearing capacity. At the same time, resilience during crises is the objective that effective ERM aims to achieve. By integrating ERM practices and strategies, organizations can enhance their financial resilience and ensure long-term stability and competitiveness.<sup>33</sup> Thus, fostering financial resilience is an integral component of ERM.

<sup>29</sup> Chen, Rahman (2021), p. 108

<sup>30</sup> Du et al. (2021)

<sup>31</sup> Gleißner (2008), p. 799

<sup>32</sup> Du et al. (2021), pp. 41

<sup>33</sup> Tsikoudakis (2012), p. 13

## 2.8 Summary

The global economy continues to be reshaped by a succession of complex crises, each leading to profound and lasting impacts. Most recently, tensions in the Near East have exacerbated the vulnerabilities already exposed by the prolonged war of Russia against Ukraine and escalating instability within energy markets. These multifaceted disruptions, compounded by the lingering consequences of the COVID-19 pandemic, underscore the critical need for robust resilience strategies. Today, enterprises must transcend short-term crisis management, focusing instead on crafting adaptive, forward-looking frameworks that secure immediate survival and position them to thrive amidst future uncertainties. The imperative is clear: only organizations, that are capable of anticipating disruption and proactively reducing their strategic dependencies and bottlenecks and strengthening their capacity for recovery and sustained growth will remain competitive in this volatile global landscape.

The notion of resilience, extensively employed across various scientific domains, is particularly relevant within financial management. It embodies the capacity to withstand crises and the imperative of fostering long-term sustainability following such disruptions. Recent crises have illustrated businesses' vulnerabilities, especially small and medium-sized enterprises (SMEs) that often operate with constrained financial reserves, making them susceptible to environmental and external shocks. This reality underscores the necessity of prioritizing financial resilience as a crucial objective for enterprises despite the seemingly limited incentive to invest in such preparedness during periods of economic prosperity.

The occurrences of recent years mentioned above have elucidated that these extreme events, whether of natural or economic nature, should not be regarded solely as unpredictable "black swan" events ("unknown unknown"), but rather as "white swan" events, i.e., anticipated and predictable events. They represent risks that must be integrated into comprehensive crisis management frameworks. Consequently, financial resilience ascends to a position of paramount importance. Traditional domains of financial management such as controlling, cost accounting, liquidity management, and equity capital strategies are gaining heightened significance. Organizations that proactively enhance their financial resilience will not only navigate crises with greater efficacy but may also emerge from such challenging times with reinforced market positions.

Corporate leaders, particularly those in the financial sector, must learn from these recent crises and take proactive measures to strengthen financial resilience. Such initiatives will empower businesses to traverse future adversities with enhanced stability and leverage these challenges' opportunities.

## 2.9 Legal Context

### Switzerland

In Switzerland, any company's highest supervisory and management body is responsible for its financial resilience. Should the company face financial distress, it must promptly implement the legally mandated measures. Civil and criminal consequences may ensue if the highest supervisory and management body fails to fulfill this obligation.

According to Article 716a, paragraph 1, item 1 of the Swiss Code of Obligations (CO), the board of directors (*Verwaltungsrat*) of a joint-stock company is legally obligated to design, implement, and oversee a risk management system. To fulfill this duty diligently, the board of directors must also develop and practice a crisis and continuity management plan to ensure preparedness for critical situations. This legal obligation for risk management applies regardless of the company's size or industry. It can similarly be extended to other legal forms (e.g., cooperatives, limited liability companies, foundations, and associations).

Furthermore, the board of directors is responsible for the organization's accounting, financial control (i.e., internal control system), and financial planning (CO, Art. 716a, para. 1, item 3). Following the new corporate law (effective January 1, 2023), the board must monitor the company's solvency (Art. 725, para. 1 CO). If the company is at risk of insolvency, the board must take measures to ensure its solvency (Art. 725, para. 2 CO). Therefore, the board is obliged to plan the company's liquidity carefully.

Supposing a company falls into financial distress, the latest annual financial statement indicates that the assets, minus liabilities, no longer cover half of the share capital, legal capital reserves, and statutory profit reserves. In this case, the board must take measures to eliminate the capital loss (Art. 725a CO). Should legitimate concerns exist that a company's assets may no longer cover its liabilities, the board must promptly prepare interim financial statements reflecting going concern and liquidation values (overindebtedness, Art. 725b CO). If the company is deemed overindebted according to these two interim financial statements, the board must notify the court, initiating bankruptcy proceedings.

These provisions illustrate that the highest management body in Switzerland must diligently monitor the organization's financial resilience and promptly take appropriate measures. In addition, there are further specific regulations for banks and insurance companies, which are not addressed here.

## Germany

In Germany, the legal foundations for the early detection of risks and crises and crisis management are established in the Act on the Control and Transparency of Corporate Governance (KonTraG), which came into effect in 1998. Section 91, paragraph 2 of the Stock Corporation Act (AktG) mandates that the management board (Vorstand) of a joint-stock company and the management of large limited liability companies must implement an early detection and monitoring system related to risks, to identify developments that may threaten the company's continued existence early on.<sup>34</sup> A potentially threatening development is considered to arise when the company faces a severe crisis that compromises its current and potential solvency or may lead to overindebtedness and, thus, insolvency.

The obligation to implement a risk and crisis early detection system is extended to liability-limited companies (legal entities and limited partnerships) by the Act on Corporate Stabilization and Restructuring (StaRUG). Section 1 outlines minimum requirements for early detection and prevention concerning crises, requiring management to identify developments that may threaten the company's survival early on and implement countermeasures to mitigate these risks. In addition, there is a reporting obligation for management to inform the supervisory bodies of the company about these risks and the measures taken.

Moreover, there is broad consensus that an early risk detection system is necessary for crisis detection and prevention to assess the degree of existential threat and risk-bearing capacity by comparing risks and risk coverage potential. Existential threats often result from the cumulative effects of multiple individual risks, which may arise from breaches of loan agreements (financial covenants) or creditor demands on ratings that threaten the company's financing and, thus, its liquidity.<sup>35</sup>

The StaRUG goes beyond the regulatory content of Section 91, paragraph 2 of the AktG by introducing an obligation to act in Section 1, sentence 2 StaRUG, which states that appropriate measures must be taken in the event of a threatening existential risk and that the supervisory bodies must be informed accordingly. Therefore, planning for crisis and risk management measures is required.

<sup>34</sup> Gleißner (2022), pp. 84

<sup>35</sup> Gleißner (2022), pp. 91

## Austria

The legal requirements for risk management in companies in Austria are primarily found in the Stock Corporation Act (AktG), the Limited Liability Company Act (GmbHG), and the Corporate Governance Code (UGB). For example, according to Section 81, paragraph 1 of the AktG, there is a reporting obligation for the management board (*Vorstand*) to the supervisory board (*Aufsichtsrat*) regarding risks that are particularly significant for the company's profitability and liquidity. In addition, the management board is obliged under Section 82 of the AktG to establish an internal control system (ICS), which must also be monitored by the audit committee for certain joint-stock companies. Corresponding regulations can be found in Sections 22, paragraph 1; 28a, paragraph 1; and 30g, paragraph 4a of the GmbHG.

The Restructuring and Insolvency Directive Implementation Act (RIRL-UG) came into force on July 17, 2021. Section 1, paragraph 3 stipulates that in imminent insolvency, management must take steps to avert insolvency and ensure the company's viability. In doing so, the interests of creditors, shareholders, and other stakeholders must be adequately considered. Paragraph 2 further defines imminent insolvency as a condition in which the company's existence is threatened without restructuring measures. An imminent insolvency may be presumed, mainly when the equity ratio falls below 8 % and the fictitious debt repayment period exceeds 15 years.

## 3. Research Design

The ERM Report 2024 aims to provide key insights about the financial resilience respective vulnerability of companies from Germany, Switzerland and Austria (DACH region) and to analyze the impact of three main risk categories – “cyclical risk,” “operational risk,” and “financial risk” – on the financial resilience. Methodologically, our study employs both **cross-sectional and longitudinal** approaches. The corporate data is examined and analyzed over seven years (2017–2023). The original sample comprised of 500 companies from the DACH area. Due to data gaps, corporate actions, and removing outliers through the windsorizing technique, the final sample consists of 365 companies, of which 190 are German, 39 are Austrian, and 136 are Swiss organizations. Similar to the study conducted by the Deutsche Bundesbank (2014), the analysis considers variables from three distinct risk categories (cyclical risk, financial risk, and operational risk) as factors influencing financial crisis resilience or vulnerability. As in the previous study, these are operationalized by the dependent variable “pre-tax profit margin”.<sup>36</sup> Based on an extensive literature research, the probability of insolvency, based on Gleißner (2022),<sup>37</sup> the excess ratio, expense ratio, real revenue growth and cash ratio were identified and added as new independent variables in our analysis.

To enrich the results of the aforementioned empirical analysis of financial statement data, a series of interviews were conducted with company representatives and industry experts to identify factors explaining certain companies’ higher resilience. Interviews were conducted with representatives of five Swiss companies identified as relatively resilient compared to the other companies and with five industry experts from German companies. The interviews were examined systematically by computer-aided analysis using the data analysis tool MAXQDA.

### 3.1 Deutsche Bundesbank Study

To ensure the comparability between the analyzed crisis periods (2000–2011 and 2017–2023), our study adopts the methodology established by the Deutsche Bundesbank (2014), which utilized annual financial statement data to conduct a preliminary analysis of the crisis vulnerability of German manufacturing firms and the potential drivers of the financial and economic crisis. Crisis susceptibility was conceptualized as sustained earnings weakness and measured by the **pre-tax profit margin and cash flow**.<sup>38</sup> The study then calculated the frequency distribution of profit margins across all analyzed firms for the observation period spanning from 2000 to 2011. This distribution formed the basis for determining the Value-at-Risk (VaR) at the 99 % confidence level, the Conditional Value-at-Risk (CVaR), representing the average profit margin of firms falling below the VaR threshold, and the Mean Excess Loss (MEL), reflecting the average loss among firms reporting negative profit margins. Firms with profit margins below the VaR threshold were classified as “tail companies.”

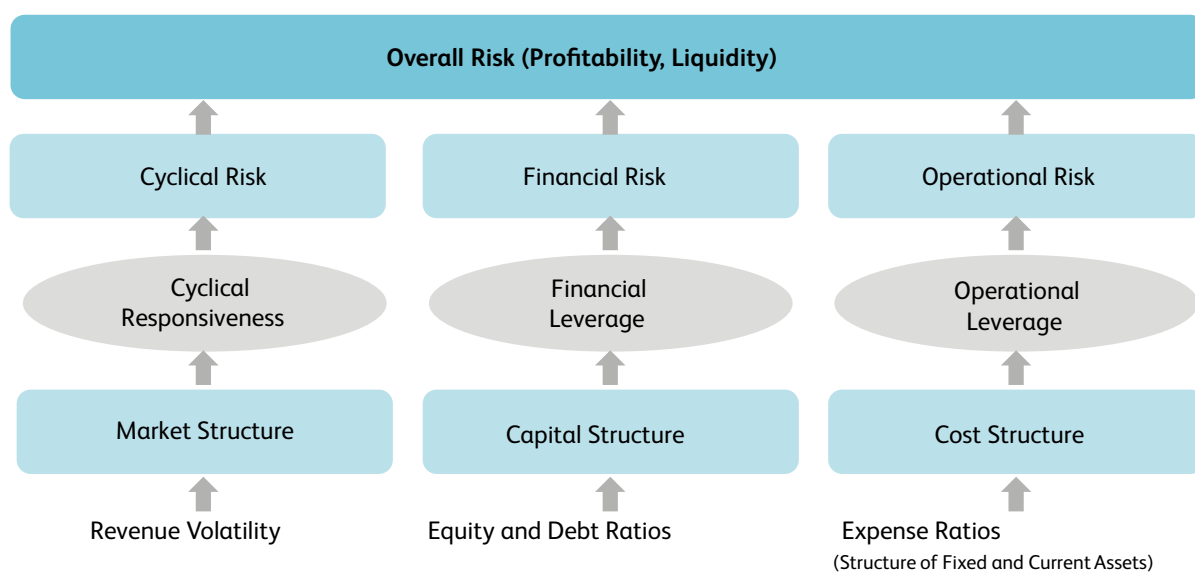
During the observation period, 18.5 % of the analyzed financial statements reported a loss. The three risks mentioned above were applied to identify the companies’ vulnerability to crisis. The MEL of the pre-tax profit margin amounted to -4.8 % over the entire observation period, with 6.77 % of the company years being assigned to this group. The VaR was -18.8 %, which, by definition, was only exceeded by 1 % of the companies. As expected, the CVaR was even more significant at -18.78 % and this threshold was only undercut in 0.47 % of the analyzed company years. In addition, the proportion of companies classified as crisis-prone according to the three metrics increased significantly during the financial and economic crisis, reaching a peak in 2009.

<sup>36</sup> Deutsche Bundesbank (2014), pp. 55

<sup>37</sup> Gleißner (2022), pp. 433

<sup>38</sup> Deutsche Bundesbank (2014), pp. 55

On the risk side, a distinction was made between **cyclical risk** resulting from market volatility, **financial risk** due to high debt levels, and **operational risk** arising from the company's cost structure. These risks were operationalized using appropriate financial ratios from the annual financial statements (see Figure 1).



**Figure 1:** Overview of risk categories and impact on profitability and liquidity  
 Source: adapted from Deutsche Bundesbank, 2014, p. 58

All three risk groups have emerged as significant factors influencing crisis vulnerability. Companies identified as crisis-prone exhibited higher revenue volatility, greater asset intensity, lower equity ratios, higher interest expense ratios, and significantly stronger cost stickiness<sup>39</sup> – especially in labor costs – compared to non-tail companies, particularly during the crisis. The Deutsche Bundesbank concluded from its findings that these risk factors substantially increase the vulnerability of the analyzed companies to crises. However, it also noted that these companies demonstrated a high capacity for risk absorption, as the identified performance weaknesses significantly diminished after the financial and economic crisis ended.

Since the onset of the COVID-19 crisis in 2020, companies worldwide, including in the DACH region, have been continuously exposed to various persistent crisis scenarios. This raises the question of whether the approach applied in the Deutsche Bundesbank study remains valid. In addition, it remains unclear whether there are specific companies with high resilience and which factors influence this resilience. Gaining insights into these factors would be highly valuable for companies, as increasing environmental uncertainty and the almost complete unpredictability of crisis events will make it even more crucial for companies to improve their resilience and reduce key risk factors.

<sup>39</sup> **Cost stickiness** refers to the phenomenon where a company's costs do not decrease proportionally when its revenue declines but tend to increase when revenue rises.

The findings of the ERM Report 2024 will thus contribute to developing a better understanding of the determinants of financial resilience and provide implications for the development of risk management strategies. The use of longitudinal data also enables the analysis of changes over time, allowing for the identification of trends and patterns. Despite the expansion of the study design mentioned above, some compromises had to be made regarding the sample size and the operationalization of various factors influencing financial resilience (independent variables) compared to the Deutsche Bundesbank study (2014). This is due to the unavailability of certain data deemed theoretically relevant for the present empirical analysis. Furthermore, as the data was sourced from the Bloomberg database, the study was limited to publicly traded companies. However, compared to the Deutsche Bundesbank study, companies from additional industries and the entire DACH region were analyzed, meaning the results from the Deutsche Bundesbank study can only be compared to a certain extent.

## 3.2 Research Model and Variables

The susceptibility to or resilience against crises was operationalized, as in the Deutsche Bundesbank analysis using the **pre-tax profit margin**. This metric serves as a suitable reference value for empirical risk analyses based on financial statements of non-financial companies. It can eliminate the influence of significant size differences between the analyzed companies on the results. Cash flow is an alternative performance measure, reflecting the liquidity situation crucial for maintaining the company's solvency. Since the results based on cash flow in the Deutsche Bundesbank study largely corresponded to those based on the operating margin, and in order to be able to directly compare our results with those of the Deutsche Bundesbank study, the pre-tax profit margin was also used as the dependent variable. Furthermore, our results were checked using the return on equity (after-tax).

The observations for the entire period were sorted by pre-tax profit margin, and the top and bottom 3 % were winsorized to minimize the impact of implausible data from Bloomberg and extreme outliers. The analysis uses **real-world financial data**, which often contains noise, errors, and outliers, especially during periods of economic crisis. To prevent these anomalies from skewing the results, we adopted a **robust regression** approach, which offers a more precise and accurate understanding of the relationships between variables by reducing the influence of outliers and accounting for non-normality in the data. In addition, to handle remaining outliers and the assumption of non-linearity, we applied listwise deletion, thereby removing all observations with missing data in any one variable, to facilitate the robust regression analysis. Furthermore, the **Spearman correlation** analysis is selected since it is a non-parametric method that measures the strength and direction of monotonic relationships between variables.

In the 2024 ERM Report, companies were classified as crisis-prone if their pre-tax profit margin over the entire observation period was lower than 95 % of the total pre-tax profit margins of all analyzed companies. We also refer to this as the **VaR** of 95 %.<sup>40</sup> Furthermore, as in the Deutsche Bundesbank analysis, the **CVaR** was calculated as the average of all pre-tax profit margins of the tail companies, and the **MEL** was calculated as the average of all negative pre-tax profit margins over the observation period. Unlike the Deutsche Bundesbank study, we also analyze **crisis-resilient companies**, which we define as the companies with the top 5 % pre-tax profit margins across the observation period (VaR 5 %). Both the crisis-prone and resilient companies are referred to as tail companies. Descriptive statistics were calculated for both the dependent and independent variables, including the mean, median, standard deviation, minimum, and maximum.

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<sup>40</sup> Since we are examining a smaller sample than the Deutsche Bundesbank, which analyzed a total of 9,558 companies, and are also using a shorter observation period, we set the VaR at 95 % instead of 99 % to avoid making the group of tail companies too small, as the risk of distortion due to outlier companies is particularly high.

We also consider cyclical financial, market, and operational risks in analyzing crisis susceptibility and resilience. However, due to differences in data availability, our definition of operational risk deviates somewhat from the Deutsche Bundesbank’s analysis (see Figure 2).

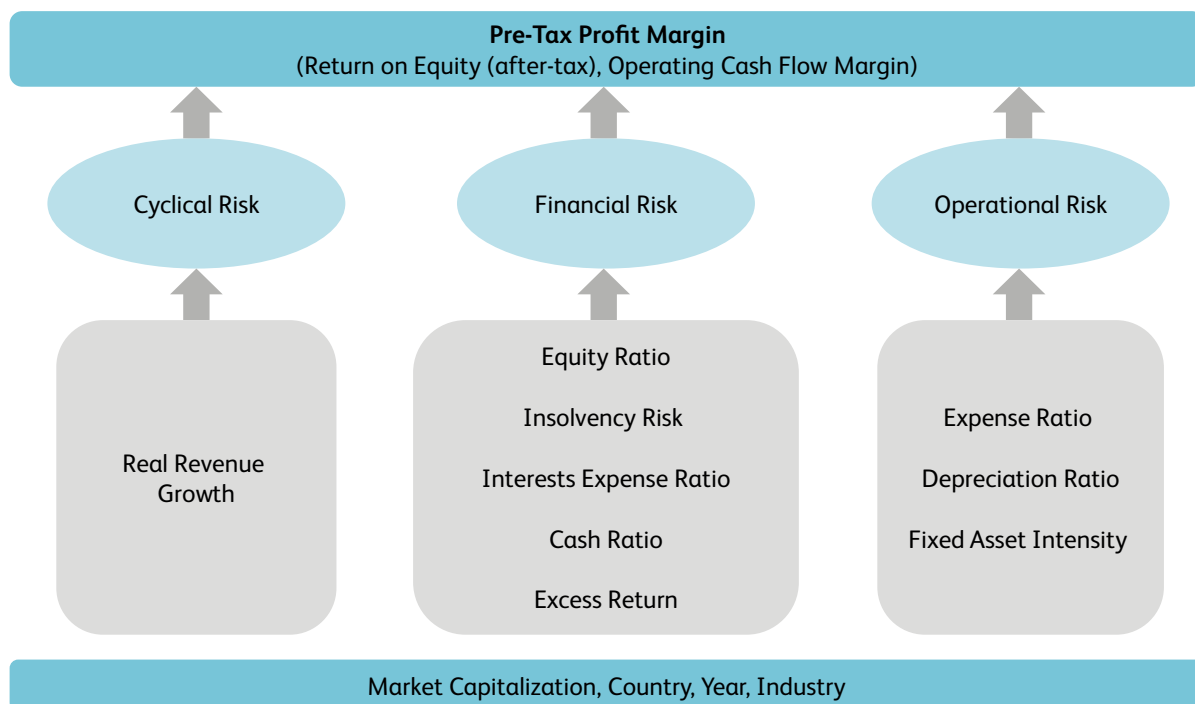


Figure 2: Relationship in the research model between dependent variables and independent variables

Table 2 (next page) provides a comprehensive breakdown of the independent and dependent variables used in the analysis, clearly identifying each variable and including the formulas for their calculation.

