Organizational resilience: a review of the literature, with lessons learned from a corporate governance and SME perspective

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1. Introduction

Companies are currently operating in an environment of unprecedented risk and uncertainty linked to economic turbulence, geopolitical turmoil, looming climate change, and global health crises. While many organizations suffer setbacks when confronted with adversity, some seem to be more successful than others in responding to unexpected or extreme events. These companies appear to have found ways to rebound and emerge stronger, a phenomenon described in the literature as "resilience". Organizational resilience is an increasingly popular theme in both academic research and business practice. In addition, several professional bodies have issued standards and guidelines covering principles and activities for enhancing organizational resilience (ISO, 2017).

The aim of this paper is to review the current state of resilience research, how organizational resilience is defined and conceptualized, and which mechanisms are used to make it work in practice. We summarize the main findings from the literature before briefly elaborating on resilience in small and medium sized enterprises (SMEs). We will also make the link with corporate governance practice as boards, executives, shareholders, and other stakeholders have a shared responsibility for safeguarding the company's long-term resilience. We trust the insights captured in this paper are of interest to those concerned with developing effective resilience in their organizations.

2. What is resilience all about?

Broadly defined, organizational resilience is about achieving desirable (value increasing) outcomes in the face of uncertainty or challenging conditions, including unexpected shocks or crises (Sutcliffe and Vogus, 2003; Vogus and Sutcliffe, 2007). This section first explains the concept of resilience, before describing some categorizations of risk and adversity that touch on different aspects of resilience.

2.1. Definition of resilience

The concept of resilience has been the subject of a significant amount of research in a variety of academic disciplines, including psychology, ecology, organization theory, and supply chain management. The result is significant fragmentation in the definition and operationalization of the construct. The term "resilience" comes from the Latin word *resilire* or *resilio*, meaning to bounce or jump back (Williams et al., 2017). In physics and engineering, resilience refers to the ability of a material or physical system to return to its former shape after a deformation and is largely synonymous with flexibility or adaptability (Barasa et al., 2018; de Bruijne et al., 2010). It has subsequently been used in the field of ecology to refer to the persistence of ecosystems and their ability to absorb change and disturbance with minimal effects on their functioning (Holling, 1973). The concept of resilience is generally based on the notion of performing well in adverse circumstances (Sutcliffe and Vogus, 2003). More specifically, the organization literature suggests that in the face of unexpected adversity, the resilient organization bounces back to an acceptable state of normality quickly and without lasting damage (Boin and van Eeten, 2013).

Williams et al. (2017) highlight the different views in the literature about whether resilience is an organizational characteristic, an outcome, or a process (or a combination thereof). First, there is the question whether resilience as a characteristic or capacity is fixed or "malleable". Most scholars seem to agree that organizational resilience is not only about the inherent (static) ability of individuals or organizations to maintain their performance levels under challenging circumstances but also about the dynamic, emergent capacity to adapt, which develops over time as circumstances change (Wildavsky, 1988). Second, resilience as an outcome relates to the state of return following adversity. Some studies see organizational resilience as a return to the status quo, whereas other consider resilience as exploiting current challenges to emerge stronger and more resourceful (Lengnick-Hall et al., 2011). Third, resilience from a process perspective focuses on the notion that an adverse situation is not just an event but a process that develops over several phases. A process definition of resilience, therefore, includes pre-adversity capabilities, in-crisis organizing and adjusting, and post-crisis responding (Williams et al., 2017).

Research on resilience has been conducted at various levels of analysis—individual, group, organization, industry, and societal level. At the individual level, the term "resilience" refers to the ability of organizational members to bounce back, and even succeed, in the face of problems and adversity (Luthans et al., 2002). Similarly, the term is used at the organizational level to describe organizations that are able to respond more quickly, recover faster, or adapt more effectively under adversity than others (Sutcliffe and Vogus, 2003; Vogus and Sutcliffe, 2007). The primary focus of this review is on the response, recovery, and adaptation of the overall organization.

2.2. Different types of risk and adversity

The risk management literature mentions various types of risks and adversities, including strategic risks (e.g., related to changes in customer behavior or competitor actions, or reputational damage), operational risks (e.g., losses resulting from inadequate technical or human processes, such as quality problems or supplier performance), financial risks (e.g., fluctuations in currency exchange rates), hazard risks (e.g., environmental disasters or pandemics), and legal, regulatory and compliance risks (e.g., fraud). Sutcliffe and Vogus (2003) consider resilience both in the context of internal and external adversity. Internal adversity relates to, for example, poor leadership, rapid change, or performance or production pressures, whereas external adversity includes increased competition or demands from stakeholders. The growing interest in the topic of resilience in recent years generally reflects concerns about major external hazards, such as the 2008 financial crisis or the Covid-19 pandemic. This paper focuses on resilience in the context of externally induced adversity.

One of the elements in defining resilience relates to the severity of the adversity the organization is faced with (Williams et al., 2017). Most research sees resilience as a capacity to deal with rare, devastating events. For example, so-called black swan events are characterized by their extremely low likelihood, potentially severe consequences, and high level of unpredictability. Adversities are also heterogeneous in terms of the speed with which the events manifest themselves (Williams et al., 2017). Some challenges are triggered quickly, evolve rapidly, and are short in duration, whereas others emerge slowly, evolve gradually, and are extended over time. With greater speed of the adversity also comes the speed with which organizations can accelerate their preparations (e.g., risk management assessments) and their responses (Williams et al., 2017).

What is commonly referred to as a "crisis" is typically a low-probability, high-impact event that threatens the viability of the organization. Such adverse events are often unexpected, caused by factors outside the system, and require immediate action (van der Vegt et al., 2015). Examples include "normal" emergencies (e.g., fires or accidents) as well as man-made or natural disasters, such as earthquakes, political turmoil, or terrorist attacks. In their discussion of organizational resilience Vogus and Sutcliffe (2007) include both discrete shocks (e.g., corporate scandals or financial crises) as well as ongoing risks (e.g., competition) because the accumulation of many small interruptions can compromise the functioning of an organization just as much as one large discrete event.

3. A brief overview of the resilience literature

Resilience is a multidisciplinary concept that has been studied in a wide variety of academic disciplines. This section will briefly describe how resilience has been positioned in the various literatures in the organization and management sciences. We will then zoom in on how resilience relates to the domain of risk and crisis management.

3.1. Different streams of resilience research

3.1.1. Psychology

The concept of resilience has its roots in the field of psychology, where it refers to the ability of individuals to withstand stress and bounce back or recover from traumatic events (Luthar et al., 2000; Coutu, 2002). Resilience is defined either as a personality trait (called resiliency) or as a process that enables individuals to overcome hardship (de Bruijne et al., 2010). Applied to an organizational context, resiliency is one of the variables that contribute to the development of mental strength in employees (Luthans, 2002). Coutu (2002) identifies three common characteristics that resilient individuals possess: an acceptance of reality, a strong belief that life is meaningful, and the ability to improvise. The process-based literature suggests that resilience is a learnable capacity that can be developed within employees to cope with unfamiliar events or adverse situations. Resilience is conceptualized as an element of "psychological capital" and regarded as amenable to measurement and managerial intervention (Luthans et al., 2006).

Research has studied both the antecedents of employee resilience and the impact of psychological capital development on employee attitudes, performance, and behaviors. This body of work finds that employees' resilience contributes to job satisfaction (Youssef and Luthans, 2007) and commitment to organizational change (Shin et al., 2012). The literature also discusses the importance of "resilient leadership" to successfully navigate the organization through challenging times (Southwick et al., 2017), which is described further in section 5.5. Another stream of research focuses on the psychological qualities (flexibility, motivation, perseverance, and optimism) that contribute to the ability of entrepreneurs to sustain their business activities – a phenomenon labelled "entrepreneurial resilience" (de Vries and Shields, 2006). Three factors are identified to positively contribute to the pursuit of entrepreneurship during periods of adversity: 1) engaging in business development training to strengthen the (aspiring) entrepreneurs' belief in their entrepreneurial ability; 2) seeking out networking and mentoring opportunities to learn by modeling others; and 3) being active in entrepreneurial pursuits, practicing business acumen, and seeking feedback (Bullough and Renko, 2013). Empirical research confirms that entrepreneurs who score highly on resilience characteristics, such as resourcefulness, are likely to operate a successful and growing business (Ayala and Manzano, 2014).