**Cyclical risk** refers to companies’ potential challenges in selling products or services. Such risk can arise from changes in competition, economic fluctuations, or technological advancements. During times of crisis, consumer demand behavior frequently shifts as well.<sup>41</sup> We employed real revenue growth to quantify cyclical risk, defined as the percentage change in a company’s sales revenue, adjusted for inflation. This adjustment provides insight into whether revenue growth is merely a result of price increases or reflects actual growth in sales volume.

**Financial risk** refers to the threats companies face due to existing financial obligations or uncertainties. These may include loans, interest payments, performance contracts, or other agreements directly impacting a company’s success and cash flow.<sup>42</sup> Such risks can arise from interest rate changes, economic fluctuations, or unforeseen events. In the ERM Report 2024, the measurement and analysis of financial risk are based on five independent variables. The **equity ratio** indicates the extent to which a company is financed through its capital. A higher equity ratio typically reflects a lower dependence on external creditors and reduced vulnerability to exogenous factors, such as interest rate increases.

<sup>41</sup> Deutsche Bundesbank (2014), p. 58

<sup>42</sup> Deutsche Bundesbank (2014), pp. 57



Variable	Key Figure	Operationalization
<b>1. Dependent Variables</b>		
Crisis-Prone or Crisis-Resilience	Pre-Tax Profit Margin <sup>43</sup> (PTPM)	EBIT / Sales Revenue
	Return on Equity (after-tax)	Net Income / Total Equity
	Operating cash flow margin	Cashflow from Operations / Sales Revenue
<b>2. Independent Variables</b>		
Financial Risk	Equity Ratio (ER)	Total Equity / Total Assets
	Insolvency Risk (InsoR) <sup>44</sup>	$p = \frac{0,265}{(1 + e^{-0,41 + 7,42 \cdot ER + 11,2 \cdot ROCE})}$
	Interest Expense Ratio (IntExpR)	Interest Expenses / Sales Revenue
	Cash Ratio (CashR)	Current Liabilities / Cash and Cash Equivalents
	Excess Return (ExcR)	Return on Assets – Weighted Average Cost of Capital
Cyclical Risk	Real Revenue Growth (RRevG)	(Revenue Growth) – Inflation Rate
Operational Risk	Expense Ratio (ExpR)	Operating Expenses / Sales Revenue
	Fixed Asset Intensity (FAI)	Net Fixed Assets / Total Assets
	Depreciation Ratio (DeprR)	Depreciation and Amortization / Sales
<b>3. Additional Variables</b>		
Company Size	Market Capitalization	Market Capitalization
Country	Headquarters Location	Germany, Austria, Switzerland
Time Frame	Years	2017–2023
Industry	Sectors according to Bloomberg (Bloomberg Industry Classification Standard (BICS-Sector))	Real estate, industrials, financials, consumer discretionary, consumer staples, communications, energy, technology, health care, materials, utilities;

**Table 2:** Detailed overview of variables in the research model for resilience and financial sustainability

Moreover, a more substantial equity base generally enables more favorable borrowing terms, positively influencing the company’s credit rating and lowering capital costs. The **insolvency risk** (according to Gleißner) integrates various financial indicators and serves as an early-warning system to assess whether a company faces an elevated risk of insolvency.<sup>45</sup> The **interest expense ratio** measures the share of a company’s total revenue used for interest payments, providing insight into its financial leverage and debt burden. The **cash ratio** measures a company’s ability to cover its short-term liabilities using only its cash and cash equivalents. It provides a conservative liquidity assessment focusing on the most liquid assets. **Excess return** represents the additional value a company generates above the cost of financing its operations.

<sup>43</sup> In the context of robustness checks, the return on equity after taxes was used as the dependent variable for assessing crisis vulnerability and resilience.

<sup>44</sup> Gleißner (2022), p. 433

<sup>45</sup> For the calculation, see Gleißner (2022), pp. 433

Operational risk refers to potential deviations from performance targets arising from the delivery of operational activities. This includes factors such as material and labor costs or, as seen in recent years, supply chain disruptions. Operational risk primarily results from cost stickiness. In the ERM Report 2024, two independent variables are employed: the expense ratio and the fixed asset intensity. The expense ratio provides insights into efficiency by comparing total production costs to sales revenue. A higher ratio indicates a lower gross profit per unit of revenue generated. Meanwhile, the fixed asset intensity reflects the proportion of fixed assets to total assets, offering insights into capital commitment and the intensity of fixed costs.

Dummy variables for the year, and country are also included, as they are essential in multiple regression analysis for controlling categorical effects that continuous variables cannot capture. Year dummies account for temporal shifts, such as economic cycles or global events, which may influence the dependent variable over time. Similarly, country dummies adjust for regional differences, such as variations in legal frameworks, economic conditions, and cultural factors, which could affect outcomes.

### 3.3 Data Collection, Cleansing, and Analysis

The data collection process is a crucial part of our analysis. We sourced the publicly listed companies from the Bloomberg database,<sup>46</sup> an analytical tool that provides company financial statement data. Due to the unique features of financial companies' business models, balance sheets and income statement structures, the analysis was limited to non-financial companies. This was also necessary to ensure approximate comparability with the results of the Deutsche Bundesbank analysis from 2014.

Due to the relatively small number of publicly listed companies in Austria, ensuring an equal distribution of firms from the three DACH countries in the sample was not feasible. In the initial version of the sample, 68 companies from Austria, 234 from Germany, and 198 from Switzerland were selected. As a result, the original total sample consisted of 500 companies.

For these companies, data were collected to calculate the variables above, resulting in 3,500 observations over the seven years. Subsequently, these data points underwent a quality check and were cleansed as follows:

- A total of 262 observations were excluded due to a lack of data and unchanged variables, leaving 3,238 observations in the sample.
- Next, the observations across the entire period were sorted by pre-tax profit margin, and the top and bottom 3% were winsorized in order to remove implausible outliers. Following this step, 2,997 observations remained.
- Due to remaining outliers and the assumption of non-linearity, we performed a listwise deletion (removing all observations with at least one missing data point in any one variable) to enable a robust regression analysis. Ultimately, 2,005 observations were included in the final sample and the subsequent analyses.
- The final sample includes datapoints from 365 companies, of which 190 are German, 39 are Austrian and 136 are Swiss entities.

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<sup>46</sup> sourced from Bloomberg database in euros for all countries

Tail companies were defined as those whose pre-tax profit margins are at the extremes (10 % lower or 10 % upper) of the distribution. These companies are subsequently referred to as crisis-prone or crisis-resilient.<sup>47</sup> Due to the smaller sample size, we calculated not only the 1<sup>st</sup> and 99<sup>th</sup> percentiles, as done in the Deutsche Bundesbank study but also the 5<sup>th</sup> and 95<sup>th</sup> percentiles. Furthermore, in order to analyze the tail companies within each country, the 10<sup>th</sup> and 90<sup>th</sup> percentiles were examined to ensure at least 50 companies.

We employed a robust regression approach to more accurately examine the relationships between variables, whilst mitigating the impact of noise, errors, and outliers in financial data. Furthermore, we used listwise deletion to handle missing data and applied a Spearman correlation analysis, a non-parametric method, in order to assess the strength of monotonic relationships between variables. Standard descriptive statistics (mean, median, standard deviation, minimum, and maximum) were computed for all dependent and independent variables.

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<sup>47</sup> Deutsche Bundesbank (2014), p. 59

## Part II: Results

Part II of the 2024 ERM Report highlights key findings on the financial sustainability and resilience of companies analyzed within the DACH region.

## 4. The Impact of Crises: Vulnerability and Resilience in Challenging Times

An extensive analysis of 2,005 firm-year-observations from the DACH region between 2017 and 2023 yields several significant findings. These results offer valuable insights into the vulnerability and resilience of the analyzed firms with respect to the crisis events during the analyzed time period. A comprehensive discussion of the key outcomes is presented below.

Table 3 presents the results of the robust regression analysis with the pre-tax profit margin as the dependent variable. As explained in the previous chapter, we examined whether the selected independent variables play a significant role in explaining variations in the pre-tax profit margin. Dummy variables for the years and countries were incorporated into the analysis to account for categorical effects in the robust regression model. This analysis allows us to assess the strength and significance of these relationships.

	Independent Variable	Coefficient	T-Statistic	n	Significance
	Intercept	0.0493	10.9894	2005	
Financial Risk	Equity Ratio (ER)	0.0648	8.8753	2005	***
	Insolvency Risk (InsolR)	-0.2327	-8.1007	2005	***
	Interest Expense Ratio (IntExpR)	-0.0361	-0.4246	2005	
	Cash Ratio (CashR)	0.0116	5.5833	2005	***
	Excess Return (ExcR)	0.7616	37.0978	2005	***
Cyclical Risk	Real Revenue Growth (RRevG)	0.0546	7.7792	2005	***
Operational Risk	Expense Ratio (ExpR)	-0.0227	-8.3032	2005	***
	Fixed Asset Intensity (FAI)	-0.0412	-5.9723	2005	***
	Depreciation Ratio (DeprR)	0.3048	12.9654	2005	***
Control Variables	Market Capitalization	0.0000	12.0121	2005	***
	Austria	-0.0025	-0.7503	2005	
	Switzerland	-0.0135	-6.3336	2005	***
	2018	0.0149	4.1366	2005	***
	2019	0.0005	0.1446	2005	
	2020	0.0068	1.8273	2005	
	2021	0.0108	2.9698	2005	**
	2022	0.0143	3.9198	2005	***
	2023	0.0192	5.1367	2005	***

**Table 3:** Results of the robust regression analysis, showing coefficients, t-statistic and significance levels for the predictor variables  
t-stat > ±1.96 corresponds to a 5% significance level (\*)  
t-stat > ±2.58 corresponds to a 1% significance level (\*\*)  
t-stat > ±3.29 corresponds to a 0.1% significance level (\*\*\*)

The **core results** of our analysis are summarized in the following:

1. The one independent variable classified as a cyclical risk factor has a significant but weak effect on the pre-tax profit margin, indicating that companies with real revenue growth tend to be more crisis-resilient.
2. Compared to the real revenue growth, the various independent variables classified as financial risk factors, also reveal a significant and even a stronger impact on the financial resilience, measured by the pre-tax profit margin. For example, the **excess return** variable shows a high **positive** coefficient, indicating a substantial and significant positive impact on the pre-tax profit margin at the 0.1 % significance level. This suggests that companies generating returns above their costs of capital (WACC) benchmark tend to exhibit much stronger profit margins, reflecting superior financial performance and a competitive advantage.
3. The **equity ratio** also exhibits a positive coefficient, significant at the 0.1 % level, implying that as a company's equity financing increases, so does its pre-tax profit margin. This suggests that firms with a higher proportion of equity (and less reliance on debt) tend to be more profitable, which is likely due to reduced financial costs such as interest expenses.
4. Unsurprisingly, insolvency risk is **negatively** correlated with the pre-tax profit margin, with a significant relationship at the 0.1 % level. Firms with higher insolvency risk generally have lower profit margins, likely due to higher financial stress, borrowing costs, and operational inefficiencies.
5. Finally, the **interest expense** (IntExpR) ratio does not show a statistically significant relationship with the pre-tax profit margin, suggesting that interest expenses may not be a key determinant of profitability in this data set. Nevertheless, these results may be biased due to the long period of extremely low interest rates.
6. Also, the independent variables measuring the operational risk impact the financial resilience and vulnerability. The **depreciation ratio** demonstrates a significant positive relationship with the pre-tax profit margin at the 0.1% significance level. This indicates that firms with a higher depreciation relative to their sales tend to report higher profit margins. This could be attributed to the tax benefits from depreciation or significant investments in long-term assets such as machinery, equipment, or real estate, which likely enhance operational efficiency and profitability. More capital-intensive firms may have a higher depreciation, but if they efficiently use these assets, the resulting sales and profitability can more than compensate for the expense of depreciation.
7. In addition, the **expense ratio and fixed asset intensity** correlate negatively with the pre-tax profit margin, each at the 0.1 % significance level. This indicates that companies with higher operational expenses relative to revenue and those with a more significant proportion of fixed assets relative to total assets tend to exhibit lower profit margins. At a first glance, this apparent contradiction suggests that while investments in fixed costs may temporarily reduce profitability, efficiently utilized investments (such as those leading to a higher depreciation) can positively affect the profit margin. Higher fixed costs and investments may reduce profitability due to immediate capital outlays. However, over time, depreciation – positively correlated with profitability – indicates that these investments in productive assets pay off eventually, generating additional revenue or efficiency gains that boost profit margins.
8. The negative coefficient for **Switzerland**, significant at the 0.1 % level, suggests that when all other variables are held constant (*ceteris paribus*), the pre-tax profit margin changes by an average of -1.35 % when the company is based in Switzerland compared to Germany. A possible explanation for this result is the strength of the Swiss franc relative to other currencies, which makes Swiss exports more expensive in international markets and

reduces competitiveness, particularly for export-reliant companies. Additionally, the stronger short-term political support measures in Germany and Austria may have contributed to these differences. While these measures provide immediate relief, they could hinder long-term profitability by delaying essential cost structure adjustments and cost-cutting measures.<sup>48</sup> By contrast, there is no statistically significant evidence of a difference between German and Austrian companies.

9. The dummy variables for the years illustrate how pre-tax profit margins have shifted over time relative to the base year 2017, assuming no changes in other independent variables. The increasing coefficients from 2018 to 2023 suggest an improvement in profitability over the years, which, despite the challenging environment, reflects positively on companies in the DACH region. In 2020, the pre-tax profit margin was, on average, 0.676 % higher than the reference year, although this difference was not statistically significant. This modest increase likely reflects the economic challenges posed by the COVID-19 pandemic, which disrupted profitability and heightened uncertainty. In 2021 the pre-tax profit margin increased by 1.078 %, followed by further rises of 1.431% in 2022 and 1.918 % in 2023. This upward trend signals resilience and financial sustainability despite the ongoing challenges of the pandemic and the economic disruptions caused by Russian war against Ukraine and its aftermath.
10. The positive coefficient (4.5E-07) indicates that an increase in market capitalization has a slight but positive effect on the dependent variable, ceteris paribus. While the impact is minimal, it still contributes positively to the overall outcome.

Table 4 presents the Spearman’s rank correlation coefficient, which measures the strength and direction of the monotonic relationship between the independent and dependent variables.

	Dependent Variable	Financial Risk					Cyclical Risk	Operational Risk		
	Pre-Tax Profit Margin	Equity Ratio	“Insolvency Risk”	Interest Expense Ratio	Cash Ratio	Excess Return	Real Revenue Growth	Expense Ratio	Fixed Asset Intensity	Depreciation Ratio
Pre-Tax Profit Margin	1.000									
Equity Ratio	.288**	1.000								
“Insolvency Risk”	-.655**	-.598**	1.000							
Interest Expense Ratio	-.079**	-.429**	.376**	1.000						
Cash Ratio	.184**	.401**	-.192**	-.187**	1.000					
Excess Return	.606**	.177**	-.544**	-.205**	.083**	1.000				
Real Revenue Growth	.240**	0.029	-.155**	-.047*	.068**	.195**	1.000			
Expense Ratio	-.246**	0.012	.200**	0.018	0.015	-.083**	-.067**	1.000		
Fixed Asset Intensity	-0.016	.089**	.195**	.147**	-.064**	.069**	-.077**	.150**	1.000	
Depreciation Ratio	.101**	0.006	.144**	.455**	0.040	-.215**	-.067**	0.031	.364**	1.000

Table 4: Correlation coefficients between the dependent and independent variables  
Significance level: \*\* = < 0.01; \* = < 0.05

<sup>48</sup> Bischof et al. (2022)

As anticipated and consistent with the results from the robust regression, the equity ratio, real revenue growth, excess return, cash ratio, and depreciation ratio exhibit significant positive correlations with the dependent variable, the pre-tax profit margin. This indicates a direct relationship, where increases in any of these independent variables are associated with a corresponding rise in the pre-tax profit margin – conversely, insolvency risk, expense ratio, and interest expense ratio correlate significantly negatively with the pre-tax profit margin.

The pre-tax profit margin correlates positively with the equity ratio (0.288), suggesting that firms with higher equity ratios are more likely to have higher pre-tax profit margins. The analysis reveals a strong negative correlation between the equity ratio and insolvency risk (-0.598), indicating that firms with higher equity ratios are less likely to face insolvency, as expected. In addition, a moderate positive correlation between the equity and cash ratios (0.401) suggests that firms with higher equity ratios tend to hold more liquidity, reflecting their financial stability. Furthermore, the equity ratio negatively correlates with the interest expense ratio (-0.429), implying that companies with higher equity ratios tend to experience lower interest burdens, likely due to reduced reliance on debt financing. Despite the golden banking rule, a slight positive correlation exists between the fixed asset intensity and equity ratio, indicating that companies with more fixed assets do not necessarily rely more heavily on equity financing.

The insolvency risk has a strong negative correlation with the pre-tax profit margin (-0.655), indicating that firms with higher insolvency risk tend to have lower profitability. Similarly, it is strongly negatively correlated with the excess return (-0.544), indicating that firms with a higher risk of insolvency struggle to generate sufficient returns to cover their financing costs. Furthermore, insolvency risk positively correlates with the fixed asset intensity (0.195), implying that firms with higher insolvency risk may have more capital tied up in fixed assets, potentially reducing flexibility during times of financial stress. In addition, the fixed asset intensity correlates positively with the depreciation ratio, as firms with more fixed assets tend to incur higher depreciation costs. Lastly, a strong positive correlation is identified between the insolvency risk and interest expense ratio (0.376), indicating that companies with a higher insolvency risk tend to have higher interest expenses, which could further strain their financial stability.

Overall, our correlation analysis aligns with the findings of the Deutsche Bundesbank study, confirming that a high level of debt is a significant financial risk driver. In contrast, a high equity ratio is a characteristic of crisis-resilient companies. This is evident in the strong negative correlation between the equity ratio and insolvency risk, highlighting that firms with higher equity are less reliant on debt and face lower financial risk. Furthermore, the analysis reveals a strong inverse relationship between the pre-tax profit margin and insolvency risk, emphasizing the crucial role of profitability in maintaining financial stability. Excess return is also positively correlated with profitability and negatively with insolvency, indicating that better performing firms are more profitable and less likely to experience financial distress. Interestingly, fixed asset intensity shows no significant correlation with profitability, suggesting that capital intensity does not directly influence profit margins.

In this section, we focus on the analysis of the pre-tax profit margin as an indicator of the crisis vulnerability and resilience of the analyzed companies. For this reason, we analyzed the distribution of the pre-tax profit margin, especially the tails of our data. This approach allows us to examine the characteristics of companies at the extreme ends of the distribution, specifically those with exceptionally high or low values of the pre-tax profit margin and thus the crisis-resilient or crisis-prone companies. By concentrating on these tails, we aim to gain deeper insights into companies' characteristics, in particular during the different crisis events. Figure 3 illustrates the distribution of the pre-tax profit margin for the companies included in the sample, across the entire study period.



Figure 3 illustrates that most company observations exhibit a positive pre-tax profit margin during our period of analysis, with a mean of 6.6%. Most companies fall within the 0% to 10% range of the pre-tax profit margin, indicative of a typical distribution in a corporate landscape where long-term profitability is essential for large firms. The distribution is right-skewed, with a few companies exhibiting exceptionally high pre-tax profit margin values. Overall, most of the DACH companies included in the sample reported positive returns on sales during the 2017 to 2023 period.