3.1.2. Organization theory

The origin of the resilience concept in the organization literature can be traced back to a seminal paper by Meyer (1982). This study of a doctors' strike in a group of hospitals shows how organizations adapt to an "environmental jolt" (i.e., a sudden, unprecedented event) by using two different types of responses. One response, labeled "resiliency", is deviation-reducing by absorbing the impact of the shock. The other response ("retention") is about adopting new practices or configurations. From the mid-1980s to the end of the 1990s, the focus of academic research on resilience shifted from exogenous threats towards those internal to the organization, driven by several high-profile industrial accidents and disasters (Linnenluecke, 2017).

An important stream of research on organizational resilience is based on the theory of High Reliability Organizations (HROs). These scholars investigate resilience by conducting case studies in organizations that operate high-hazard technologies, such as aircraft carriers, air traffic control centers, and nuclear power plants. They analyze how HROs avoid accidents and failures by actively striving for operational safety and reliability. The underlying proposition of their work is that accidents or catastrophic failures can be prevented by ongoing small adjustments that prevent errors from accumulating. The work by Weick et al. (1999) and Weick and Sutcliffe (2007) conceptualizes resilience not as an outcome variable, but as a process of "mindfulness" leading to reliability. That is, HROs exhibit a combination of high alertness, flexibility, and adaptability, which, in turn, lead to increased resilience (Weick and Sutcliffe, 2007).

It remains an open question to what extent and how HRO principles can be transferred across organizations to create resilience in other contexts. Given the increased level of uncertainty and unexpected shocks in the current business environment, organization and management scholars have recently (re)discovered resilience as a key topic of interest. The focus of resilience research has shifted to external risks, driven by global threats around terrorism, geopolitical instability, and climate change, and their implications for organizations' functioning.

3.1.3. Business model innovation

Resilience research in the strategic management literature aims to understand how companies build resilience by dynamically adapting their business models in an ever-changing environment – preferably before they are forced to do so by external circumstances (Hamel and Välikangas, 2003; Linnenluecke, 2017). In this context resilience is defined as a process capability where companies continuously reinvent themselves by overcoming barriers to change and developing multiple sources of competitive advantage (Demmer et al., 2011). Hamel and Välikangas, 2003) argue that organizations that strive for "strategic resilience" need to master four challenges: 1) conquering denial (i.e., facing the reality of a changing world), 2) valuing variety (e.g., in the form of experimentation), 3) liberating resources (e.g., providing seed funding for promising new activities), and 4) embracing paradox (i.e., exploring new strategic options). The focus is not so much on building response capabilities to one-off crises, but on continuously anticipating and reacting to trends that may permanently impair the earning power of the core business (Demmer et al., 2011). Rather than perceiving innovative business-models as a threat and resist changes to their strategy, decision makers who view these innovations as opportunities are more likely to adopt them into their core practices and adjust to a changed competitive landscape (Williams et al., 2017).

3.1.4. Supply chain resilience

Finally, there is a well-developed research stream that focuses on resilience in the context of vulnerabilities or disruptions in the supply chain or supply networks. Sheffi (2005) and Sheffi and Rice (2005) hypothesize that the capabilities leading to resilience in supply chains are flexibility and redundancy (e.g., diversification across suppliers and multiple production modes). Research on supply chain resilience focuses on the impact of implementing these design principles on both cost and service characteristics, and on how organizations manage the inherent vulnerability of interdependencies within highly complex supply networks (Linnenluecke, 2017). While the majority of supply chain resilience research is conceptual in nature, empirical studies have identified several supply chain capabilities that are correlated with resilience – flexibility, reaction speed, access to timely information, and collaborations (Jüttner and Maklan, 2011).

3.2. Resilience versus risk and crisis management

It is useful to understand how organisational resilience relates to other management practices, in particular risk management and crisis management. Resilience and risk management share a common ground — how organizations cope with the challenge of adversity. This section briefly summarizes what we can learn from the risk and crisis management literature that might help us gain a better understanding of organizational resilience. In section 7 we will elaborate on the role of the board of directors in risk oversight, which is a critical element of corporate governance.

The purpose of risk management is to mitigate and manage the factors that cause the outcomes of an organization's activities to deviate from its objectives. In the early days, risk management was mainly concerned with financial risk management, focusing on financial instruments such as hedging. In addition, insurance experts took care of natural disasters and liabilities, while the operations departments handled quality and safety risks (Bromiley et al., 2015). Over the last few decades, risk management has expanded beyond financial hedging, insurance, and operational control and given rise to the concept of enterprise risk management (ERM), which provides a holistic view of the risks associated with different business activities (Bromiley et al., 2015). Another risk management process, known as business continuity management, concentrates on how to respond to major disruptions and maintain backup capacity for operational systems during a crisis (ISO, 2019).