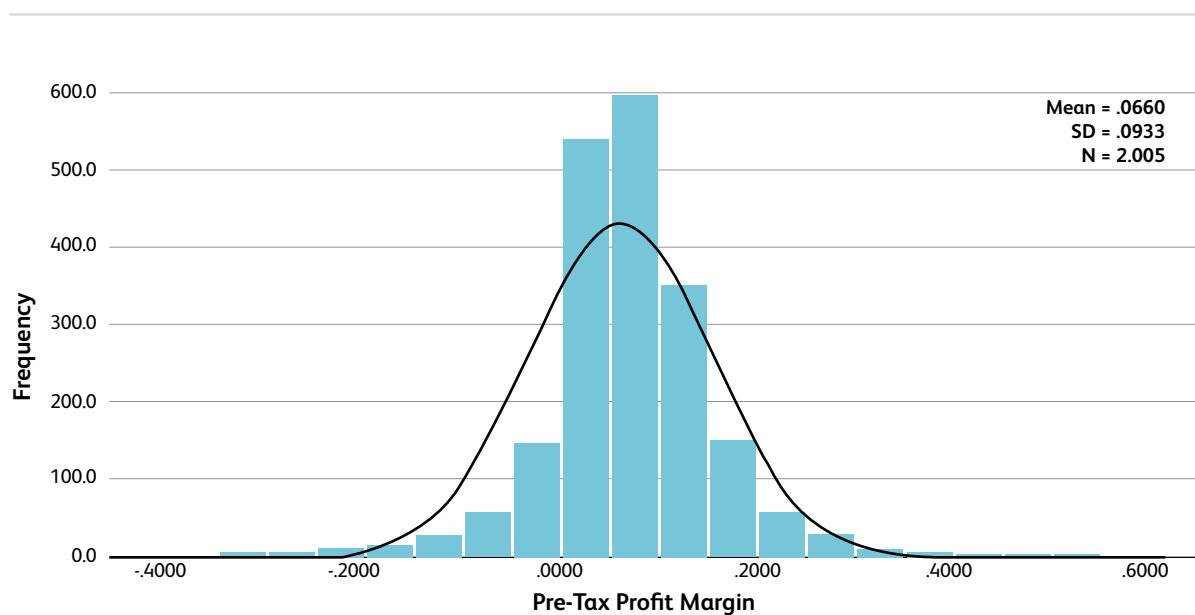


Figure 3: Distribution of pre-tax profit margin for the analyzed companies in the DACH region from 2017-2023

269 (13.41%) of the analyzed observations had years with a negative pre-tax profit margin, with the total sample including 1,067 observations from Germany, 727 from Switzerland, and 211 from Austria. Thereof, 13.69% of the German observations, 12.24% of the Swiss observations, and 14.69% of the Austrian observations reported a negative pre-tax profit margin. In the following, the distribution of the pre-tax profit margin is examined in more detail.

Table 5 presents the pre-tax profit margin of crisis-prone and crisis-resilient companies (VaR values at various confidence levels) at the respective tails of the distribution. For example, the 1% confidence level VaR indicates that only 1% of the observations show a pre-tax profit margin exceeding 28.3%. Conversely, a 95% confidence level suggests that in 95% of the observations, the pre-tax profit margin is above -6.7%, meaning that 95% of the observed companies perform better than this threshold.

Crisis-Resilient Companies		Crisis-Prone Companies	
Confidence Level	Pre-Tax Profit Margin (VaR)	Confidence Level	Pre-Tax Profit Margin (VaR)
1%	28.3%	99%	-22.2%
5%	20.12%	95%	-6.7%
10%	16.17%	90%	-1.8%

Table 5: VaR values of the pre-tax profit margin for crisis-prone and crisis-resilient companies from the DACH region at various significance levels

Table 5 shows that the sample includes company-year observations with markedly positive and significantly negative pre-tax profit margin thresholds. Specifically, 10 % of the observations report a pre-tax profit margin of at least 16.17 %, while another 10 % have a pre-tax profit margin of -1.8 % or lower. The subsequent analysis compares the 99 % confidence level values with the corresponding figures from the Deutsche Bundesbank 2014 analysis (see Table 6).

Key Figures	Analysis ERM Report 2024	Deutsche Bundesbank (2014)
VaR 99 %	-22.2%	-15.8%
Number of Companies in the Tail	21 (1.0%)	2,734 (1.0%)
CVaR 99 %	-37.4%	-18.8%
Number of Companies in the Tail	8 (0.4%)	1,362 (0.5%)
MEL	-8.0%	-4.8%
Number of Companies in the Tail	269 (13.4%)	18,520 (6.8%)

**Table 6:** Comparison of key financial ratios of crisis-prone companies with the Deutsche Bundesbank study (2014)

In comparison to the findings from the Deutsche Bundesbank study, it is evident that the values for companies in the lower tail of the distribution in our analysis are more negative. This discrepancy may be partially attributed to the considerably smaller sample size and composition skewed towards larger, publicly listed companies. Furthermore, while the Deutsche Bundesbank’s analysis was limited to German companies, we extended our analysis to Switzerland and Austria, offering a broader regional scope. In addition, our results likely reflect the more pronounced impact of the COVID-19 pandemic and the war of Russia in Ukraine and the resulting aftermath on corporate profitability, which may have had a more significant effect than earlier financial and economic crises.

The MEL represents a negative pre-tax profit margin and indicates the average loss that surpasses the specific threshold of negative profitability, following a methodology similar to that used in the Deutsche Bundesbank study. The VaR is -22.2 %, and the CVaR is -37.4 %, focusing on more extreme loss scenarios. At the same time, the MEL is directly tied to the loss threshold, thus reflecting a more cautious risk assessment. On average, the MEL classifies 13.4 % of company observations as risky over the entire period, significantly higher than the figure reported in the Deutsche Bundesbank study. For companies with a negative pre-tax profit margin in our analysis, the MEL stands at -8.0 %, compared to -4.8 % in the Deutsche Bundesbank study.

Table 7 shows that the share of crisis-prone companies fluctuated between 0.4 % in 2017 and 1.3 % in 2020 from 2017 to 2023. Without an impact of the different crisis overtime, we would expect an evenly distributed share of 0.7 % of crisis-resilient and crisis-prone firms over the analyzed time period. The significant increase in 2020 may reflect the economic impact of the COVID-19 pandemic, which heightened the risk of weakened profitability for many companies. However, the crisis-resilient sector experienced growth in 2021 and 2022, suggesting that targeted strategies were implemented to enhance resilience during and after the pandemic, showcasing financial sustainability in the DACH Region.

	VaR 95% (Crisis-Prone)	VaR 5% (Crisis-Resilient)	Non-Tail Companies
2017	7 or 0.4%	5 or 0.3%	258 or 12.9%
2018	12 or 0.6%	12 or 0.6%	268 or 13.4%
2019	16 or 0.8%	7 or 0.4%	274 or 13.7%
2020	26 or 1.3%	8 or 0.4%	260 or 13.0%
2021	18 or 0.9%	22 or 1.1%	259 or 12.9%
2022	9 or 0.5%	28 or 1.4%	251 or 12.5%
2023	13 or 0.7%	19 or 1.0%	233 or 11.6%

**Table 7:** Number and proportion of company years in the VaR 95% and 5% over the years of the study period

Interestingly, the annual share of crisis-resilient companies rose to 1.4 % in 2022. This can be explained by the fact that many companies recovered after the coronavirus crisis and implemented targeted measures to strengthen their resilience. These measures could include, among other things, the diversification of supply chains, investments in digitalization and cost efficiency, and improved liquidity planning.

In 2023, a renewed increase in crisis-prone companies can be observed. This development could be due to the ongoing geopolitical tensions and the crises triggered by the war in Ukraine, including the significant increase in general inflation and energy and food prices. In addition, rising interest rates due to inflation have led to tighter financial conditions, which further burden the economic situation of many companies. It will be interesting to see how the crisis-prone companies in the tail area develop in 2024.

Due to the smaller sample size than in the Deutsche Bundesbank study, the temporal development of the number of tail companies was also analyzed for the 90<sup>th</sup> and 10<sup>th</sup> percentiles. Overall, we expected an evenly distributed share of 1.4 % of crisis-prone and crisis-resilient firms over our analysis period. The results paint a similar picture (see Table 8) indicating an increase of the share of crisis-prone companies in 2019 and 2020 as a result of the COVID-19-crisis. This was followed by an increase of the share of resilient firms in 2021 and 2022, and interestingly, a subsequent decrease in 2023.

	VaR 90% (Crisis-Prone)	VaR 10% (Crisis-Resilient)	Non-Tail Companies
2017	15 or 0.8%	15 or 0.8%	240 or 12.0%
2018	23 or 1.2%	32 or 1.6%	237 or 11.8%
2019	37 or 1.9%	19 or 1.0%	241 or 12.0%
2020	50 or 2.5%	21 or 1.0%	223 or 11.1%
2021	25 or 1.3%	40 or 2.0%	234 or 11.7%
2022	22 or 1.1%	43 or 2.1%	223 or 11.1%
2023	30 or 1.5%	31 or 1.6%	204 or 10.2%

Table 8: Number and proportion of company years in the VaR 90% and 10% over the years of the study period

Since the various countries have taken economic policy measures to support their companies during the various crises to varying degrees, we have also examined the influence of the respective country on the assignment to the two tail groups (see Table 9).

Country	VaR 95% (Crisis-Prone)	VaR 5% (Crisis-Resilient)	Non-Tail Companies
Germany	54 or 5.1%	39 or 3.7%	974 or 91.3%
Austria	12 or 5.7%	10 or 4.7%	189 or 90.0%
Switzerland	36 or 5.0%	52 or 7.2%	639 or 87.9%

Table 9: Number or percentage of companies in the 95% or 5% range in the various countries

The descriptive analysis in Table 9 indicates that German companies are overrepresented among non-tail firms, Swiss companies are more prevalent among crisis-resilient firms, and Austrian companies tend to be overrepresented among crisis-prone firms. These variations may reflect underlying structural or economic factors unique to each country that shape corporate resilience in times of crisis. Our results support the findings of other studies indicating that the extensive government support measures during COVID-19 have reduced the pressure on companies to adapt their cost structures to the slump in sales and reduce costs.<sup>49</sup> However, further research is needed to validate these patterns and determine the extent to which structural or economic factors contribute to each country.

In addition to country-specific factors, the sector substantially influences whether a company falls into the tail or non-tail group. For instance, real estate companies are overrepresented in crisis-resilient and crisis-prone groups. The most crisis-prone firms are predominantly concentrated in communication services, industrials, and consumer discretionary.

Unsurprisingly, during the crisis years of 2020 and 2021, companies in the consumer discretionary, industrials, and materials sectors, such as Borussia Dortmund GmbH & Co. KGaA, Klingelberg AG, and Rath AG, were among the most crisis-prone. Since 2022, more real estate companies have joined this group, likely due to rising interest rates and escalating construction and energy costs. Some companies, like Wölford AG, have exhibited persistently negative pre-tax profit margins independent of the pandemic.

Several real estate firms are among the most crisis-resilient companies, though primarily from the years prior to 2022. These companies have come under pressure due to rising interest rates, inflation-driven construction and maintenance cost increases, and the risk of a real estate bubble. In addition, the healthcare sector was strongly represented among the crisis-resilient companies, especially during 2020, 2021, and 2023, with firms such as Novartis AG, Roche Holding AG, and Carl Zeiss Meditec AG.

Table 10 provides a descriptive analysis of the independent variables, offering valuable insights into their distribution and relationships. It highlights significant differences between crisis-resilient and crisis-prone companies. Crisis-resilient firms are characterized by a significantly higher equity ratio, lower probability of insolvency, higher real sales growth, and a stronger cash position, distinguishing them from their crisis-prone counterparts. These differences underline the importance of solid equity positions, revenue growth, cost control, and liquidity for maintaining financial resilience during crises, and ensuring long-term financial sustainability.

	Mean	Lower 5% Tail-Companies (Crisis-Prone)	Upper 5% Tail-Companies (Crisis-Resilient)
<b>Financial Risk</b>	Equity Ratio (ER)	39.90%	53.40%
	Insolvency Risk (InsolR)	10.14	1.3
	Interest Expense Ratio (IntExpR)	1.70%	1.60%
	Cash Ratio (CashR)	67.00%	103.20%
	Excess Return (ExcR)	-15.00%	2.40%
<b>Cyclical Risk</b>	Real Revenue Growth (RRevG)	-1.70%	12.30%
<b>Operational Risk</b>	Expense Ratio (ExpR)	79.80%	51.80%
	Fixed Asset Intensity (FAI)	28.60%	32.30%
	Depreciation Ratio (DeprR)	10.80%	9.70%

**Table 10:** Mean differences of the independent variables of the tail companies

<sup>49</sup> Bischof et al. (2022), p. 54

To analyze the impact of the different crises on the development of the dependent and independent variables, the means and standard deviations of all variables were calculated for each year of the study period and summarized in Table 11.

Year	n	Dependent Variable	Financial Risk					Cyclical Risk	Operational Risk			
			PTPM	ER	InsolR	IntExpR	CashR		ExcR	RRevG	ExpR	FAI
2017	270	Mean	0.069	0.463	0.011	0.008	0.597	-0.010	0.058	0.609	0.262	0.055
		SD	0.079	0.159	0.032	0.013	0.555	0.050	0.104	0.354	0.167	0.045
2018	292	Mean	0.072	0.461	0.012	0.008	0.587	-0.030	0.054	0.590	0.256	0.056
		SD	0.084	0.167	0.032	0.016	0.522	0.053	0.120	0.351	0.162	0.046
2019	297	Mean	0.056	0.441	0.016	0.008	0.560	-0.024	0.029	0.596	0.275	0.067
		SD	0.080	0.170	0.038	0.009	0.542	0.055	0.128	0.357	0.151	0.051
2020	294	Mean	0.045	0.430	0.027	0.009	0.646	-0.038	-0.046	0.607	0.270	0.071
		SD	0.092	0.178	0.056	0.012	0.567	0.059	0.142	0.362	0.145	0.050
2021	299	Mean	0.073	0.437	0.018	0.008	0.615	-0.027	0.124	0.594	0.263	0.067
		SD	0.119	0.177	0.047	0.014	0.516	0.063	0.163	0.374	0.156	0.054
2022	288	Mean	0.079	0.447	0.014	0.008	0.545	-0.029	0.111	0.572	0.262	0.064
		SD	0.092	0.170	0.037	0.015	0.516	0.059	0.160	0.370	0.160	0.053
2023	265	Mean	0.068	0.442	0.016	0.011	0.498	-0.032	-0.013	0.572	0.274	0.063
		SD	0.095	0.168	0.044	0.015	0.419	0.057	0.132	0.352	0.164	0.049
Total		Mean	0.066	0.446	0.016	0.008	0.578	-0.027	0.045	0.591	0.266	0.063
		SD	0.013	0.006	0.008	0.002	0.045	0.004	0.020	0.008	0.007	0.003

Table 11: Development of the mean values of the dependent and independent variables over time

For the **pre-tax profit margin** variable, there is an evident decline in the mean in the crisis year 2020, which indicates the immediate impact of the COVID-19 crisis. Interestingly, this depreciation is largely compensated in the following years, 2021 and 2022, indicating a good recovery of companies during this period. Nevertheless, it is particularly noteworthy that the mean value fell substantially again in 2023. This could indicate new challenges or a delayed reaction to structural problems intensified by ongoing geopolitical and economic factors.

The **insolvency risk** saw a slight increase during the pandemic in 2020 but remained relatively low across all years, with values fluctuating around 0.016. Due to the pandemic, real revenue growth experienced a significant decline in 2020 (-0.046), recovering to positive levels in 2021 and 2022, though showing a minor negative trend again in 2023 (-0.013).

One notable observation is the significant increase in the standard deviation across most variables in 2020. This rise reflects more significant variability in company data, signaling heightened uncertainty within the corporate landscape during this period, likely driven by the impacts of the **COVID-19 pandemic**.

## 5. Detailed Analysis Switzerland

In Switzerland, numerous sectors were impacted by the COVID-19 pandemic, the war in Ukraine, and their various consequences. A study by the Bern University of Applied Sciences<sup>50</sup> found that during the COVID-19 crisis, many companies were confronted with considerable challenges in their supply chains due to their dependencies, which led to shortages of raw materials and supplies. At the same time, limited cross-border traffic and a shortage of employees in production led to further problems. These bottlenecks were created due to employees belonging to risk groups, as well as compliance with hygiene regulations, which hindered the smooth running of operations. This exacerbated existing problems, along with the drop in demand for products and services in various sectors.<sup>51</sup> The sectors most affected by the COVID-19 pandemic included industry, healthcare, and information technology. Implenia AG suffered a drop in sales in the industrial sector due to absent employees in isolation, increased procurement costs due to interrupted supply chains, construction site closures, and other extraordinary expenses related to the compliance with hygiene guidelines. Furthermore, the company reported an equity ratio of just 10.3 % in 2020 (2019: 19.2 %).<sup>52</sup> Similarly, Klingelberg AG<sup>53</sup> recorded decreasing sales and profit due to the discontinuation of investment projects and a decline in orders.

	2017	2018	2019	2020	2021	2022	2023
Inflation Austria	2.20%	2.10%	1.50%	1.40%	2.80%	8.60%	7.70%
Inflation Germany	1.50%	1.80%	1.40%	0.50%	3.10%	6.90%	5.90%
Inflation Switzerland	0.60%	0.90%	0.40%	-0.80%	0.50%	2.70%	2.30%

**Table 12:** Harmonized Index of Consumer Prices (HICP) from Austria<sup>54</sup>, Germany<sup>55</sup> and Switzerland<sup>56</sup>

Following the pandemic, in 2022, inflation in Switzerland peaked at 2.7 % (Table 13). While this is the highest rate for Switzerland since 1993, the rates in Germany and Austria were substantially higher at 6.9 % and 8.6 %, respectively. The comparatively low inflation rate in Switzerland has several reasons. One of the reasons for Switzerland's stable prices is the appreciation of the Swiss franc, which reduces the cost of imported goods. However, this accounts for only a small percentage of the inflation difference. More significantly, Switzerland benefits from high import tariffs on food and agricultural products, which insulate domestic prices from global market fluctuations during crises. In addition, regulated prices for electricity and gas further contribute to maintaining price stability. Unlike Germany and Austria, which follow the European Central Bank's policy, Switzerland's central bank, the SNB, operates independently. This allows Switzerland to tailor its monetary policy to its economic needs, leading to different interest rate strategies.<sup>57</sup> As a small, open economy, international developments strongly influence Switzerland. Flexible monetary policy measures by Switzerland's central bank, such as negative interest rates and interventions in the foreign exchange market to prevent an excessive appreciation of the Swiss franc, were crucial to partially cushion the effects from abroad.<sup>58</sup> These structural differences and specific price regulations have kept inflation in Switzerland relatively low compared to other countries.

<sup>50</sup> Gurtner & Hietschold (2020)

<sup>51</sup> Regiosuisse (2021)

<sup>52</sup> Implenia (2021)

<sup>53</sup> Moneycab (2020)

<sup>54</sup> Statistik Austria (2024)

<sup>55</sup> Statistisches Bundesamt (2024)

<sup>56</sup> Bundesamt für Statistik (Schweiz) (2024)

<sup>57</sup> FuW (2022)

<sup>58</sup> Domjahn (2023)

The Swiss construction sector performed remarkably well since the beginning of the COVID-19 crisis, especially compared to other industries. After initial construction site closures, the situation quickly stabilized, and demand for housing, especially owner-occupied property, increased, leading to a rise in real estate prices. Despite global supply bottlenecks and material shortages, the order books of construction companies remained healthy. However, the growing shortage of labor is now hindering growth. The global price increases for preliminary products, raw materials, and building materials such as steel, plastics, and wood that accompanied the crisis, led to a significant increase in the cost of construction services in the Swiss construction sector from mid-2021 onwards.

While raw and building materials prices have gradually stabilized since mid-2022, construction prices remain high due to increased demand and labor shortages. The high level of capacity utilization is widening the scope for further price increases. The construction boom that began in 2008, fueled by the low-interest rate environment, peaked between 2018 and 2019. Since then, construction investments have been declining, which can be seen as a normalization at a high level. The KOF Swiss Economic Institute at ETH Zurich does not expect the COVID-19 crisis to have exacerbated this slowdown and does not foresee a recession in the construction industry. Supporting factors such as high population growth, the prevailing housing shortage, good labor market conditions, and a resilient Swiss economy counteract recessionary developments.<sup>59</sup>

A study by Swiss Economics<sup>60</sup> concludes that the Swiss industry is better positioned to cope with the energy crisis than its counterparts in other European countries. This is due to its lower energy intensity, smaller share of total energy costs, and favorable sector mix. However, indirect vulnerabilities exist due to the dependence on imports in the supply chain and energy supply. The energy crisis and the rise in gas and electricity prices have raised concerns about the competitiveness of the European industry sector. Production costs in Europe have risen sharply due to rising gas prices, especially compared to other production locations such as the US. This development could have long-term consequences, such as the relocation of production and increased efforts to improve energy efficiency.