Building resilience and managing risk are not substitutes but rather complements. Risk management focuses primarily on risk identification and risk assessment, which works well when dealing with "known" risks. Companies' resilience to these risks involves a planned, procedural approach to reducing the likelihood and magnitude of the risks and is typically dealt with through risk registers and other risk management tools. In contrast, in a complex and turbulent environment, many of the risks that a company faces are unpredictable or "unknowable" before the fact. These so-called emerging risks are often triggered by low-probability events whose causes are ill understood and their potential cascading effects difficult to understand *a priori* (Fiksel et al., 2015). Since they cannot be adequately addressed with traditional risk management systems, calls have been made for a shift from identifying and mitigating risk to developing organizational resilience. Resilience enables an organization to gain competitive advantage by learning how to deal with disruptions more effectively than its competitors and possibly shift to a new equilibrium state (Fiksel et al., 2015). Resilient organizations are prepared not only to respond satisfactorily to high-impact risk events but also to proactively seek opportunities to create value from environmental uncertainty. In sum, resilience is considered a much-needed complement to traditional risk management in response to the current dynamic environment.

4. Conceptualization of resilience

This section synthesizes two distinct operationalizations of resilience, one based on the different phases in the resilience process and the other based on the various capabilities involved in building resilient organizations.

4.1. The process-based view

An adversity can be viewed as a one-off event or as a process. Research from an event-centered perspective focuses primarily on exploring resilience in the aftermath of a crisis. In contrast, research from a process perspective is based on the understanding that adversities develop over time in a sequence of phases and analyzes how resilient organizations address them before, during, and after the crisis event. In what follows we label those practices anticipatory, recovery, and transformative resilience.

4.1.1. Anticipatory resilience

The essence of organizational resilience is not only to respond to adversity but also to prepare for it and mitigate it before it arises. Anticipation aligns with what Boin and van Eeten (2013) call “precursor resilience”, which refers to the ability to contain emerging problems and prevent them from escalating into a full-blown crisis. The anticipatory phase of resilience is based on foresight, which derives from organizations adopting entrepreneurial and outward looking strategies, an appreciation of the world around them (opportunities and threats), and an openness to new ideas (Meyer, 1982). Anticipation also includes what we refer to in section 4.2.1 as “planned resilience”, i.e., the pre-disruption arrangements that the company has put in place to anticipate and proactively mitigate the negative impact of risk events. Examples include information systems for monitoring risk indicators and business continuity plans that set out how to avoid or minimize the effects of a crisis.

4.1.2. Recovery resilience

In organization theory, the term resilience has been used to refer to the ability of organizations to absorb strain and preserve (or improve) functioning despite the presence of adversity, or to recover and bounce back from unexpected events (Sutcliffe and Vogus, 2003). In line with this view, Meyer (1982) considers resilience as an outcome variable, operationalized as the time needed for the organizations to restore normal levels of operations. We follow Boin and van Eeten (2013)’s definition of recovery resilience as the phase in which an organization responds to, and bounces back from, a shock and then goes back to a state of normality. For example, risk management studies traditionally consider risks as representing potential deviations from the “normal” state and are predicated on the goal of returning to a stable operating condition (Fiksel et al., 2015). Similarly, crisis management research examines how organizations develop procedures that enable effective disaster response, whose purpose is to bring the disrupted organization back into alignment and restore equilibrium as soon as possible (Williams et al., 2017).

4.1.3. Transformative resilience

The concept of resilience includes not just a system’s capacity to withstand shocks and return to a stable equilibrium (recovery resilience), but also to adapt and transform. Lengnick-Hall et al. (2011) define organizational resilience as a firm's ability to effectively absorb shocks, develop situation-specific responses, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival. Rather than striving to resume established performance levels, transformative resilience is about the development of new capabilities and an expanded ability to create new opportunities. For example, the Covid-19 pandemic has created not only unparalleled upheaval for companies but also significant opportunity to rapidly advance their digital ambitions and adapt their business models. While many organizations have been struggling with such rapid transformation, those with the required capacity for transformative resilience have been capable to evolve quickly. In sum, recovery resilience is about occasional recovery from extreme circumstances, whereas transformative resilience is about developing organizations that are predicated on constant change and renewal.