In general, however, the Swiss industry sector is less energy-intensive than the European industry due to increases in energy efficiency and changes in the composition of the sector. In addition, the energy intensity of the manufacturing sector in Switzerland and Europe has decreased significantly over the last 20 years. This reduction can be attributed, on the one hand, to energy efficiency improvements in the individual sectors, but also, on the other hand, to a change in the sector composition within the industry. It is important to note that indirect energy costs passed along through supply chains are higher than direct costs, making this dependency a key factor in small, open economies like Switzerland. Consequently, this indirect dependency on imports should not be neglected in the case of small, open economies such as Switzerland. Notably, Germany has lower indirect costs (4.1 %) than Switzerland (4.8 %) and is therefore less exposed to such effects.<sup>61</sup>

In addition, the availability of energy and the security of supply are of great importance. Due to limited raw material resources, Switzerland is more dependent on energy imports, especially fossil fuels, than the EU average. Nevertheless, indirect vulnerabilities exist as a result of Switzerland's dependence on imports, particularly concerning energy supplies.<sup>62</sup>

<sup>59</sup> Siegrist (2023)

<sup>60</sup> Swiss Economics (2023)

<sup>61</sup> Swiss Economics (2023)

<sup>62</sup> Swiss Economics (2023)

The effects of the geopolitical and economic factors mentioned above are further substantiated through a detailed analysis of Swiss companies within our data set. Among the tail companies, 95 companies in the observation years from 2017–2023 were classified as crisis-resilient and 66 as crisis-prone, based on their placement within the distribution’s lower 10 % tail and upper 10 % tail. A comprehensive examination of these results is presented in the following sections (see Table 13).

	Dependent Variable	Financial Risk					Cyclical Risk	Operational Risk		
	PTPM	ER	InsolR	IntExpR	CashR	ExcR	RRevG	ExpR	FAI	DeprR
<b>Crisis-prone companies (lower 10% tail)</b>										
Mean	-11.0%	45.9%	7.6%	1.3%	67.9%	-12.1%	-2.4%	84.7%	24.8%	8.3%
Median	-8.0%	48.7%	3.2%	0.8%	53.2%	-10.1%	-2.0%	102.6%	23.1%	6.7%
Minimum	-108.7%	9.6%	0.0%	-0.4%	5.6%	-35.6%	-36.0%	14.2%	1.2%	1.6%
Maximum	-1.8%	75.5%	26.5%	11.1%	322.5%	-2.6%	52.4%	161.6%	63.7%	30.9%
<b>Crisis-resilient companies (upper 10% tail)</b>										
Mean	22.2%	55.2%	0.7%	1.2%	83.5%	2.7%	8.6%	52.2%	31.8%	10.5%
Median	21.1%	54.1%	0.0%	0.5%	67.8%	2.3%	7.2%	51.3%	27.3%	7.1%
Minimum	16.2%	19.4%	0.0%	-0.3%	4.3%	-11.6%	-25.0%	6.0%	2.5%	2.3%
Maximum	62.2%	85.0%	26.5%	17.0%	313.6%	11.2%	60.1%	90.0%	90.2%	34.5%

Table 13: Descriptive statistics of the lower 10 % and upper 10 % tail companies in Switzerland

While the median and mean values are relatively close for most variables, indicating a balanced distribution, certain variables exhibit more pronounced differences, suggesting potential skewness or the presence of outliers. The reporting of both the median and mean values provides a clearer understanding of the distribution to avoid misinterpretation, and it is more robust to skewness and outliers.

It is noteworthy that both the lower 10 % tail and upper 10 % tail companies have relatively high equity ratios, even though the crisis-resilient companies still have on average better equity. Both extreme tail observations’ low percentage of insolvency risk suggests strong financial resilience too. An average low expense ratio of around 50 % indicates profitable business operations with effective and efficient cost management and higher profitability. In contrast, crisis-prone companies exhibit a median expense ratio that is approximately 32 % higher, explaining their significantly lower profit margins.

A closer analysis of the tail-end companies reveals that 18 crisis-prone firms originate from the industrial sector. However, most of these companies were classified as crisis-prone only during the first year of the COVID-19 crisis. With solid equity capitalization, they were able to exit the group of the lower 10 % tail companies. In addition, logistics companies and various mountain railways are assigned to the group of crisis-prone companies. Though fundamentally profitable, these companies were hit particularly hard by the COVID-19 pandemic. Similarly, the healthcare sector, technology, consumer staples, and materials, are also overrepresented in this group. Companies in the technology sector include, for example, Kudelski SA, which specializes in digital security systems; Crealogix AG, a software developer for financial applications; and several semiconductor manufacturers.



The **consumer goods sector** was also particularly affected, with companies struggling to reach customers as distribution channels such as retail stores were forced to close. These challenges affected companies directly impacted by the closures and extended to companies indirectly influenced by these measures. One example is Highlight Event and Entertainment AG, whose revenues fell significantly due to the ban of events at the time. Bergbahnen Engelberg-Trübsee-Titlis AG<sup>63</sup> and Jungfraubahn Holding AG were also among the crisis-prone companies during the COVID-19 pandemic. Still, thanks to a robust business strategy, they quickly emerged from the crisis. In addition, Swiss Aryzta AG recorded a significant decline in sales during the COVID-19 crisis due to the forced closures of restaurants, hotels, and shops. This led to a substantial decrease in demand for its baked goods. Alcon AG, Medartis Holding AG, DocMorris AG, Kinarus Therapeutics AG, MCH Group AG, and Swiss Steel Holding AG were also among the more crisis-prone tail companies. Medartis Holding AG, for example, recorded a significant decline in demand for its implants for osteosynthesis in oral and maxillofacial surgery, as many non-urgent operations were postponed due to the pandemic.

Interestingly, companies in the **real estate sector** are overrepresented among the crisis-resilient companies. In contrast to Germany, most of these companies remained among the 10 % tail companies in 2022 and 2023. This can be explained by the fact that the Swiss franc is considered a 'safe haven' currency in times of crisis, and international investors often view Swiss real estate as a low-risk capital investment. In addition, Swiss companies in the healthcare sector are among the most crisis-resilient companies. These are mainly large international pharmaceutical companies such as Novartis Pharma AG, Roche Holding AG, or Skan AG. Roche, for example, one of the leading companies in the diagnostics and pharmaceutical industry, saw increased demand for COVID-19 tests and drugs.

The COVID-19 pandemic and the energy crisis also benefited other companies and industries. Firms with a robust, locally based supplier network and reduced dependency on global supply chains through internal production and warehousing were better equipped to navigate the disruptions caused by the crisis.<sup>64</sup> Geberit AG<sup>65</sup>, for example, thrived due to its strong local focus, making it less vulnerable to global events and supply chain interruptions. This provided the company with remarkable crisis resilience in uncertain times. Another company that was able to benefit from the crisis is Logitech International SA.<sup>66</sup> Due to the lockdown and the increased use of home office equipment, Logitech's sales increased significantly – from less than 3 billion to over 5 billion Swiss francs. Even in the second year of the pandemic, the company maintained and slightly increased its level of sales. Companies such as Edisun Power AG and Aventron AG, which operate in the energy sector, also benefited greatly from the energy crisis triggered by the coronavirus pandemic and the war in Ukraine. Furthermore, Switzerland plays a central role in the global commodity trade, which allowed commodity trading companies to benefit significantly. The increasing demand for strategic metals increased prices and boosted trade.<sup>67</sup> This illustrates that some companies, although initially affected by global events, were ultimately able to **benefit from the changes in demand and new trends**.

<sup>63</sup> HTR (2022)

<sup>64</sup> Gurtner & Hietschold (2020)

<sup>65</sup> Imwinkelried (2020)

<sup>66</sup> Triebe (2022)

<sup>67</sup> The Federal Council SECO (2021)

## 6. Detailed Analysis Germany

The COVID-19 pandemic caused a sharp decline in economic activity in Germany, with the automotive and mechanical engineering industries affected particularly strongly. Partial production stoppages, disrupted supply chains, and a significant drop in demand were characteristic of the situation. The German government responded with an unprecedented stimulus package, which included compensation for short-time work, financial support for businesses, and measures to stabilize the healthcare system. Just as the economy started to recover by 2021, inflation surged due to rising energy prices and pandemic-related supply chain bottlenecks, which led to weak growth momentum. As inflation surged to 6.9% (see Table 13) in Germany in 2022 and reached record levels across other European countries, the European Central Bank (ECB) shifted its focus towards controlling inflation, raising interest rates, and ending pandemic-related support programs. Maintaining price stability remains the priority, with further monetary tightening expected to combat inflation, while fiscal policy should support those most affected by high energy prices.<sup>68</sup>

Germany's economy, particularly its small and medium-sized enterprises (SMEs), faced severe challenges due to the COVID-19 pandemic. The government's strong fiscal response, including liquidity support and temporary suspension of insolvency filings, helped prevent a surge in bankruptcies. However, this led to an "insolvency gap" wherein many financially weak firms that might have otherwise failed were kept afloat. This backlog of insolvencies, especially among SMEs, could have long-term consequences on entrepreneurship and economic recovery by impeding the reallocation of resources to more productive firms.<sup>69</sup>

The war of Russia against Ukraine in 2022 significantly heightened economic uncertainties. Sanctions against Russia caused substantial increases in gas and oil prices, leading to an energy crisis in Germany, which was highly dependent on Russian gas supplies. This reliance severely slowed the growth momentum of the German economy. Energy-intensive industries, such as chemicals and metals, were hit particularly hard by the rising energy costs resulting from the conflict.

The results of the aforementioned studies are further underlined by the detailed analysis of German companies based on our data set. Of the tail company observations, 113 were classified as crisis-prone and 90 as crisis-resilient. The key figures for these tail companies can be found in Table 14 below.

	Dependent Variable	Financial Risk					Cyclical Risk	Operational Risk		
	PTPM	ER	InsolR	IntExpR	CashR	ExcR	RRevG	ExpR	FAI	DeprR
<b>Crisis-prone companies (lower 10% tail)</b>										
Mean	-10.4%	37.6%	8.4%	1.8%	64.8%	-13.0%	2.5%	64.8%	27.1%	9.9%
Median	-6.2%	35.5%	5.6%	0.9%	43.6%	-12.5%	-1.3%	54.4%	22.5%	7.5%
Minimum	-71.6%	3.6%	0.03%	-0.4%	2.7%	-34.2%	-33.9%	5.4%	1.1%	0.3%
Maximum	-1.9%	84.0%	26.5%	11.8%	312.4%	6.1%	62.7%	169.9%	69.5%	33.5%
<b>Crisis-resilient companies (upper 10% tail)</b>										
Mean	21.9%	49.8%	1.2%	1.2%	103.1%	1.4%	12.9%	47.9%	23.0%	7.1%
Median	19.5%	51.0%	0.0%	0.6%	97.9%	0.7%	11.9%	39.1%	21.1%	6.6%
Minimum	16.3%	7.5%	0.0%	-0.3%	9.8%	-7.3%	-31.0%	7.7%	0.9%	1.4%
Maximum	54.6%	79.9%	26.5%	10.7%	264.6%	10.9%	56.2%	179.8%	70.4%	18.4%

Table 14: Descriptive statistics of the lower 10% and upper 10% tail companies in Germany

<sup>68</sup> Nagel (2022)

<sup>69</sup> Dörr, Licht & Murmann (2021)

Overall, we find only a slight deviation between the mean and median for most variables, indicating that outliers are of minimal importance. In particular, the differences between the median and mean values are negligible for crisis-resilient companies. These results highlight the **critical importance of adequate equity capitalization** in strengthening corporate resilience during crises, while significantly lowering these firms' insolvency risk. On average, the equity ratio of crisis-resilient companies is 12.2 % higher than that of crisis-prone companies, further underscoring the vital role of equity capitalization in fostering greater crisis resilience. In addition, crisis-resilient companies exhibit a 17 % lower expense ratio and a 4 % lower fixed asset intensity than crisis-prone companies, thereby reinforcing their financial stability and lower risk of insolvency.

The crisis-prone and crisis-resilient companies were subsequently analyzed in detail. In Germany, as in Switzerland and Austria, companies in the lower 10 % tail are predominantly active in the industrial sector, comprising 22 firms, followed by those in the materials, consumer discretionary, and real estate sectors. A closer analysis highlights a significant trend: companies in the materials and industrial sectors classified as crisis-prone for several years, such as Deutsche Lufthansa AG and Thyssenkrupp AG, often exhibit relatively low equity ratios. This underscores the **crucial role of solid equity positions** in navigating crises effectively.

Most crisis-prone companies are concentrated in the years 2019 and 2020. This demonstrates significant resilience, as most of these companies recovered and moved out of the crisis-prone category in subsequent years. In addition, nine companies were only classified in the lower 10 % tail for a single year in the observation period – often the first or second year of the coronavirus crisis. These companies had higher equity ratios than the multi-year tail companies and could avoid a lasting internal crisis.

In the consumer discretionary sector more companies operate with internet-based business models. Some such companies active in the consumer discretionary sector included in the sample exhibited weak earnings throughout almost all years of the observation period, e.g., About You-Holding SE, Grammer AG, Auto1 Group SE, etc. This tends to indicate that such business models may prove economically challenging to sustain over the long term.

Interestingly, several real estate companies classified as crisis-resilient tail companies up until 2020 and 2021 were reclassified as crisis-prone in 2022 and 2023. Across the real estate sector, there has been a notable increase in the number of crisis-prone companies in the tail since 2022. Prominent examples include TAG Immobilien AG, Branicks Group AG, and Vonovia SE, which all **shifted from being crisis-resilient to crisis-prone** during this period. Possible causes here are a sharp increase in the cost of maintaining and renovating real estate due to inflation, the rise in interest rates, particularly for companies heavily financed by debt, and a tendency towards the overvaluation of real estate. The Deutsche Bundesbank, for example, has raised concerns about a real estate price bubble in the form of a 20 to 30 % overvaluation of real estate in Germany,<sup>70</sup> which could potentially lead to additional depreciation requirements for companies in the future.

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<sup>70</sup> Handelsblatt (2022)

## 7. Detailed Analysis Austria

In 2022, the Austrian economy continued to be shaped by the recovery from the COVID-19 pandemic and the energy crisis resulting from the war of Russia against Ukraine. However, the economic recovery was faster than expected, especially in 2021, even though it was slowed down by the high inflation of 8.6% in 2022 and 7.7% in 2023 (see Table 13). Tourism experienced a particularly robust recovery, fueled by the resilience of the sector and a notable rise in overnight stays by foreign visitors. This was especially evident in the federal states of Salzburg and Tyrol, which boasted significant growth in both gross value added and employment.<sup>71</sup> Austria's labor market continues to demonstrate remarkable resilience despite broader economic challenges, with the unemployment rate rising much less than in previous periods of economic downturn.<sup>72</sup>

The manufacturing of tangible assets also experienced a nominal increase, which was weakened in real terms by the sharp rise in energy prices. The construction industry suffered from high construction prices, which led to a decline in real construction investments, while some regions even saw a nominal decrease in new orders. Despite substantial aid packages provided by the Austrian government to support individuals and businesses affected by the COVID-19 pandemic and its aftermath, Austria entered a technical recession in 2023.<sup>73</sup> A convincing advantage of Austria as a business location is the diverse and dynamic landscape of small and medium-sized enterprises (SMEs), which form the backbone of the Austrian economy and contribute significantly to the country's innovative strength and competitiveness.<sup>74</sup>

The effects of the geopolitical and economic factors mentioned above are further substantiated through a detailed analysis of Austrian companies within our data set. Among the companies analyzed, 23 crisis-prone and 16 crisis-resilient firms fall within the lower and upper 10% of the distribution tail. The exact figures for these tail companies are presented in Table 15. Given the relatively small number of publicly listed companies in Austria, the findings of the descriptive analysis should be interpreted with caution, as potential biases and inaccuracies may arise due to

Dependent Variable	Financial Risk						Cyclical Risk	Operational Risk		
	PTPM	ER	InsolR	IntExpR	CashR	ExcR		RRevG	ExpR	FAI
<b>Crisis-prone companies (lower 10% tail)</b>										
Mean	-9.0%	29.6%	9.0%	1.7%	40.9%	-10.1%	-6.0%	86.2%	29.1%	7.9%
Median	-6.8%	32.4%	8.1%	1.3%	25.5%	-10.2%	-5.8%	103.0%	32.8%	5.8%
Minimum	-32.0%	9.3%	0.2%	0.1%	4.5%	-22.2%	-36.0%	6.3%	3.2%	2.0%
Maximum	-1.8%	44.5%	26.3%	5.2%	139.6%	4.4%	38.4%	125.3%	57.5%	31.0%
<b>Crisis-resilient companies (upper 10% tail)</b>										
Mean	22.7%	53.8%	0.2%	1.4%	40.0%	-0.7%	19.0%	73.1%	51.9%	11.6%
Median	22.2%	56.1%	0.1%	1.5%	29.2%	-0.9%	4.9%	77.5%	60.3%	12.2%
Minimum	16.6%	35.7%	0.0%	-0.4%	3.8%	-5.5%	-14.9%	13.6%	0.9%	0.9%
Maximum	34.0%	70.9%	1.0%	3.9%	167.1%	4.7%	66.6%	94.9%	78.5%	19.6%

Table 15: Descriptive statistics of the lower 10% and upper 10% tail companies in Austria

<sup>71</sup> Pribibauer (2023)

<sup>72</sup> European Commission (2024)

<sup>73</sup> Pribibauer (2023)

<sup>74</sup> Département fédéral des affaires étrangères (DFAE) (2021)

sample size limitations. However, it is worth noting that, except for the expense ratio, cash ratio, and actual revenue growth, the mean and median values across the variables show close alignment, suggesting a reasonable degree of reliability with a small effect of outliers in the descriptive statistics.

The **pre-tax profit margin**, consistently around 22 % in the crisis-resilient group across all three countries, demonstrates stable and efficient profitability. This uniformity across different national contexts suggests that these companies may share common characteristics or strategies that enable them to sustain high profitability despite varying economic conditions. Notably, the equity ratio of resilient companies is relatively high, while their probability of insolvency remains very low, thereby contributing to solid financial stability.

Despite higher fixed asset intensity and expense ratios, Austria's ability to maintain similar levels of pre-tax profit margin as its neighboring countries can be attributed to several factors. First, Austrian firms likely use their fixed assets and expenses efficiently, improving productivity and ensuring a good return on investment. This helps offset higher operational costs and maintain a competitive pre-tax profit margin. Second, government support through subsidies and tax incentives plays a crucial role in helping businesses manage their higher expenses, enabling them to sustain profitability. Austria's strong focus on industrial sectors, such as manufacturing and technology, supports **robust revenue generation**, allowing firms to balance higher costs and maintain solid profit margins.

In conducting a detailed analysis, it is important to note that 10 of the 23 crisis-prone companies originate from the **industrial sector**. Like their Swiss and German counterparts, Austrian industrial firms were able to exit the top 10 % of crisis-prone companies after the first year of the pandemic year 2021, with examples including FACC AG and Semperit. Following the industrial sector, the consumer and technology sectors also have the high representations among the top 10 % of crisis-prone companies. Do&Co AG, for example, faced substantial losses due to COVID-19-related restrictions in its core business areas – Airline Catering, International Event Catering, and Restaurants, Lounges & Hotels. Nevertheless, starting in 2022, the company successfully regained market strength, mainly driven by increased demand in the airline sector.

Notably, the 10 % most crisis-resilient companies predominantly include Flughafen Wien AG, Verbund AG, and EVN AG from the energy sector and a significant presence of real estate firms. This concentration suggests that companies employing traditional business strategies exhibit strong stability during crises. Their consistent demand, even during economic downturns and recovery periods, enables these firms to **maintain steady operations in challenging environments**, thereby underscoring their resilience.

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<sup>70</sup> Handelsblatt (2022)

## 8. Reasons for Companies' Resilience

The present chapter is dedicated to interviews conducted with representatives of relatively financially resilient companies and industry experts. The interviews aim to identify potential reasons for the companies' relative financial resilience, which is crucial for a company's long-term survival. With preceding operational and strategic aspects often contributing to financial resilience, the interviews approach the topic with a broader view of resilience and financial sustainability rather than focusing solely on the financial aspects.

In the first sub-chapter, the methodology is described, thereby outlining the approach to conducting the semi-structured interviews and the corresponding computer-aided analysis of the interview transcripts. A second sub-chapter describes the study results of the interviews conducted with the representatives of relatively resilient Swiss companies. The analysis results of the interviews led with industry experts from German companies are documented in a third sub-chapter. The final sub-chapter is dedicated to the key conclusions drawn from the present analysis.

### 8.1 Methodology

In the first step, an interview guide for the semi-structured interviews was prepared based on the WHU Corporate Resilience Framework<sup>75</sup> which defines four levers of organizational resilience: strategic risk management, adaptive management, availability of financial, operational, human, conceptual, or social resources, and robust and flexible operations (see chapter 2.3). Besides the questions based on the WHU Corporate Resilience Framework, the interview guide includes questions about the definition and possible explanations for resilience. The next step was to identify Swiss, German, and Austrian companies that were considered relatively resilient compared to the rest of the sample. The criteria defining a relatively financially resilient company within the sample are:

- Being among the top 20 companies within the country sample in one of the three dependent variables (pre-tax profit margin, return on equity (after-tax), and operating cash flow margin) for at least three years from 2017 to 2023 and;
- Being among the top 20 companies within the country sample in one of the three dependent variables (pre-tax profit margin, return on equity (after-tax), and operating cash flow margin) for at least one year from 2017 to 2019 and;
- Being among the top 20 companies within the country sample in one of the three dependent variables (pre-tax profit margin, return on equity (after-tax), and operating cash flow margin) for at least one year from 2020 to 2023.