4.2. The capability-based view

Organizations nurture resilience by developing specific capabilities to cope with adversity and disruptions. In this respect the literature makes a distinction between a static versus dynamic view of resilience. In the static view, resilience is seen as a set of characteristics present in organizations that permit them to return to stability following an adversity. In contrast, the dynamic view considers resilience as a process through which organizations learn from experience and become stronger and more capable of withstanding future shocks (Sutcliffe and Vogus, 2003; Williams et al., 2017). This perspective is also reflected in the ISO (2017) definition that refers to resilience as "the ability to absorb and adapt in a changing environment". In line with this static versus dynamic view, academic research distinguishes between two types of capability-based resilience – planned and adaptive resilience (Barasa et al., 2018).

4.2.1. Planned resilience

Planned resilience is about anticipation, readiness, and preparedness and implies that the responses to disruption are implemented in advance. For example, Boin and van Eeten (2013) suggest how the HRO framework makes the connection between organizational characteristics and planned resilience. The formal mechanisms include the presence of a high technical competence throughout the organization; an elaborate set of procedures and practices directed towards avoiding disastrous events from happening; and a formal structure of roles, responsibilities and reporting relationships that can be transformed under emergency conditions into a decentralized, team-based approach to problem-solving. Research into planned resilience tends to emphasize recovery and getting back to normal, so this type of resilience appears to be most effective in relatively stable environments.

4.2.2. Adaptive resilience

Adaptive resilience is about responding to disruption as it unfolds (e.g., through creative thinking and learning from experience) and adapting to the new post-disruption environment (Bharma et al., 2011). Adaptive resilience may still require some pre-crisis action (e.g., creating a culture where staff feel empowered to think and act creatively) but – contrary to planned resilience – it does not seek to pre-determine the response. Established mechanisms to handle the "known" risks usually turn out to be insufficient in an environment of deep uncertainty characterized by risks that were previously unidentified or not considered. Since it is impossible to anticipate everything, a key requirement for organizational resilience is to be adaptive when something does occur.

Three capabilities have been mentioned in the literature as being particularly relevant in the context of adaptive resilience. The first pillar of resilience is flexibility (Sheffi, 2005). It includes, for example, being flexible in the ways the company structures and conducts its business operations, but also engaging with new customer bases and adjusting to new regulations. Second, organizational learning is considered an essential element of adaptive resilience. According to Wildavsky (1988), to be resilient is to be prepared for adversity which requires "a generalized capacity to investigate, to learn, and to act, without knowing in advance what situation or event one will be called to act upon". Finally, experimentation is an essential part of effective organizational learning and adaptation, to ensure that minor failures do not continue and intensify into a major incident (Linnenluecke, 2017). This means people must try different techniques, consider new products and services, or exploit different business processes and sales channels.

5. Making organizational resilience work

This section elaborates on the attributes and capabilities organizations develop to achieve resilience. The mechanisms through which organizations anticipate, prepare for, and respond to adversity highlighted in the literature include resource availability, organization structure and governance, planning and risk management processes, information infrastructure, leadership style, and organization culture.

5.1. Resource availability

The availability of resources is considered a key enabler of organizational resilience, in line with the resource-based view theory (Barasa et al., 2018). We refer in this context to the resources that organizations possess prior to the adversity and that shape their capacity for recovery and adaptation. For example, Pal et al. (2014) observe that resource constraints, specifically material, financial, and technological resources, impaired the resilience of SMEs to the 2008 economic crisis. Several scholars emphasize the importance of slack (i.e., 'redundant') resources, such as financial reserves or diversified supply channels, in absorbing the impact of adverse conditions (Meyer, 1982; Sutcliffe and Vogus, 2003). In addition to material and financial resources, resilience is also maintained through the availability of non-tangible resources, including cognitive, behavioral, emotional, and relational capabilities (Williams et al., 2017). For example, cognitive capabilities, such as vision, sense of purpose, and strong values as well as deep knowledge and expertise, help organizations solve problems in the face of adversity (Lengnick-Hall et al., 2011).