Once the relatively financially resilient companies had been identified, a total of 34 respective representatives were contacted in Switzerland (13), Germany (8), and Austria (13). Unfortunately, none of the representatives of the German and Austrian companies were prepared to participate in an interview. However, among the representatives of Swiss companies, a response rate of 38 % was achieved, with five company representatives agreeing to participate in an interview. In addition, experts from five German companies consented to an interview, giving their view on resilience based on their expertise acquired in various risk management positions.

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<sup>75</sup> Schäffer (2020)

The interviews with the **ten interview partners** in Switzerland and Germany were conducted between June and August 2024 and were recorded and transcribed with the help of a transcription tool. The interview transcripts were then cleaned based on the audio recordings and standardized using the transcription system presented by Rädiker & Kuckartz<sup>76</sup>, preparing them for computer-aided analysis in MAXQDA. Once the transcripts had been prepared and imported into MAXQDA, an initial comprehensive review was conducted, identifying relevant sections, paragraphs, and statements, as well as similarities and differences between the statements made in the interviews. Next, categories were defined based on the interview guide and the relevant text passages assigned.

In a further round of review, basic codes were defined, primarily of a thematic and analytical nature. Related text passages were assigned to the basic codes. Further processing techniques were applied (e.g., word clouds, word searches) to the interview transcripts, though these delivered no meaningful output. Following the definition of a basic coding system, subcategories were created during the fine coding stage, and the appropriate text segments were allocated. Finally, a topic-oriented analysis of the coded text passages was conducted, and relevant conclusions were documented. It should be noted that the small sample size does not allow for any form of generalization of the results. Instead, the conclusions drawn from the analysis of the interviews provide food for thought for companies seeking to improve their resilience.

## 8.2 Results of the Interviews

During the course of the empirical analysis of the publicly available financial statement data of Swiss, German and Austrian companies, a number of companies were identified as relatively financially resilient compared to the rest of the sample. Representatives of these companies were contacted with the aim of conducting interviews in order to identify potential factors explaining their higher resilience compared to the other companies in the sample. Representatives from five Swiss companies identified as relatively resilient agreed to take part in an interview. The interviews were conducted between June and August 2024 and were based on the pre-defined interview guide. The aim of the interviews was to identify aspects which the companies have in common which may explain their higher resilience, as well as document any interesting and meaningful insights into their approach to resilience. In the following, the conclusions drawn from the exploration of the interview transcripts are presented based on the pre-defined interview guide. It should be noted that the small sample size does not allow for any form of generalization of the results. Rather, the conclusions drawn from the analysis of the interviews provide food for thought for companies seeking to improve their resilience.

### Definition of resilience

Concerning the companies' perception of resilience, there is clearly an awareness among the interviewed company representatives and their respective companies. Though "resilience" is rarely defined at the company level, one of the interviewees highlights the importance of clarity when it comes to the term, explaining that a company must be clear on what resilience means to them. Upon being asked to define resilience, the interviewees mentioned several aspects, such as:

- The ability to react to unforeseen situations;
- the ability to bounce back from external shocks;
- having a culture and/or financial reserves in place allowing a company to react;
- the ability to handle challenging situations without facing a threat to survival.

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<sup>76</sup> Rädiker & Kuckartz (2020)

### **Strategic risk management**

Strategic risk management is the first lever defined by the WHU Corporate Resilience Framework and refers to the management of external and uncontrollable risks.<sup>77</sup> Within this context, the interviewees were asked to elaborate on the positioning of resilience management within their company, the processes defining the identification, assessment, evaluation, and management of external risks, and the participants in the corresponding processes.

The company representatives interviewed in the present report primarily view resilience as a broad, strategic management objective rather than something systematically handled by a dedicated “resilience management” team within the organization. In most cases, resilience management is either embedded in risk management, defined as a risk management goal, or viewed as congruent to risk management. In any case, there appears to be a consistent link between resilience and risk management among the interviewed company representatives. A further similarity identified among the statements made by the interviewees is their perception of the importance of industry or business model characteristics in their approach to resilience and risk management. When it comes to risk management approaches among companies, for instance, the significance of industry specificities becomes apparent. Not only do the main external risks faced by a company depend heavily on the industry and their specific business model, but the risk management processes differ, too. While some of the company representatives stated having structured processes in place in order to manage their external risks, others noted that the circumstances surrounding their industry make the management of external risks challenging. These companies, for example, focus their efforts on strategic stability and operational flexibility to control their external risks. One interviewee assumes a more decentralized approach to risk management and stresses the importance of remaining in communication with the respective experts and company departments regarding risk management on the corporate level.

Among the interviewed companies, different quantitative and qualitative methods are applied to identify, assess, evaluate, and manage external risks. The techniques mentioned by the interviewees include workshops, interviews, and discussions with management and/or board members, competition and peer analyses, expert-judgement-based models, scenario analyses, regressions, and holistic stress tests. When it comes to the involvement of management members in identifying, assessing, evaluating, and managing risks, most interviewees state that management members are involved on the final reporting level and when deciding on measures.

### **Adaptive management**

The WHU Corporate Resilience Framework defines adaptive management as a requirement for management teams to react quickly to external shocks.<sup>78</sup> To assess this lever among the interviewed companies, interviewees were asked about the flexibility and speed of management decisions in their company, the extent to which agility is embedded in their culture, and the role risk management takes on in decision-making processes.

When asked about the adaptiveness, flexibility, and agility of the respective company’s management, yet again the influence of industry or business model characteristics was mentioned among the interviewees. For example, some interview partners stated that due to the slow-paced nature of their business model or industry, speed is not necessarily considered an essential factor when making management decisions. Instead, these companies emphasize a long-term view in their decision-making approach. At the same time, however, most interviewees explain how agility is engrained in their company culture, even though it is not always formally embedded, such as, for example, in their corporate values. Furthermore, company characteristics such as size and flat hierarchies contribute to flexibility and speed in decision-making.

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<sup>77</sup> Schäffer (2020)

<sup>78</sup> Schäffer (2020)



The company representatives were also asked about their views on the nature of their risk management, which is either more dominated by reporting and rules (compliance-oriented) or rather by the aim of supporting decision-making (performance-oriented). The interview partners acknowledged a mix of compliance- and performance-orientation in their risk management, though most company representatives perceived a tendency towards compliance-oriented risk management.

### **Availability of resources**

The availability of resources is the third lever identified in the WHU Corporate Resilience Framework and describes the presence of slack, which includes financial and non-financial slack, such as operational, human, conceptual, and social buffers.<sup>79</sup> In this regard, the company representatives were asked about financial and non-financial slack in their companies and the motivation behind establishing buffers.

While all of the interview partners declared holding financial reserves, the extent and importance of the financial buffer is again stated to be influenced by circumstances surrounding the industry or company. Should, for example, a company be obliged to adhere to regulatory requirements such as the capital requirements imposed on banks, their financial buffer may be higher by necessity. As a further example, Daniel Lanfranconi, CFO at Warteck Invest, highlights the importance of financial reserves in the real estate business: “(Financial reserves are) one of the most critical (...) risk items for us in our environment. (...) On the one hand, it’s important for us to have a risk buffer in place if something happens, while on the other hand, (...) we want to seize opportunities, which we certainly do. This is something we consistently keep an eye on.”<sup>80</sup> The statement illustrates the importance of financial buffers not only as security for unforeseen events but also in enabling an organization to embrace opportunities. Overall, financial buffers are perceived as more critical than other buffers among the interviewed representatives. Nevertheless, some of the interviewees state that while they would like to have more of a human resource buffer in place, they struggle to create flexibility in this area, be it due to the unattractiveness of shift or temporary work or the limited availability of resources due to their company’s small size. Interestingly, the one company representative who does state having flexible and temporary work accounts identifies this as one of the key factors contributing to the company’s resilience.

### **Robust and flexible operations**

The fourth and final lever defined by the WHU Corporate Resilience Framework covers robust and flexible operations, which refers to optimizing organizational processes and structures within a company.<sup>81</sup> In this context, the interviewees were asked about their business continuity management (BCM) system, redundancies, diversification strategies, and other measures reducing dependencies.

With the exception of one interview partner, who declared that a BCM system had been in place since 2001, most interview partners stated that they had recently implemented a BCM system in their organization. One company representative even declares having recently hired an employee dedicated to BCM on the corporate level. The topic of BCM appears to be particularly relevant to the interviewed company representatives, with multiple interviewees identifying BCM as an area they are currently working on or see room for improvement. While redundancies focus primarily on the areas of IT and communications, here again, industry differences emerge. Two of the interview partners, both active in the real estate sector, explain that thanks to their business model, the need for redundant systems is less critical than in other industries. The significance of industry characteristics carries through to the aspect of how companies deal with dependencies, too, with interview partners pointing out that on account of their business model, they have only few dependencies but do strive for a certain level of diversification among key stakeholders, such as customers, for example. At the same time, many interviewees recognize the trade-off between diversification and economies of scale and highlight the importance of finding a balance between the two.

<sup>79</sup> Schäffer (2020)

<sup>80</sup> The statement was made by the interviewee in German and translated by the authors of the present report. The interviewee approved the translated version of the statement. This also applies to all other verbatim quotations in this report.

<sup>81</sup> Schäffer (2020)

### Reasons for high resilience

In a final part, the interviewees were asked what they thought the main reasons for the higher resilience of their company were compared to the other companies included in the present study's sample. The company representatives provided several potential reasons, which can be classified into cultural, organizational, stakeholder-related, management-related, and industry-related aspects:

- **Cultural aspects:** Values, culture, tone from the top, innovation
- **Organizational aspects:** Strategic diversification, being owner-managed, suitable identification and management of risks
- **Stakeholder-related aspects:** Cooperation with partners, trust from partners, confidence from stakeholders
- **Management-related aspects:** Continuity in management, proactive action from management, countercyclical creation of buffers
- **Industry-related aspects:** Nature of industry or business model, solid margins, superior product quality

Furthermore, many of the interviewees describe that the particularities of their industry offer external circumstances that contribute to their resilience in the presence of external shocks. One company representative also mentioned regulation as being a supportive force to their company's resilience, as it provides minimum requirements for the company to adhere to. The representative explained that fewer precautions may have been taken had the regulatory framework not been in place.

The interviewees were also asked to reflect on their company's resilience and identify potential areas of improvement. BCM appears to be high on the agenda for a few of the companies, along with the continued standardization of processes, with a "practice makes perfect" approach allowing reactions to become routine and efficient. Meanwhile, a further interview partner aims to retain flexibility and agility in their company's processes, in order to be able to seize opportunities rather than being too heavily regulated internally and being restricted by guidelines across all processes.

The discussion around the potential reasons for the companies' higher resilience reveals the importance of trade-offs again. Interviewees mention the importance of finding the balance, for instance, between the costs and benefits of resilience or between diversification and economies of scale – a balance which is thought by the interview partners to depend on the company. As Daniel Ducrey, CEO at Mobimo AG explains, "(...) Resilience is costly, and (...) our goal is not only to meet the profitability requirements of our industry but to be at the forefront and, at the same time, keep resilience strong. This is a balancing act which every company has to balance out for itself." As this statement illustrates, resilience requires a considered balance within a company, thereby taking the organization's strategy and goals, the industry setting, and business model into account.

### 8.3 Industry experts' views

Besides the interviews led by the representatives of relatively resilient companies, five interviews were conducted with industry experts. These industry experts all currently hold various risk management positions in German companies. The semi-structured interviews were based on the pre-defined interview guide and provide valuable insights for the present report. The conclusions drawn from the analysis of the interview transcripts are laid out below. It should be noted again that the small sample size does not allow for any form of generalization of the results. Instead, the conclusions drawn from the analysis of the interviews provide food for thought for companies seeking to improve their resilience.

#### Definition of resilience

In line with the findings from the interviews conducted with company representatives of relatively resilient companies, the industry experts confirmed that the term resilience is often not defined on a company level but is mainly perceived as an overarching strategic goal or vision. Furthermore, industry experts stated that companies rarely have a team or single employee dedicated to resilience management. According to the experts, in most cases, resilience management is embedded in risk management, though interestingly, one of the experts identified resilience as a key area of company security.

One of the experts defined resilience as the “risk-bearing capability” of a company. As one of the statements made by Florian Worm, Senior Manager Enterprise Risk Management at Paul Hartmann AG illustrates, resilience is also defined by the adaptability and flexibility of a company: “But for the organization itself, I would describe (resilience) as adaptability, the ability to bounce back (...). In other words, how quickly can I continue after significant loss events (...), and perhaps also how adaptable and how capable am I of evolving when a certain external or internal circumstance prevents me from continuing my usual processes? So (resilience is a form of) flexibility in a way.” Furthermore, multiple experts mention the aspect of resilience in allowing a company to seize opportunities in the aftermath of a crisis.

#### Strategic risk management

The experts further highlighted the importance of industry characteristics. Many stated that, depending on the industry a company is active in, the perception of resilience may differ or have a stronger focus within a certain department. For instance, companies active in an industry where product innovation is crucial in order to remain competitive (e.g., the technology industry), the research and development department may be more attuned to the topic of resilience. A further illustrative example is a company producing necessity goods is likely to have a different approach to and need for resilience compared to a company producing luxury goods due to the relatively inelastic demand for its products.

In addition, experts gave their view on the level of centralization in risk management approaches, with their opinions differing. On the one hand, some advocated for a more centralized risk management approach, as it allows for a more holistic, big-picture view and the ability to connect the dots and align with the corporate strategy. This is considered as important as one expert stressed that strategy and risk management decisions should be made based on information sourced from the same methods to be able to connect and align the two. Otherwise, it is challenging to identify risks that actually relate to the defined corporate strategy. On the other hand, other experts argued that a decentralized risk management approach allows decisions to be made where the best or most information is available, as well as taking the specificities of each department into account. The appropriate level of risk management centralization likely depends on the industry, company, and business model characteristics, which also apply to a company's approach to BCM. Factors such as the size of a company or having production sites across multiple regions are likely to affect the level of centralization of a company's BCM system.

### **Adaptive management**

Industry experts mentioned the advantages of a task force culture in speeding up decision-making processes and allowing for the increased adaptability of management. However, the task force should purposely be limited to a small group of individuals and need not necessarily include management members, though they should be updated regularly, explained one of the interviewed experts. Task forces can help ensure a company's flexibility, agility, and efficiency, particularly in response to an external shock. At the same time, one expert pointed out that it is essential to acknowledge that some processes should incorporate a more lengthy decision-making preparation process and adhere to more rigid structures. Overall, what is considered necessary is finding a balance between the standardization and efficiency of processes. Regarding this trade-off, the experts identified room for improvement in companies by shortening decision-making paths, flattening hierarchies, and reducing organizational bureaucracy.

### **Availability of resources**

When asked about the availability of resources in the context of resilience, experts mentioned the impact of the unique cultural setting, with German organizations tending to build up liquidity buffers quickly but be reluctant to reduce them in a less risky environment. However, according to the experts, companies should be mindful of the costs of holding liquidity buffers and aim to balance the costs and benefits. As Ralf Kube, Head of Corporate Risk Management at thyssenkrupp Marine Systems GmbH, explained: "This means that reviewing these financial buffers and balancing them out is always a key point of discussion." The creation of buffers, again, was explained by the experts to be very dependent on the industry and business model. While some companies may have inherent diversification effects due to their setup (e.g., product portfolio, customer base, etc.), thus potentially reducing the need for other buffers, other companies may have a higher need for reserves. These could include, for example, companies offering very specialized products with a limited supplier and customer base.

### **Robust and flexible operations**

The industry experts also touched on the topic of robust and flexible operations and the role of diversification, which according to one expert, had been subject to a change in perception over recent years: "Not too long ago, diversification was somewhat (...) criticized or viewed negatively, whereas now people are glad to be so well-diversified", Burkhard Kesting, Director Corporate Risk & Control Management at ZF Friedrichshafen AG. But not only the perception of diversification can be nuanced, the level of diversification an organization aims for needs to be aligned with the company strategy too. As the experts explained, companies need to balance diversification and de-diversification which reflects their corporate strategy.

A further point pertaining to operations' robustness and flexibility is reducing dependencies. According to experts, whether it makes sense to insource operations to reduce dependencies depends on the extent of internal competence and expertise. In some cases, it may be more beneficial for companies to remain dependent on an external partner, provided that the third party has the necessary superior expertise to provide the respective service.

### **Reasons for high resilience**

When asked about the potential reasons for the higher resilience of certain companies, several aspects were mentioned and, interestingly, circle back to the elements of the definition of resilience mentioned at the beginning of this sub-chapter. Florian Worm, Senior Manager Enterprise Risk Management at Paul Hartmann AG, elaborated on the importance of the three factors of early recognition, flexibility and agility of an organization, going on to explain: "If these three factors – early recognition, flexibility, and agility in the recovery phase – (...) are effectively combined or well-established, then I believe this is a crisis-resilient company." In addition, the other experts added the ability to bounce back, be adaptive, react quickly, and identify alternatives in a crisis as important factors in determining a company's resilience. Finally, an interesting remark made by Andreas Kempf, Head of Corporate Auditing, Risk and Quality Management at Carl Zeiss AG, refers to the continuity of resilience: "(...) the topic of crisis resilience is never really completed. However, I believe – and this may be the key point – that it's not always labeled as crisis resilience, but rather as continuous improvement." In other words, resilience is not something companies automatically retain after having achieved it once; it necessitates continuous efforts and optimization from companies.

## 8.4 Conclusion

Both the interviews with the representatives of Swiss companies identified as relatively resilient compared to the rest of the country sample, as well as the interviews with the industry experts from German companies provided valuable insights into the practical aspects of corporate resilience. These insights offer indications and potential explanations for the higher resilience of certain companies, allowing the results from the empirical analysis of the financial statement data in chapter 4 to 7 to be further enriched and explained. Based on the analysis of the interviews, the following five main conclusions are drawn:

**Resilience is perceived as an overarching, strategic management goal.** Rather than being systematically managed by a dedicated team or employee, resilience is often perceived as an overarching, strategic management goal. In terms of the definition of resilience, most interviewees agree that adaptability, flexibility, and the ability to bounce back and seize opportunities characterize corporate resilience.

**The characteristics of an industry as well as the specific business model influence how companies approach resilience.** The effect of industry characteristics on numerous aspects of risk and resilience management were mentioned by the interviewees throughout. It appears the circumstances surrounding an industry, the business model implemented by a company or the size of the organization have a significant impact on a company's approach to resilience. Furthermore, certain industries or business models offer an environment which encourages resilience, potentially making it easier for these companies to reach a higher level of resilience. An example is the real estate industry which can benefit from a stabilizing mechanism when faced with one of their main external risks, interest rate changes. Company representatives explain that though rising interest rates negatively affect the valuation of the properties, they can positively affect their rental income.

**Increased flexibility in work accounts as a potential lever for increased resilience?** One of the company representatives among the relatively resilient Swiss companies identified their flexibility in terms of work accounts as one of the potential reasons for their high resilience. Though struggling to realize this flexibility in their own companies, the other interviewees echoed this view, with most envisioning increased flexibility in work accounts and temporary employment. Based on these statements, flexible work accounts could be explored by other companies as a potential lever for increased resilience. It could be interesting for companies to explore innovative approaches to flexibility in human resources. Further common ground was identified in the relatively resilient companies' efforts to establish or improve their BCM system. Though the sample of companies interviewed is too small to generalize these findings, it could be interesting for other organizations to consider BCM as a potential lever for increased resilience.

**Balancing acts as key to corporate resilience.** A key aspect mentioned throughout both interview rounds and in relation to a number of different dimensions of resilience was the importance of trade-offs. A first example is the balancing act between rigid processes and more ad hoc decision-making. In line with this is the task force culture mentioned by the industry experts, though they stressed this approach is not appropriate for all processes. The trade-off between buffers or redundancies and costs is a further example of a balance companies must be mindful of. Holding liquidity buffers, non-financial buffers or redundancies always comes at a cost. Companies need to weigh out the costs and benefits of holding such reserves and find the optimum which is unique to each company.

**There are many possible explanations for higher resilience.** Interestingly, there was little overlap between the reasons for higher resilience identified by the company representatives of relatively resilient companies and the industry experts. On the one hand, the industry experts pointed out the importance of agility, flexibility, the ability of early recognition and continuous improvement in attaining and retaining resilience. The representatives of the relatively resilient companies, on the other hand, focused on cultural, organizational, stakeholder-, management- and industry-related aspects.