5.2. Organization structure and governance

One of the governance practices identified as critical for organizational resilience is decentralization (Barasa et al., 2018). During a major setback or crisis, organizational hierarchies with formal role descriptions and centralization of authority are no longer sufficient (van der Vegt et al., 2015). Adaptive responses require the ability to quickly transform the formal structure and use decentralized, team-based or network approaches to problem solving. Another governance feature that supports the resilience of organizations to both acute and everyday challenges is the degree of coordination within the organization (Barasa et al., 2018). McManus et al. (2007) find that organizations whose functions and parts operate in an uncoordinated, "silo" fashion are less resilient to human-made and natural disasters, compared to organizations that have coordinated systems. Finally, an organization's ability to and leverage external networks determines its resilience (Barasa et al., 2018). Companies do not just build resilience within their organizational boundaries, but proactively manage it throughout their networks of trading partners. Social connections that enable access to and exchange of resources and knowledge play an important role in enabling positive functioning in adversity (Williams et al., 2017).

5.3. Management processes

In preparation for adversity, organizations may review their planning and risk management processes to make sure they can effectively handle a crisis. Organizations traditionally spend significant efforts formulating and executing strategic and financial plans, which works well when causal relationships are relatively clear and predictable. Resilience, however, deals with what is unknown, unpredictable, and constantly changing. One of the methods organizations use to prepare for future disruptions in dynamic environments is scenario planning (Barasa et al., 2018). The purpose is to perform a holistic risk assessment based on factual data and human insights to prepare for a range of future situations. Rather than simulate a limited number of what-if scenarios around a base case to stress tests the company's financials, scenario planning focuses on the long-term impact on the company's strategy.

Besides formal planning processes, many organizations have risk and crisis management procedures in place that are directed towards mitigating the downside impact of risk events. For example, business continuity planning refers to the formal planning and resourcing of crisis management activities that firms rely on to minimize business disruption (ISO, 2019). It helps organizations ensure the continuity of their operations before and during disaster recovery by mapping out and foreseeing backup for all critical processes, assets, and functions that might be affected in the event of a crisis. Business continuity management is considered an effective approach for protecting organizations against predictable risks. However, its effectiveness is sometimes compromised as companies, especially in regulated industries, implement increasingly detailed risk management procedures in response to tightening compliance requirements (Groenendaal and Helsloot, 2020).

5.4. Information infrastructure

Barasa et al. (2018) view information as a key ingredient of how organizations adapt to adverse situations. An information infrastructure that provides timely, accurate, and complete information, both on how an adverse situation emerges and the effectiveness of the organization's response, is essential. Formal communication structures (e.g., escalation processes, risk reporting systems) are necessary to help manage the information flow. Gunasekaran et al. (2011) include the use of technology as an enabling factor for resilience in the context of SMEs. The appropriate use of digital technology can strengthen an organization's capacity to take adequate action in case of adversity by improving the availability, timeliness, validity, and accuracy of information. In addition, companies are making increased use of data analytics, artificial intelligence, and machine learning to strengthen their capability and agility in response to risks and disruptions (Araz et al., 2020). The downside, however, is a growing concern about the potential disturbances that could result from cyber-attacks, digitalization, and disruptive technologies.

5.5. Leadership style

The organizational mechanisms supporting resilience relate not only to structural arrangements but also to the less tangible aspects of an organization, such as its leadership style and culture. Leadership plays an important role in helping an organization prepare for, recover from, and adjust to adversity, for example by making resources available or designing the organization in a way that promotes resilience (Williams et al., 2017). Some leadership styles are considered more effective than others in responding to adversity. Resilience cannot be imposed top-down, so rather than being controlling and directive, leaders need to act as mediators and facilitators who pull people together, foster open information sharing, and provide guidance to their efforts. Leadership in resilient organizations is characterized by inclusive decision-making and by creating a clear and shared vision (Barasa et al., 2018). Leaders need to ensure that all relevant stakeholders are included and contribute to decision making (Pal et al., 2014). Organizational resilience is nurtured by trust building, empowering, motivating, and creating commitment among staff and other stakeholders. During a crisis, leaders are expected to not only act as decision-makers, but also convey a sense of hope, optimism, and an inspiring vision (Vargo and Seville, 2011).