## 9. Summary

The ERM Report 2024 examines companies' financial sustainability and resilience in the DACH area. In this context, the first part of the report lays out the concept and methodology of the analysis, describing the background, objectives, fundamentals, and research design of the present study. The second part presents the results of the quantitative and qualitative analyses, including detailed examinations of each country in the sample. The quantitative analysis bases its approach on last year's edition of the ERM Report with the interpretation of the descriptive statistics of the data. This year, however, the quantitative analysis was extended by a regression analysis, with the results providing further interesting insights into the financial sustainability and resilience of Swiss, German, and Austrian companies. Furthermore, semi-structured interviews were conducted with representatives of companies identified as relatively resilient, as well as several industry experts. These provide insights into the potential reasons for the increased resilience observed in certain companies. The results are summarized in the present chapter.

For the quantitative analysis, publicly available financial statement data from 2017 to 2023 was initially sourced for 500 Swiss, German, and Austrian companies, which, following the data cleansing process, resulted in a total final sample of 2,005 observations, covering 365 companies. The dependent variable of analysis is defined as the pre-tax profit margin. The independent variables are the equity ratio, insolvency risk, interest expense ratio, cash ratio, excess return, real revenue growth, expense ratio, depreciation ratio, and fixed asset intensity. The approach was based on the Deutsche Bundesbank study from 2014, though further independent variables were added to the analysis.

During the seven-year period from 2017 to 2023, the share of crisis-prone companies in the sample was highest in 2020 (1.3%), which could be explained by the economic impact of the COVID-19 pandemic. The numbers suggest that companies implemented targeted measures to strengthen resilience in reaction to the pandemic, with the share of crisis-resilient companies increasing in 2021 and 2022. The year 2023, however, witnessed a renewed increase in the number of crisis-prone companies in the DACH area. This development could be due to the ongoing geopolitical tensions triggered by the Russian war in Ukraine and the significant increase in inflation, energy, and food prices. It will be interesting to observe how the share of crisis-prone companies develops in 2024.

The regression analysis reveals significant effects of all three risk categories (cyclical risk, financial risk, and operational risk) on the resilience and vulnerability of a company. The equity ratio, excess return, and depreciation ratio, for example, all have a significant and positive effect on the dependent variable, the pre-tax profit margin. Meanwhile, the results also indicate that the insolvency risk, expense ratio, and fixed asset intensity significantly negatively impact the pre-tax profit margin for the observed sample. Overall, the results from the correlation analysis align with the Deutsche Bundesbank study results, indicating that a high level of debt is a significant driver of financial risk. A high equity ratio is a common characteristic of crisis-resilient companies, which is also reflected in the strong negative correlation between the equity ratio and the probability of insolvency of a company.

The detailed analysis of the Swiss, German, and Austrian markets, respectively, reveals that the effects of external shocks impact sectors differently. Overall, the analysis indicates that companies employing traditional business strategies exhibit relatively strong stability during periods of external shocks. Consistent demand for their products and services, even during economic downturns and recovery periods, enables these firms to maintain steady operations in challenging environments, thereby underscoring their resilience and financial sustainability. These results align with the statements made by the company representatives and industry experts interviewed in the scope of the present report, indicating the importance of industry characteristics in encouraging a company's resilience.

The cross-country comparison further highlights differences between the markets in response to the pandemic, the Russian war in Ukraine, and subsequent energy crisis. The lower inflation rates in Switzerland and corresponding weaker interest rate increases aided Swiss companies' resilience. This can be explained by the Swiss National Bank's flexibility in decision-making, allowing their policies to be tailored to the domestic market's needs. Though Austrian companies showed resilience, particularly in the tourism and energy industry, they faced the challenges of high inflation and construction costs. German firms were hit hardest by energy prices and supply chain disruptions, particularly in the industrials and materials sectors.

The results of the analysis of the interviews conducted with company representatives of relatively resilient companies and industry experts provide further interesting food for thought. The interviewees address the topic of flexibility in work accounts, which could be explored as a potential lever for increased company resilience. Furthermore, finding the right balance between rigid processes and ad-hoc decision-making, financial buffers and their corresponding costs, diversification, and economies of scale is perceived as crucial to corporate resilience.

## 10. Key Messages for Practice

While there is no universal blueprint for resilience management, organizations can use the following recommendations as a structured framework for initiating internal discussions. These recommendations support organizations in tailoring their risk and resilience management strategies to their specific operational needs and industry environments. By doing so, companies can more effectively identify their unique vulnerabilities and opportunities, thereby enhancing resilience and long-term financial sustainability.

### 10.1 Strengthening Financial Resilience ...

The empirical analysis highlights that crisis-prone companies are predominantly found in industries characterized by inflexible cost structures and low profit margins. Moreover, the succession of crises since 2020 has highlighted the imperative for businesses to identify and mitigate bottlenecks in their business models that are particularly vulnerable to external shocks. These bottlenecks can lead to significant declines in revenue and liquidity, as well as rapidly escalating costs. Key risk drivers in financial management include elevated levels of debt, which weigh heavily on profitability and liquidity due to the negative leverage effect, and rigid cost structures – particularly in labor and other operating costs (cost stickiness) – which hinder companies from adjusting their costs in response to declining demand.

Our findings demonstrate that financially resilient companies, characterized by solid equity capitalization and a certain degree of risk absorption capacity, are better equipped to overcome earnings weaknesses and navigate sudden, externally induced crises. Financial resilience encompasses not only robust equity capital but also sufficient liquidity reserves. A solid equity base enhances a company's creditworthiness, improving its liquidity capacity. However, liquidity can conflict with profitability objectives. Therefore, it is advisable for companies to develop detailed liquidity forecasts under various crisis scenarios and, based on these, formulate contingency plans for liquidity procurement. These plans should consider factors such as asset turnover, real revenue growth, and the flexibility of capital expenditures, all of which significantly influence financial resilience.

### 10.2 ... and Strengthening Organizational Resilience to be Prepared for Crises

While financial resilience primarily safeguards against the financial impacts of external crises and helps avoid insolvency, organizational resilience supports maintaining and adapting business models during crises. Unlike the findings of the 2014 Deutsche Bundesbank study, our analysis shows that consumer-facing industries were severely affected by the COVID-19 pandemic, as lockdowns disrupted specific sales channels, and services provided by industries such as tourism, hospitality, and culture could no longer be offered. We recommend that companies, particularly in critical areas of their business models, identify vulnerabilities through scenario and dependency analyses, build buffers in these areas, and – if necessary – reduce these dependencies to enhance their organizational resilience. Key components of organizational resilience include operational buffers, such as additional inventories of critical supplies and components that could be affected by supply chain disruptions, personnel buffers through flexible employment contracts that enable the rapid mobilization of human resources, and network buffers that ensure access to additional resources via external networks, such as partnerships with other companies.<sup>82</sup>

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<sup>82</sup> Schäffer (2020), pp. 12



Building organizational resilience generally requires adequate financial reserves. Enhancing both financial and organizational resilience is inherently in conflict with improving cost efficiency and avoiding cost stickiness, as building buffers entails additional costs in the form of equity and liquidity expenses. Thus, organizations must find the balance. Furthermore, developing organizational and financial resilience is a long-term endeavor, subject to barriers that may reduce short-term efficiency.<sup>83</sup>

### 10.3 Momentum for Optimized Risk Management

In recent years, companies have faced increasing external crises, raising the question of how risk management must evolve in response. Particularly in the context of building financial and organizational resilience, several aspects are of paramount importance:

- First, risk management must identify potential bottlenecks in the business model and across the entire supply chain, and recognize possible crisis-triggering events. It is crucial to understand which assets are critical to long-term success. Techniques such as scenario analyses, stress testing, and business wargaming can be employed. The focus should shift away from known, often internal, risks and instead prioritize “known unknowns” and “unknown unknowns.” Notably, our study’s examination of real estate companies reveals that even traditionally crisis-resilient business models can be destabilized by a chain of crisis events.
- For these strategic and external threats to business models, appropriate early warning indicators must be defined and monitored, and contingency plans must be developed or adjusted. The objective is not necessarily to accurately predict the probability or extent of potential crisis events but to identify them early and prepare systematically through BCM.
- A particularly challenging aspect is recognizing complex risk dependencies throughout the value creation and distribution process, i.e., across the supply chain and sales. The prevailing practice of assessing individual risks is often insufficient in addressing these complex, real-world dependencies. Furthermore, timely identification of external crises requires a stronger focus on the company’s environment (“environmental scanning”) to detect and assess potential “unknown unknowns.”
- Ultimately, these insights should contribute to the development of robust business models and strategies and establishing resilience. Risk management involves the allocation of scarce (financial) resources. Lessons from the crisis can help allocate resources where they provide the most protection for critical assets and prevent insolvency.

### 10.4 Aligning Risk Management and Strategic Planning

Developing strategic resilience within business models necessitates a comprehensive view of known risks and opportunities, as well as newly emerging threats and possibilities. Integrating risk management into strategic planning enables companies to incorporate risks and opportunities into their strategic decision-making processes and the ongoing development of their business models. Businesses must adjust flexibly to changing circumstances, adapting their strategies rather than adhering rigidly to predefined plans. Business models should be evaluated not only based on their growth potential and value generation but also on potential dependencies, such as the access to critical resources and their contribution to resilience. Comprehensive stress tests should be developed and assessed for business models as discussed.

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<sup>83</sup> Schäffer (2020), pp. 12

This approach also requires a cultural shift within organizations. Uncertainty, ambiguity, and adaptation must be accepted. A resilience culture fosters awareness of emerging risks and opportunities, encouraging employees to devise creative solutions. The transition from risk minimization to strategic resilience reflects an evolution in how companies handle uncertainty and risks. This approach is crucial for ensuring long-term success and stability in a world of continuous change and unpredictable events.

One key takeaway is that risk management prevents negative impacts and seizes opportunities. In a constantly evolving world, companies can identify and capitalize on opportunities through proactive risk strategies, such as diversifying supply chains, entering new markets, or introducing innovative products and services. Ultimately, risk management equips businesses to prepare for the unforeseeable, adapt, and secure long-term success. It enables companies to remain stable in a dynamic environment, protect their reputation, and seize opportunities, making it an indispensable component of modern business management focused on sustainable success.

## 10.5 Proactive Scenario Planning and Stress Testing

Regular scenario analyses and stress tests allow companies to anticipate and mitigate risks before they escalate. Identifying potential bottlenecks across operations and supply chains ensures that companies can adapt quickly, reducing the likelihood of financial or operational company crises. Recent developments have revealed that businesses must identify and mitigate bottleneck areas in their business models, particularly those vulnerable to external shocks. These bottlenecks, often linked to inflexible cost structures, dependencies from specific suppliers or customers or high debt levels, can lead to significant declines in revenue and liquidity while driving up costs. Scenario analyses and stress tests should be used to detect these critical areas early and enable companies to respond proactively.

## 10.6 Risk Management as a Strategic Component of Corporate Governance

Integrating risk management into strategic planning ensures that financial and operational risks are continuously assessed within the corporate governance framework. This enables stock market-listed companies to adapt swiftly to evolving market conditions, regulatory changes, and economic shocks, supporting long-term growth and sustainability.

Embedding risk management into strategic governance prevents crises and allows companies to capitalize on emerging opportunities, such as diversifying supply chains, entering new markets, or introducing innovative products and services. This proactive approach to risk ensures resilience in an ever-changing global environment.

## 10.7 Optimizing Diversification

Diversifying income sources can be important for companies for reducing exposure to market volatility and dependencies on specific customers or suppliers. Relying on a few revenue streams may increase vulnerability for companies, particularly in turbulent markets. Expanding into new products, markets, or geographies could mitigate risk, making the consideration of diversification a cornerstone of long-term resilience and financial sustainability.

While diversification may reduce risk, companies must ensure they do not sacrifice operational efficiency. Balancing diversification and economies of scale is crucial for maximizing profitability and sustaining growth. Maintaining efficiency while expanding revenue streams supports both short-term performance and long-term resilience.

## 10.8 Flexibility in Workforce and Resource Management

The ability to flexibly manage human resources is essential for operational resilience. For listed companies, implementing variable workforce models helps retain critical talent during downturns while maintaining cost efficiency. Flexible labor structures also provide the agility needed to scale operations in response to demand fluctuations, reducing the risk of costly workforce adjustments. Moreover, companies should build personnel buffers, such as flexible labor contracts, enabling the rapid mobilization of human resources during crises. This, combined with network buffers, ensures organizations can access additional resources through partnerships or external collaborations when needed.

## 10.9 Understanding Industry-Specific Risks

Companies must thoroughly analyze industry-specific factors that may significantly impact their financial sustainability. For example, industries such as real estate are susceptible to fluctuations in interest rates, which can directly affect capital costs, borrowing conditions, and overall profitability. Companies in the energy sector may face regulatory changes that affect supply chains, while those in the technology sector may encounter rapidly evolving competitive pressures. By understanding the specific vulnerabilities and opportunities within their industry, companies can develop tailored strategies to mitigate risks.

## 10.10 Optimizing Financial Processes for Crisis Readiness

In periods of growth, companies often focus on technology or sales, while finance processes are given less attention. However, well-structured financial processes become indispensable for resilience in times of crisis. Companies must ensure their financial departments are fully equipped to deliver reliable and timely data, enabling swift decision-making when external shocks occur. Strengthening financial departments during stable times ensures companies can quickly optimize cost structures, provide accurate forecasts to banks and stakeholders, and respond efficiently in a crisis. Competent and strategically aligned finance teams are vital in maintaining liquidity and operational continuity during economic downturns.

## Part III: Guest Contributions

# Swiss GRC: Financial sustainability through integrated risk management and resilience

In today's global business environment, financial sustainability has become an increasingly complex challenge. Organizations face a rapidly evolving risk landscape shaped by geopolitical tensions, economic volatility, technological disruptions, and unforeseen crises like pandemics or natural disasters. The ability to maintain long-term financial health while navigating these uncertainties is no longer a mere strategic advantage – it has become essential for survival.<sup>84</sup>

Financial sustainability, at its core, refers to an organization's capacity to endure financial shocks, maintain liquidity, and ensure profitability over the long term. However, achieving financial sustainability in a world marked by unpredictable risks requires more than traditional financial management practices. It demands a comprehensive approach that integrates risk management and resilience into the organization's core strategy.<sup>85</sup> Management of risks goes hand in hand with managing opportunities and performance. When we discuss Risk Management, we also refer to the management of opportunities and performance. In the context of financial and operational resilience, it is crucial to balance risks and opportunities equally to ensure a company's ability to thrive in volatile environments.

Resilience is the ability of an organization to absorb shocks, adapt to adverse conditions, and emerge stronger. In times of crisis, resilient companies not only survive but also capitalize on new opportunities. This capacity to bounce back from disruptions is inextricably linked to financial sustainability, as organizations that are resilient are better equipped to manage financial risks and ensure continuous operation during turbulent times. It is important to understand the difference between resilience and robustness. While robustness focuses on avoiding disruptions by preparing in advance, resilience accepts that disruptions will occur and focuses on adapting and bouncing forward. Resilient organizations are agile, innovative, and capable of interpreting weak signals, allowing them to identify and act on both risks and opportunities, ensuring long-term financial sustainability.

A proactive and integrated risk management framework, coupled with operational and financial resilience, provides organizations with the tools they need to navigate uncertainty. Embedding resilience into core strategies requires more than just planning; it demands a solid technology architecture that supports real-time monitoring, advanced analytics, and data-driven decision-making. By fostering this kind of infrastructure, organizations can anticipate risks, respond swiftly to disruptions, and optimize performance across all fronts, ensuring they remain agile, compliant, and financially stable. This approach transforms risk management from a reactive stance to a proactive, value-adding element of business strategy, enabling long-term success in an ever-evolving landscape.

In this article, we will explore the symbiotic relationship between financial sustainability, risk management, and resilience. We will also examine how organizations can move beyond traditional crisis management to embrace strategic resilience and technological innovation, creating robust systems that ensure their long-term financial stability. This approach not only protects against immediate threats but also prepares businesses to thrive in an increasingly volatile world.

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<sup>84</sup> World Economic Forum (2023)

<sup>85</sup> McKinsey & Company (2022)

## I. Resilience in the face of crises

Resilience is increasingly recognized as a critical component of financial sustainability. In a world where crises – be they financial, geopolitical, or environmental – can occur without warning, the ability to respond effectively and recover quickly is what sets successful organizations apart. But resilience is more than just crisis management; it encompasses an organization’s capacity to adapt, innovate, and evolve in the face of adversity.<sup>86</sup>

In business terms, resilience is the ability to absorb shocks, continue operations under stress, and ultimately recover stronger. This capacity goes beyond ensuring short-term survival during a crisis; it underpins the long-term viability of the organization. Resilience involves not only managing the immediate impacts of disruption but also proactively planning for future uncertainties. In doing so, companies can protect their financial stability, maintain stakeholder trust, and ensure continued growth, even in turbulent times.<sup>87</sup>

The link between resilience and financial sustainability is clear: organizations that build resilience into their operations and finances are better positioned to manage risks that threaten their financial health. For example:

- **Operational resilience:** This ensures that critical business functions continue despite disruptions. A resilient supply chain, for instance, can help prevent costly interruptions that could severely impact revenues and financial stability.
- **Financial resilience:** The ability to withstand financial shocks, such as market volatility or liquidity constraints, is essential for maintaining long-term sustainability. Companies with resilient financial structures – such as diversified revenue streams, robust cash flow management, and access to emergency financing – are more likely to survive and thrive during economic downturns.

Additionally, **organizational agility** plays a key role in building resilience. Companies that are flexible and able to pivot quickly during crises are better able to mitigate financial losses. Agility allows businesses to adjust operations, reallocate resources, and capture new opportunities in response to changing market conditions.

Crises also act as a stress test for an organization’s **corporate governance and risk management** frameworks. A well-implemented governance structure, underpinned by a robust risk management strategy, supports resilience by identifying potential vulnerabilities before they escalate into full-blown crises. This early detection, combined with rapid response capabilities, limits the financial fallout from unforeseen disruptions.

For businesses aiming to achieve financial sustainability, resilience must be a continuous, dynamic process. It is not a one-time effort or a static attribute but an ongoing practice of strengthening systems, refining strategies, and adapting to new risks. Organizations that cultivate resilience as part of their overall business strategy – rather than treating it as a reactive measure – can better manage financial risks and safeguard their long-term sustainability.

<sup>86</sup> Economist Intelligence Unit (2022)

<sup>87</sup> International Organization for Standardization (2018)

## II. Risk management as the foundation of financial resilience

Risk management serves as the cornerstone of financial resilience in any organization. By identifying, assessing, and mitigating risks, businesses can protect their financial stability and ensure sustainable growth in an increasingly unpredictable world. Without a solid risk management framework, even the most financially sound companies are vulnerable to sudden shocks – whether from internal failures, market volatility, or external disruptions like natural disasters or geopolitical crises.<sup>88</sup>

At the heart of risk management is the ability to foresee and prepare for potential threats to financial stability. Organizations with robust risk management systems in place are more capable of navigating economic downturns and liquidity crises. For example, effective credit risk management helps companies assess the likelihood of defaults and ensures that they have adequate capital buffers in place to absorb potential losses. Similarly, managing operational risks – such as supply chain disruptions or cyber threats – enables businesses to minimize costly interruptions that could severely impact revenues and profitability. Moreover, Third-Party Risk Management (TPRM) plays a crucial role in financial resilience. Today, companies are increasingly reliant on a network of suppliers, partners, and service providers, making it essential to monitor and mitigate risks associated with these third parties. A failure in one link of the supply chain can have far-reaching consequences, causing significant financial damage. Implementing a comprehensive TPRM framework ensures that organizations are not only managing their internal risks but also those posed by external partners.

In addition to protecting financial stability, risk management helps organizations make better-informed strategic decisions. By incorporating risk assessments into business planning, companies can weigh the potential financial impacts of different scenarios and adjust their strategies accordingly. This proactive approach enables businesses to remain agile and resilient, even in the face of market fluctuations or unforeseen crises.

Finally, the integration of technology in risk management processes is transforming how organizations identify, monitor, and mitigate risks. Advanced data analytics, automation, and artificial intelligence (AI) tools allow companies to detect emerging risks earlier, improving decision-making and enhancing overall financial resilience.<sup>89</sup> These technologies also enable real-time monitoring of risk factors, helping organizations stay ahead of potential disruptions.

In conclusion, an organization's financial resilience is built on the foundation of effective risk management. By continuously refining their risk management frameworks and leveraging technology, companies can better safeguard their financial health and ensure long-term sustainability.

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<sup>88</sup> Financial Stability Board (2014)

<sup>89</sup> McKinsey & Company (2023)

### III. Strategic resilience and innovation

Strategic resilience involves more than just mitigating risks – it focuses on building an organization’s capacity to adapt and innovate in the face of challenges. While traditional risk management aims to prevent or reduce disruptions, strategic resilience emphasizes the ability to anticipate changes, respond effectively, and seize opportunities that arise from crises. This proactive approach is crucial for long-term financial sustainability.<sup>90</sup>

To build strategic resilience and consequently operational and financial resilience, modern organizations must also be able to anticipate disruption. Organizations can use the so-called “weak signals” to anticipate disruption by identifying, interpreting, and acting on new risks, threats, and market opportunities in a timely manner. Weak signals are valuable but often hidden pieces of information that can help organizations bounce forward in times of turbulence, uncertainty, novelty, and ambiguity (Harrysson et al., 2014). To do this efficiently, resilient organizations build and participate in ecosystems and networks of partners, customers, regulators, and competitors. These networks help them stay informed and on top of emerging trends, technologies, and regulations, building the necessary capabilities and resilience to be prepared for adverse events. For example, companies that diversified their supply chains and revenue streams before the COVID-19 pandemic were better equipped to handle the disruptions it caused. By contrast, organizations that remained dependent on a single source of income or supply were more vulnerable to financial instability.

A key element of strategic resilience is continuous innovation. In a rapidly changing environment, companies must not only respond to crises but also innovate to stay competitive. Investing in new technologies, exploring alternative markets, and developing novel products or services can help businesses emerge stronger from disruptions. Innovation is not only a survival strategy but also an essential component of long-term growth, allowing organizations to capitalize on new opportunities and enhance their financial sustainability.

Moreover, strategic resilience requires embedding risk management into corporate governance and decision-making processes. By integrating risk assessments into strategic planning, companies can better understand how different scenarios may impact their financial health. This forward-thinking approach enables businesses to make informed decisions that prioritize long-term sustainability over short-term gains.<sup>91</sup>

Technology plays an increasingly vital role in fostering strategic resilience. Advanced tools like artificial intelligence (AI), machine learning and advanced analytics, in combination with a constant feed of internally and externally generated data, organizations can generate forward-looking insights and build robust early warning systems. These systems enable the timely identification and analysis of potential risks, threats, and disruptive events, leading to fast, high-quality decision-making and proactive actions. This approach is especially effective in dynamic areas like financial, cyber, and operational resilience, where rapid responses to changing conditions are crucial for sustained success.

Strategic resilience is about more than survival; it’s about using challenges as a catalyst for innovation and long-term success. By fostering agility, embedding risk management into decision-making, and investing in cutting-edge technologies, organizations can enhance their financial resilience and thrive in an unpredictable world.

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<sup>90</sup> Economist Intelligence Unit (2022)

<sup>91</sup> Perucca & Schellinger (2022)



## IV. Recommendations for building financially sustainable organizations

Building financial sustainability in an uncertain world requires a holistic approach that integrates resilience and risk management into the very core of an organization's operations and strategy. Below are key recommendations to help companies strengthen their financial sustainability:

### 1. Integrate risk management into financial strategy

To ensure financial sustainability, risk management must be embedded into the financial planning process. This means continually identifying, evaluating, and mitigating potential risks that could affect the organization's financial health. By incorporating risk assessments into budgeting and forecasting processes, companies can better prepare for unexpected economic shocks and market volatility. Regular stress testing of financial scenarios can also help organizations plan for adverse conditions, enabling them to allocate resources efficiently and protect liquidity in times of crisis.

### 2. Build operational and financial resilience

Operational and financial resilience go hand in hand when it comes to sustainability. On the operational side, businesses should diversify their supply chains and reduce reliance on single suppliers to avoid bottlenecks in times of disruption. Financially, maintaining a strong balance sheet, with a focus on liquidity reserves, ensures that an organization can sustain operations even during revenue downturns. Diversifying revenue streams is another effective way to build financial resilience, reducing dependency on any one product, service, or market.<sup>92</sup>

### 3. Scenario planning and stress testing

Scenario planning and stress testing play a very important role in modern risk management. To understand its preparedness, its vulnerabilities, and weak points an organization needs to regularly run simulations and conduct stress tests on of its critical processes, analyzing possible implications of adverse events, identifying areas for improvements to achieve and improve its financial and operational resilience. While traditional simulations and stress test are predominantly focused on generally valid and generic factors, Next-Generation Risk Management shifts the focus to organization-specific factors. These factors are based on the unique business model of the organization, its specific risk exposures, and relationships with customers and counterparts. Therefore, it is crucial to constantly identify and analyze risks that are unique to the organization, while considering the correlations between relevant risks and other linked objects and artifacts.

### 4. Invest in adequate technology architecture

An often-overlooked element of financial sustainability is the role of technology. A robust technology architecture is essential for managing risks and ensuring financial resilience. Technology platforms that integrate Governance, Risk, and Compliance (GRC) processes provide organizations with the tools to centralize risk data, automate compliance reporting, and enhance decision-making processes. GRC solutions streamline risk management by allowing companies to monitor risks in real-time, ensure regulatory compliance, and protect critical data. Investing in such systems helps companies proactively identify and mitigate risks before they materialize into financial crises.<sup>93</sup> By leveraging integrated GRC platforms, businesses can improve their ability to manage risks, maintain financial stability, and ensure compliance with evolving regulations.

### 5. Cultivate a resilient organizational culture

Finally, an organization's culture plays a pivotal role in financial sustainability. Companies should cultivate a culture of resilience by empowering employees to adapt to change, encouraging innovation, and fostering open communication around risk. When employees are aligned with the company's resilience strategies, they are more likely to contribute to proactive risk management and the long-term sustainability of the organization. Leadership must drive this cultural shift by investing in training programs, promoting agility, and making resilience a key organizational value.

<sup>92</sup> McKinsey & Company (2020)

<sup>93</sup> GRC 20/20 Research (2023)

## V. Conclusion

In an increasingly volatile and uncertain world, financial sustainability is not achieved through reactive measures alone but through a proactive and strategic approach. Organizations that integrate resilience and risk management into their core strategies are better equipped to withstand financial shocks, adapt to changing market conditions, and thrive in the long term.

The ability to anticipate and prepare for potential risks is essential for maintaining financial stability. By embedding risk management into financial planning, companies can forecast future challenges, conduct scenario planning, and make informed decisions that protect their financial health. Moreover, building operational and financial resilience ensures that organizations can continue functioning in times of crisis while maintaining liquidity and safeguarding critical resources. In this way, resilience acts as a buffer against disruptions, securing the company's future and long-term financial viability.

Looking ahead, the regulatory landscape will continue to evolve, influencing how organizations manage risk and build resilience. Recent frameworks like FINMA Guidance 03/2024 on cyber risks, published by the Swiss Financial Market Supervisory Authority, are expected to bring new guidelines that further strengthen governance, risk management, and operational resilience within the financial sector. These guidelines will encourage institutions to adopt more structured approaches to addressing risks and will raise the bar for compliance and oversight across the board. Similarly, the implementation of the Digital Operational Resilience Act (DORA) across the European Union highlights the critical importance of digital resilience in today's interconnected world. As businesses increasingly rely on digital infrastructure, cyber risk has become one of the most significant threats to financial stability. DORA's focus on ensuring the operational resilience of financial institutions against cyber threats and IT disruptions underscores the need for companies to invest in secure and adaptive digital systems.

These regulatory shifts reflect a broader trend: resilience, in all its forms – financial, operational, and digital – is becoming an essential component of sustainability. Businesses must be prepared to navigate not only the traditional financial risks but also emerging threats like cyberattacks, supply chain vulnerabilities, and environmental disruptions. The companies that thrive in the future will be those that successfully integrate comprehensive risk management practices, foster a culture of resilience, and leverage cutting-edge technologies to anticipate and mitigate risks.

In conclusion, financial sustainability is a journey that requires continuous investment in resilience, risk management, and innovation. Organizations that prioritize these elements are well-positioned to not only survive disruptions but also capitalize on new opportunities, securing their place in an ever-evolving global landscape. By aligning with evolving regulatory requirements and staying ahead of technological changes, businesses can ensure their financial health, protect stakeholder interests, and drive long-term success.

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### Brief portrait of Swiss GRC

Swiss GRC is Switzerland's leading software company in the areas of governance, risk and compliance (GRC). Thanks to its many years of experience, Swiss GRC has extensive expertise in the GRC environment and offers customized solutions for efficient and comprehensive GRC implementation at companies worldwide. Guided by the principle of "Global Reach, Local Excellence" the company is expanding its global presence in strategic regions like DACH, MEA, and APAC, with new branches in London, Frankfurt, Dubai, Mumbai, and Pristina.

# CRIF AG: Financial sustainability and ESG from a data perspective

Sustainability and ESG (Environment, Social, Governance) as well as the trend word “green” are impacting large aspects of our daily life – at work and in our private life. We try to reduce our personal impact on the environment by changing habits, companies account for their carbon emissions, state their journey to “net zero”, and implement more social and governance activities. Financial institutions – especially in the EU – require more and more sustainability data from their corporate customers to report about emissions in their portfolios and to ensure they invest in more sustainable companies. All these actions are triggered mostly by increasing national and international sustainability regulation.

The ESG journey has a large impact on companies and affects their financial sustainability in various ways. In this article we discuss the most influencing factors for companies and show relevant steps to create value from the ESG influence. We will repeatedly use the terms “financial sustainability” and “sustainable finance” which are easily confused due to their similarity. We define them as follows:

## Definition of financial sustainability vs. sustainable finance:

- **Financial sustainability:** Financial sustainability can be defined as “... the capacity of a firm to earn revenue or get a return on an investment that covers all expenses and makes a profit. It assesses whether a project is viable for investment and whether investing resources in it will generate a sufficient return for investors”.<sup>94</sup> A financially sustainable company is able to plan for the future and ensures their long-term existence. Hence, besides having good governance with adequate reporting and planning this also implies being able to securing constant access to capital, and creating high profitability margins.
- **Sustainable Finance:** In Switzerland the Swiss Banking Association has defined Sustainable Finance as “... all forms of financial service that incorporate ESG (environmental, social and governance) criteria into their business or investment decisions for the long-term benefit of clients and society as a whole.”<sup>95</sup> This means that for each investment factors such as GHG (Greenhouse Gas) emissions, waste and energy consumption, and good governance aspects of the counterparty are considered.

Our focus in this article is to analyze the influence of ESG on financial sustainability of a company in general and their access to financing driven by the sustainable finance requirements of the financial institutions.

To achieve this, we start by providing a high-level overview of the most relevant ESG regulation globally, in the EU, and in Switzerland, and of their impact on a company’s financial sustainability. We furthermore distinguish the ESG impact on financial sustainability a.) from an investment point of view, b.) from a regulatory and risk perspective for the company and its supply chain, and c.) on the cost of compliance and the strategic impacts thereof.

## The influence of sustainability and ESG regulations on global, EU and Swiss level:

It is important to note that the following regulation and standards will not be explained in detail but rather mentioned to be consulted if applicable for the reader of this report. They serve as mere extracts and are non-exhaustive. Official links to the governing bodies and the official texts are provided with each regulation and standard.

<sup>94</sup> Financial Sustainability (2024)

<sup>95</sup> Sustainable Finance (n. d.)

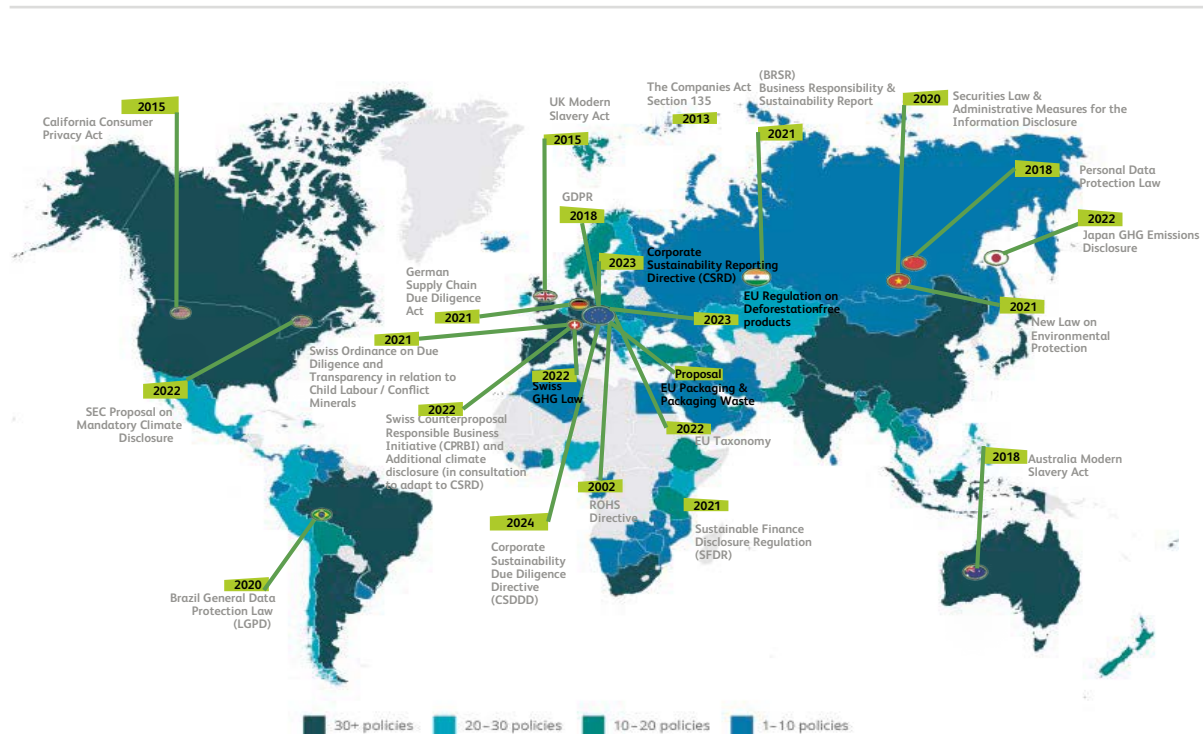


Figure 4: Own illustration from CRIF

**Impact of ESG on the financial sustainability:**

The macro economical influence of the climate crisis, the humanitarian crises as well as the assurance of prosperity have led to major agreements on a global level. The two most important ones are The Paris Agreement<sup>96</sup> to reduce carbon emissions, and the 2030 Agenda for Sustainable Development, which were both adopted in 2015. While the former focuses on climate change mitigation on how to distribute its costs were signed by almost all UN member states (a handful of states in the middle east are missing), the latter has a broader scope to “provide a shared blueprint for peace and prosperity for all people and the planet”<sup>97</sup> and was signed by all member states.

The EU and Switzerland have committed to these agreements and require their economy including the capital markets to reflect on them. Hence, companies and financial institutions operating in these countries need to integrate ESG factors into their daily business to meet the ambitious global goals. As the new factors in the macroeconomic surroundings, ESG and sustainability influence and drive the financial sustainability of a company by – on one hand – raising costs through increasing cost of compliance and new regulatory requirements combined with their impact on the business processes but – one the other hand – by raising and creating more added value, a positive competitive edge and improved access to capital.

<sup>96</sup> United Nations Climate Change (n. d.)

<sup>97</sup> Sustainable Development (n. d.)

### Overview of the most relevant ESG regulation in the EU and CH:

Particularly in the EU, a broad number of regulations are developed and implemented on a very frequent level. This article tries to summarize the most important regulations as of summer 2024. A detailed overview of the upcoming EU regulations can be found at the EU Legislative Train Schedule<sup>98</sup>.

The most important EU regulations and sustainability requirements are (in no particular order):

- **EU Greenddeal**:<sup>99</sup> Ambitious plan aimed at making Europe the world's first climate-neutral continent by 2050 with a focus on sustainable investments (banks), energy transition, and standardization of reporting (CSRD).
- **EU Taxonomy**:<sup>100</sup> Classification of sustainable economic activities of a company incl. reporting obligation with 6 environmental targets, 3 financial KPIs, and access to the financial market.
- **CSRD**<sup>101</sup> or Corporate Sustainability Reporting Directive: EU sustainability reporting & embedding in risk management that influences CH companies, CH regulation & subsidiaries in the EU.
- **CSDDD**<sup>102</sup> or Corporate Sustainability Due Diligence Directive: tightening of compliance with human rights and environmental protection that affects CH companies & their supply chains, CH regulation & subsidiaries.
- **ESRS**<sup>103</sup> or European Sustainability Reporting Standards: Standardized reporting in the EU that affects all Swiss companies doing business with EU companies.
- **EBA requirements and pillar 3**:<sup>104</sup> Climate risk and impact of physical risk and transition risk for financial institutions.
- **EU country specific implementations**: As EU directives are translated into local law in each country, one faces additional complexity when doing business within EU member countries.

The most important Swiss regulations and sustainability requirements are (in no particular order, not all regulations are available in English, where applicable the German version is linked):

- **Non-financial reporting**:<sup>105</sup> Introduces reporting for relevant or large enough companies as follows: 1.) all companies of public interest (FINMA, listed, issuer of Corporate bonds) and 2.) all other companies with: a.) 500 FTE and b.) CHF 20 million balance sheet total or c.) CHF 40 million turn-over in 2 consecutive years
- **Report on climate issues**:<sup>106</sup> Addendum on climate issues for all companies mentioned above (e.g. CO<sub>2</sub> targets) in line with the former TCFD, now part of ISSB.

<sup>98</sup> Legislative Train Schedule (n. d.)

<sup>99</sup> European Council (2024)

<sup>100</sup> European Commission (n. d. a)

<sup>101</sup> European Union (2022)

<sup>102</sup> European Commission (n. d. b)

<sup>103</sup> Official Journal of the European Union (2023)

<sup>104</sup> European Banking Authority (2022)

<sup>105</sup> Fedlex (n. d.)

<sup>106</sup> Bundesrat (2022)

- **Consultation of sustainability reporting:**<sup>107</sup> Goal is to align Swiss law with CSRD. Would change scope of reporting companies and would require audit obligation for sustainability reports (until 17<sup>th</sup> October 2024). If at least two of a.) > 250 FTE, b.) > CHF 25m actuals, c.) > CHF 50m turnover are met. This would increase the number of affected companies significantly.
- **Disclosure of climate risks:**<sup>108</sup> For financial institutions (FINMA cat. 1&2): disclosure on material climate-related financial risks, their impact on the business and on the risk strategy and their impact on existing risk categories
- **DDTrO**<sup>109</sup> or Ordinance on Due Diligence and Transparency in relation to Minerals and Metals from Conflict-Affected Areas and Child Labour: for conflict minerals and child labor in the supply chain focus on: 1.) companies of public interest (FINMA, listed among others) and 2.) all other companies with 2 of 3: a.) 250 FTE or b.) balance sheet total of CHF 20 million or c.) turnover of CHF 40 million in 2 consecutive years need to establish a risk management system and publish a mandatory report.
- **Climate and Innovation Act:**<sup>110</sup> climate neutrality in Switzerland by 2050
- **Nature-related financial risks (FINMA):**<sup>111, 112</sup> valid from 2025 to include physical risk and transition risk into risk exposures

#### Conclusion:

A broad number of regulatory requirements influence companies and financial institutions to improve their ESG responses by requiring more data, detailed disclosures and reduction goals to meet requirements such as “net zero” by 2050.

Even though the largest number of companies – the SME – are not directly targeted by the sustainability regulations, they face large impediments by doing business with companies being subject to sustainability reporting requirements. The latter need to perform ESG analysis and provide ESG data throughout their supply chain and will require extensive ESG data transparency from the SME, while the SME hardly has the means, competences and resources to provide this. Factually, the entire supply chain is potentially involved in the sustainability reporting requirements, either direct through meeting the thresholds or indirect through doing business with the companies in scope.

Therefore, it is imperative for all companies to identify value creating streams through the ESG reporting requirements, to improve procedures, data transparency and processes and to align strategic decisions with the ESG impacts – not only from a compliance point of view but from securing financial sustainability on the long term.

#### High Level Challenges on financial sustainability

One of the larger challenges for most companies and financial institutions for sustainability reporting regulations, besides the regulatory requirements themselves, are the unavailability of most of their ESG reporting data throughout their value chain and customer portfolios. In particular the estimates of carbon emissions and financed emissions for banks reflect the large insecurities and unavailable data. Additionally, the risk management requirements to mitigate supply chain risks based on e.g. the “Ordinance on due diligence and transparency in relation to Minerals and Metals from Conflict-Affected Areas and Child Labour” require big investments in new processes, software tools and consulting services to provide the expected data and assurance.

<sup>107</sup> Bundesrat (2024)

<sup>108</sup> FINMA (2022)

<sup>109</sup> Fedlex (n. d.)

<sup>110</sup> The Federal Council (n. d.)

<sup>111</sup> FINMA (2024 a)

<sup>112</sup> FINMA (2024 b)

Furthermore, **profitability and the cost of compliance** with ESG in times of economic crises chasing one another (e.g. COVID and shortage in the supply chains, the war in Ukraine, the growing inflation especially in Europe, the economic crisis and the insecurities about the upcoming presidential votes in the US), drive companies into difficult compromises between their ambitious sustainability goals and the pure struggle to make ends meet. One of the more recent examples on the Swiss market is the restructuring of Migros' sustainability department in summer 2024 and the official statement to no longer claim the title "most sustainable retailer on earth"<sup>113</sup> at all cost, which the company defended for the year prior.

For SME which are not required to report on sustainability (see criteria on non-financial reporting and the consultation on sustainability reporting above) the situation is even more peculiar. Even though they are not legally required to comply with most of the sustainability reporting regulations, these SME face pressure from a.) their own (large corporate) customers to **deliver adequate sustainability data** for their sustainability reporting as part of their supply chain as well as from, and b.) the financial market to provide information on their ESG performance and GHG data to ensure success in the lending process.

## Financial sustainability from an investment point of view

The financial sustainability from an investment point of view for a company requires to maintain access to capital and for the financial institution to create a high return on investment. Next to the pure financial aspect of this encounter, other factors are influencing such as the above-mentioned regulatory requirements to reduce GHG emissions and achieve ESG objectives.

To better understand the interdependencies and conflicting goals, consider the following two examples to get a glimpse of the dynamics in the ESG environment (For readability, we kept them very high level and simplified):

**Example 1:** a financially healthy company from a brown industry and a financial institution aware of their need to reduce their financed emissions to reach their GHG reduction targets:

- The **company A** ensures high profitability to receive an investment from the financial markets or stock exchanges but also needs to ensure their long-term business success and compliance with regulation which are linked to ESG regulatory requirements implying higher cost of compliance. The company faces challenges in their Environmental performance due to their industry being defined as "brown" (agriculture) with high GHG emissions, whereas their social and governance impacts are very good. The company does not have a detailed ESG certificate to state their actual ESG data and actual energy consumptions, GHG emissions and waste.
- The **financial institution** requires their return on investment but needs to respect regulatory requirements such as the reduction of their financed emissions and their own reduction targets towards net zero – hence may face conflicting goals when it comes to investments in rather "brown" industries. The financial institution has balance sheets and financial information available for the company A but has to rely on generic information about emissions and consumptions based on the industry only.
- **Conclusion:** In this example, a conflicting goal exists between the company seeking capital and the financial institution potentially denying an investment, not because of a bad financial sustainability but due to a lack of necessary ESG data.

<sup>113</sup> Schlittler (2024)



**Example 2:** Companies being early adopters for ESG requirements face lower investment suggestions due to reduced ROI:

- The **company B** ensures a very high ESG performance with strong investments in being an early adopter of ESG impact. Their orientation towards long-term financial sustainability together with their sustainability strategy and their investments strengthen their corporate governance, loyal employees and fair prices and living wages for their supply chain. Through their large investments, their general ROI on the capital markets are lower compared to **company C** with less sustainability engagements.
- The **financial market** or the financial institution is driven to provide the best ROI to their investing clients. The investment suggestions reflect on the expected ROI, hence a promotion of **company C** to the detriment of **company B** is likely, whenever the ROI is the sole decision factor.
- **Conclusion:** In this example, a conflicting goal between the company B and the financial institution potentially denies an investment due to a reduced ROI resulting from larger investments into improving the ESG performance.

During the last SFI-SSF Conference on 5th September 2024 in Zurich, Zacharias Sautner, Professor of Sustainable Finance, UZH confirmed during his speech about “The Value of ESG: Where and Why it matters” the risk relation of ESG and the return on investments. If an investment faces higher risks (of default), there are higher returns expected and vice versa. ESG information helps determine not only the environmental part of a company but also their social engagement and the constitution of their corporate governance. A good corporate governance implies a risk reduction on the investment and hence lower expected returns for companies with better ESG Scores.

From an individual investment perspective, the media challenged Vanguard’s and BlackRock’s decisions in 2023 to withdraw from ESG investments due to the lower performance.<sup>114</sup>

The question that arises is how to deal with this dilemma of impacting ESG factors on financial sustainability.

Will companies from brown industries face liquidity shortages, even if financially stable, and hence put their long-term success into peril, even if an investment might have been aimed at reducing emissions? If their current emissions are too high for the net zero targets of their partnering financial institutes their access to capital could indeed be limited.

Will financial institutions refrain from investing in brown industries at all, no matter the financial sustainability of the invested company to meet their regulatory requirements?

And how will more sustainable companies face the reduced investment performance and access new capital on the stock markets if better ESG Scores mean a reduced ROI, even if it’s at lower risk?

For collecting all the required data listed companies in the EU and CH can rely on information already retrieved to comply with the sustainability regulations; They have no additional expenses, which can be seen as an advantage. SME and non-listed companies however, rarely have relevant ESG data available, and gathering these data and disclosing them is an additional expense. To simplify this process, ESG Certificates, issued by publicly acknowledged third-parties, are a step in the right direction but still take considerable time to attain and might stress the resources of the company. The most economical alternatives to date are ESG scores which are available from third party providers such as rating agencies and credit bureaus and require low upfront investment.

These scores are regulated by the European Banking Authority to build a trustworthy and consistent landscape of comparable data points.

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<sup>114</sup> Tasman-Jones (n. d.)



ESG Scores ensure clarity and consistency. The underlying data may be available at different levels of granularity for data points like a) GHG emissions for scope 1, scope 2 and scope 3 (which heavily depend on secondary data), b) waste and energy consumptions of the company, c) their social engagement and governance structure c) up to the risk exposure upon physical risks and transition risks<sup>115</sup>.

Most Rating agencies and credit bureaus such as CRIF AG are able to provide to their clients these ESG Scores for listed and non-listed companies as well as for SME for initial analysis without the direct involvement or need to disclose data from the respective, analyzed company. Financial institutions use these ESG Scores for their ESG portfolio analysis especially for the non-listed companies and SME market. Large companies use these data for an initial risk exposure analysis of their supply chain companies.

**Conclusion:** Companies from high emission industries may face a bias in their access to capital, which can be solved by providing more ESG data transparency. From an investment point of view, a strong ESG focus of a company can result in a lower ROI expectation due to the lower risk exposure driven by stronger corporate governance, positive impacts in the social factor with less employee turnover and more sustainable resource use.

In a next step, we focus on the financial sustainability of companies from the ESG regulatory perspective.

## **Financial sustainability from an ESG regulatory and risk perspective point of view for the company and its supply chain**

For large companies, their materiality analysis for ESG and ESG regulation is highly important to ensure the stability of their financial sustainability. It is crucial to understand also on the long term; which regulations will be set in place over time and to budget accordingly.

Particularly large companies meeting the thresholds for mandatory sustainability reporting face increasing cost of compliance. To comply with extended sustainability reporting requirements such as the CSRD, a large number of experts internally and consultants externally need to be involved to provide the necessary sustainability reports and information about non-financial disclosure and climate-exposure.

For most companies, it is manageable to create and provide the requested data for their own operation. However, most sustainability reporting standards require besides an extended materiality analysis also information about the value chain, in particular for GHG emissions and supply chain risks such as child labor and human rights. To retrieve these data, further additions to the existing risk management approaches need to be implemented, grievance systems need to be installed and abstract and details risk management processes need to be in place.

The set-up of these improved and extended ESG risk management systems require resources, labor, capital and time. However, the greatest restriction is the availability of data in the value chain. As for most companies, the vast majority of the supply chain consists of SME, with the above already mentioned challenges when it comes to ESG data availability and transparency.

Current tendencies from the field show that corporations have included their tier one suppliers (their most important and material suppliers) in their ESG and supply chain risk assessment combined with a high-level involvement (e.g. via supplier code of conducts) of all suppliers. This is a feasible initial approach to provide transparency in the supply chain. Yet, for the grand number of SMEs within the supply chain, the relevant risks are difficult to be mitigated.

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<sup>115</sup> European Banking Authority (2022)

From a risk perspective and a holistic ESG perspective though, the hidden risks in the supply chain are the most relevant – the availability of one particular product from only one specific supplier, a potential child labor case at a minor supplier combined with a large reputational risk, or very impactful requirements based on particular EU regulations (e.g. EU waste and packaging directive<sup>116</sup> or the EU Deforestation Regulation EUDR<sup>117</sup>) which are impactful also when triggered by a smaller and less important supplier.

It is therefore crucial to get a broad understanding of the ESG data and information in your supply chain. This is a complicated and long-term endeavor as not all suppliers are able to provide data to the required granularity, the integration of all relevant data may not be automated, structured or may require a lot of media disruption and siloed monitoring. An integrated view of the supply chain may also ask for interdisciplinary teams to holistically analyze the data and interpret the relevant risks.

Substantial threats to great financial sustainability are duplicate labor and processes as well as hidden costs in manual labor for reporting and analyzing reasons.

It is therefore suggested to count on ESG data and ESG scores provided from third parties throughout the supply chain for initial analysis and triage purposes as well as integrated sustainability certification tools. These allow the suppliers with minimal entrance barriers to provide their own data, to potentially receive a globally acknowledged certificate as well, and to give the company possibilities to combine their supplier portfolio data based on ESG performance, risk exposures such as Child Labor, consumptions and other relevant topics and integrate the data via interfaces in their management information systems. Ideally these tools are officially recognized (e.g. GRI or rating agencies) and provide global coverage.

#### **Conclusion: Most important points for companies**

For the company it is important:

1. To have a clear understanding of the relevant ESG regulation in all relevant countries.
2. To analyze the supply chain exposure on a detailed level to also include hidden risks within smaller suppliers.
3. To work interdisciplinary to avoid double work and to gain insights.
4. To digitize and automate data retrieval from suppliers with globally accepted tools and ESG Scores.
5. To understand the impact of these topics and upcoming regulatory requirements on the financial sustainability and plan accordingly to meet capital needs.

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<sup>116</sup> European Commission (n. d. c)

<sup>117</sup> European Commission (n. d. d)

## Financial sustainability between cost of ESG compliance and ESG value creation and their strategic impacts

When speaking about ESG and the impact of the cost of compliance, it is crucial for companies to think outside the box. Any regulatory requirement has an impact on the financial sustainability from a profitability perspective but also from a reporting effort and long-term planning. This is not limited to companies which are mandatorily reporting due to meeting thresholds but also for smaller companies being indirectly targeted by the regulatory requirements through their stakeholders.

That investments in ESG data availability have to be done is a given; the strategic question is if these investments are done purely to meet regulatory needs or to create further value for the company and its stakeholders.

Added value can be created through various drivers on different levels, as below examples show:

- 8 Gap analysis for sustainability regulation and requirements cross-functional to identify cost saving or value creation potential through re-organizations, realignments, or combinations thereof (e.g. requirements from Third Party Risk Management and ESG supplier risk could be aligned together and built in one implementation program)
- 9 Reflection on the long-term inclusion of ESG in your value proposition and how it can benefit you and your stakeholder.
- 10 Identification of already existing strategic programs which can be extended with an ESG point of view.
- 11 Long-term financial planning including early adoption for relevant regulations to save extensive consulting costs when implementation has to happen last-minute.
- 12 Set up a cross functional ESG expert group to benefit from interdisciplinary added value and to break down silos.
- 13 Measure your decisions based on the marketing value of ESG, the cost of compliance and your financial sustainability. Is it worth it on the short term and on the long term?
- 14 Enter partnerships or experience groups with peers to profit from cost sharing activities.
- 15 Engage employees' ideas to improve sustainable behavior.
- 16 Keep your suppliers and business partners close in these discussions.
- 17 Identify the ESG data within your own company and your supply chain and understand their added value for business decisions – besides the pure reporting purposes.

In our VUCA (volatility, uncertainty, complexity, and ambiguity) world, the key for long lasting business success is the capability to quickly adapt to change and changing conditions, ideally backed up with a strong financial sustainability. The better a company is prepared to not only comply with regulation and requirements but to thrive and create added value out of them, the better the chances for long lasting success.

### Conclusion:

To conclude, we demonstrate that there is no separation of financial sustainability and ESG, but ESG factors need to be included in the company's strategy and hence in the financial sustainability to commit to its goal of long-term security. Data transparency particularly within the client portfolio and the supply chain can be achieved through third party data from rating agencies or credit bureaus and on a more detailed level from your counterparties through ESG certifications and requests of primary data. This allows an overall improvement of available data to

indulge in deeper analyses and better results – not in order to create more detailed sustainability reports but to create added value with these data by including them in your business processes and innovations.

It is furthermore advisable to analyze the added value of your ESG reporting and risk management and if you potentially meet a few of Stefan Hunziker's reasons mentioned in one of his latest posts about why your risk management might be obsolete<sup>118</sup>. This is of course, as he stated himself, a little provocative, but summarizes the challenges in nowadays general risk management. As long as it is done only to be compliant, it is not good enough.

**Furthermore, we suggest the following conclusions of this article:**

- Yes, risk management and regulations are important.
- Yes, ESG and sustainability are crucial for our long-term wellbeing as a planet.
- Yes, financial sustainability is highly relevant.
- But the most important criteria for long term success is the constant improvement and creation of added value.

So, don't treat ESG as a pure limitation of your financial resources and a necessary compliance means to remain in business but promote it into your strategy, into your long-term company vision and create long term value and success for your stakeholder, your environment and your company's future with it.

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# Eraneos Switzerland AG: Cyber Resilience

The last few years have been marked by uncertainty and change and have made us aware of how important it is to make our companies resilient. Cyberspace and the risks associated with it have also changed significantly. In addition, the advancing digitalization in many companies is leading to a continuously increasing dependence on technology and a interaction with a wide variety of service providers. The resulting ecosystem and associated vulnerabilities expose organizations to increasing systemic risks and increase the risk of a cyberattack. Monitoring and closing these vulnerabilities comprehensively with the help of cyber security management, which often only seems reactive, is a failing undertaking.

Organizations need to continuously analyze the threat landscape and develop a holistic defense strategy that considers the ongoing changes in their organization, infrastructure, and environment. Because the question is no longer whether one's own company will be affected, but when.

According to ISO 22316, resilience is defined as the ability to cope with a changing environment and minimize the impact of a cyberattack on the company's operations. Cybersecurity is a key pillar of resilience. Resilient organizations can anticipate risks and opportunities caused by sudden or gradual changes in the internal and external context and to respond appropriately to them. Cyber resilience is therefore not just about prevent, prepare for and react on emergency or crisis scenarios, but also about continuing to exist under challenging conditions and adapting to the new environment.

Cyber resilience is not a one-time process, but a set of multi-stage measures:

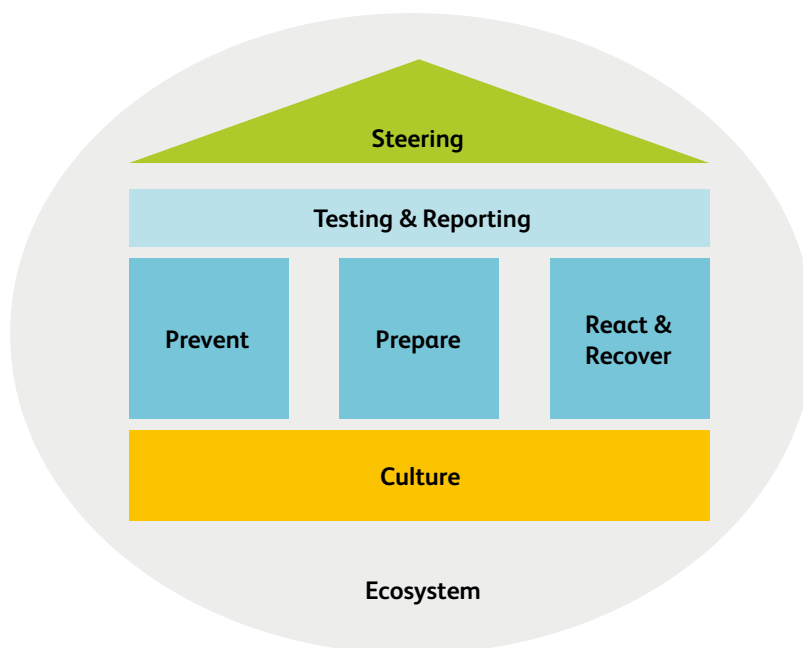


Figure 5: Multi-stage measures for cyber resilience

- **Governance – Risk Management & Risk Appetite:** When building and maintaining cybersecurity and resilience, responsible leaders should take a risk-based approach to information risk management. To do this, both the company's risk appetite must be identified and the ownership of the risks defined. It is advisable to focus on the impact on business operations in the risk discussion. The procedures for identifying, measuring and evaluating the risks are to be designed in a comprehensible way. The derivation of suitable measures is based on this.
- **Culture:** No less crucial is the human component, without which automated processes and sophisticated security technology will not achieve the expected impact. In order to establish appropriate prevention and to react quickly and appropriately in the event of an incident, cyber resilience must be anchored throughout the company and "lived" by all employees. Cyber resilience as a cultural element is of central importance, especially at the board and management level, and forms the basis for a resilient corporate culture at all levels of the organization. We recommend that management and boards of directors position themselves as sparring partners of management and actively participate in the discussion on risk appetite. It is important that they are always aware of their role model function, also regarding the topic of cyber security.
- **Prevent – Technology and Awareness:** The security technologies and mechanisms used must be regularly reviewed, updated and tested, as in the age of digitalization, both the threats and the companies themselves are constantly changing. Despite extensive technology, the weakest link remains the human being. Continuous training to establish and maintain a healthy skepticism and caution identifying cyber dangers is at least as important.
- **Prepare – Limiting Damage:** Despite the best possible precautions, an incident sooner or later becomes reality. The defined risk appetite determines the scope and depth of the measures taken to minimize losses, such as the tolerated time of an interruption and, accordingly, the spare capacity reserved – both technically and organizational. These measures often cause additional investment and operating costs, which is why close coordination with the risk owners is mandatory.
- **React and Recover:** Ultimately, companies should determine how they react to cybersecurity attacks. In addition to the legal reporting obligations, this also includes an exchange of communication with investors, partners, suppliers, customers and employees. Companies that proactively prepare for potential incidents and invest in their cyber resilience create a basis of trust that can ensure their own continued existence in the event of an incident.
- **Testing and reporting:** Preparatory measures must be tested regularly in order to work in the event of an incident. Here, it is particularly advisable to focus on the interaction between different hierarchical levels and internal departments and corporate functions in order to optimize these interfaces. In order to track the implementation of identified improvement measures and to check the effect achieved, regular reporting and retesting is key.
- **Ecosystem:** No organization provides all services in-house. Cyber resilience should be thought of beyond the boundaries of one's own organization and include partners, suppliers, customers and investors alike. The dependencies are becoming more and more complex and require a security-conscious interaction of the entire ecosystem.

By taking a holistic view of cyber resilience – integrated into an organization-wide strategy to increase resilience – companies can be prepared for the dangers from cyber space in a targeted and results-oriented manner.

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Part IV:

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# Publishing Institutions

## **Institute for Financial Services Zug IFZ**

The Institute for Financial Services Zug IFZ at Lucerne School of Business is the leading applied university institute in the financial sector in Switzerland. Since 1997, the IFZ has been providing added value for the financial industry and financial professionals across various sectors through continuing education, application-oriented research, and consulting. The IFZ's educational offerings include, for example, the MSc in International Financial Management and the MSc in Banking and Finance. In the field of continuing education, the IFZ offers numerous recognized courses, such as the MAS/DAS in Risk Management and the MAS/DAS in Corporate Finance/Controlling.

## **Kiel University of Applied Sciences, Institute for Controlling (Cooperation Partner)**

Kiel University of Applied Sciences is the largest university of applied sciences in the state of Schleswig-Holstein. In the winter semester 2023/24, it educates more than 7,500 students across six departments. The Institute for Controlling is part of the Department of Business. Together with colleagues from external accounting and taxation, we teach in several bachelor's and master's degree programs focusing on Accounting, Controlling, and Taxation. Furthermore, the Institute for Controlling has a research and consulting focus in the areas of Risk Management and Risk Governance, particularly in coordination with Controlling. Institute members are active in numerous academic and transfer organizations, such as the International Controller Association and the Risk Management Association, as well as on supervisory boards.

## **Swiss GRC (Cooperation Partner)**

Swiss GRC AG is the leading software company in Switzerland in the areas of Governance, Risk, and Compliance (GRC). With years of experience, Swiss GRC possesses extensive expertise in the GRC environment and offers tailored solutions for efficient and comprehensive GRC implementation.

## **CRIF (Cooperation Partner)**

CRIF is the leading provider in Switzerland of credit risk management, fraud prevention and address management solutions for every phase of the customer relationship cycle. In addition, CRIF offers analytics and decision support solutions, particularly through the optimization of credit application, portfolio management and collection processes. CRIF has a global presence, operating over four continents (Europe, America, Africa and Asia).

## **Eraneos (Cooperation Partner)**

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