5.6. Organization culture

Boin and van Eeten (2013) discuss how HRO principles promote a culture of reliability as a mechanism for resilience by instilling values of care and caution, respect for procedures, attentiveness, and individual responsibility for promoting safety throughout the organization. Resilient organizations thus create a culture of awareness: since people expect crises to happen, they actively look for them (Boin and van Eeten, 2013). Barasa et al. (2018) identify two cultural practices as being key to organizational resilience. The first is the organization's attitude towards adversity, in particular the ability of leaders and staff to view challenges as learning opportunities and use these experiences to develop capabilities that improve their resilience. Second, a creativity- and innovation-driven climate is thought to provide an environment conducive to organizational adaptation and transformation in times of adversity. Resilient organizations nurture creativity by providing time and resources for experimentation, rewarding innovation, exhibiting tolerance for failure, and creating an atmosphere in which employees feel safe to share new ideas. Groenendaal and Helsloot (2020) also mention the importance of diversity in terms of multiple talents and styles that enable innovation in the context of resilience.

6. Resilience in different settings

In the previous sections we discussed the general attributes and capabilities that contribute towards an organization's resilience. However, to be fully effective a company's approach needs to be tailored to its context. This section highlights the contextual factors that may impact an organization's resilience. We then summarize the characteristics of SMEs that have been identified in the literature as supporting or hindering organizational resilience. Given the importance of SMEs to the global economy (in terms of employment, gross domestic product, and economic growth), their capacity to survive and thrive is critical. To date, however, research on organizational resilience has predominantly focused on large organizations. There seems to be an implicit assumption that resilience concepts and frameworks developed for large organizations are also relevant and directly applicable to SMEs (Ates and Bitici, 2011). Empirical evidence on the organizational mechanisms that SMEs use to achieve resilience is rather limited (Bhamra et al., 2011).

6.1. Contextual factors impacting organizational resilience

The literature identifies several antecedents that influence organizational resilience, including the industry, type of adversity, ownership structure, and firm size. First, the type of industry in which the company operates determines the level and type of resilience that is achieved. Mechanisms for effective and timely identification and handling of emerging risks, such as knowledge, communication, financial resources, and structural capacities, are particularly important for organizations in industries that manage potentially hazardous technical systems, as illustrated by studies of HROs (Williams et al., 2017). For these organizations, avoiding failure is of paramount importance, whereas for some others, such as new entrepreneurial ventures, failure is a more acceptable – albeit still undesirable – outcome of being in business. Similarly, companies in regulated industries, such as financial services, tend to have well established and robust risk management systems and processes that provide visibility and control of risks on an enterprise-wide basis (Bromiley et al., 2015).

Second, the type of risk or adversity also plays a role in the choice of organizational resilience mechanisms. Mechanisms for planned resilience tend to work best for risks or adversities that are predictable and well understood (de Bruijne et al., 2010). In contrast, if disruptions are inevitable and surprising, investing in adaptive resilience promises to be a more effective strategy than allocating scarce resources to controlling the environment and defending against specific risks (Wildavsky, 1988; Boin and van Eeten, 2013).

A third contextual variables that impacts organizational resilience is the firm's ownership structure. Kachaner et al. (2012) conclude that resilience is one of the distinguishing characteristics of family firms, for example, by being frugal and forgoing the excess returns available during good times to increase the odds of survival during bad times. Similarly, Minichilli et al. (2016) observe that family-controlled listed companies demonstrated consistently better performance during the financial and economic crisis compared to their non-family peers. In addition, the combination of a family CEO with relatively lower family ownership concentration is better at absorbing exogenous shocks than are alternative governance configurations in family firms. In contrast, Faghfouri (2013) finds that family businesses demonstrate a lower degree of crisis readiness than non-family businesses, where crisis readiness includes early warning signals, an open reporting culture, and formal procedures for planning and risk management. The results from this study, however, also suggest that the presence of a supervisory board leads to a higher degree of crisis readiness and reduces the difference between family and non-family businesses with regards to the professionalization of crisis readiness.

Fourth, the resilience of an organization to a particular event may be related to its size. For example, an operational disruption in a local branch may seem like a minor incident from the perspective of a large, global corporation, but can be significant for a small organization that operates in only few locations (Linnenluecke, 2017). Consequently, different mechanisms will be invoked to cope with the disruption. The next section will discuss in greater depth how organizational resilience is enacted in SMEs.

6.1. SME attributes: barriers or enablers of resilience?

Some scholars mention the inherent characteristics of SMEs as part of their strengths, whereas others focus on the attributes that make SMEs vulnerable and impede their ability to become resilient (Gunasekaran et al., 2011; Vargo and Seville, 2011). On the positive side, SMEs are said to benefit from reduced bureaucracy, increased flexibility, and responsiveness thanks to their size. Their flat organizational structures and tight knit intra-organizational relationships lead to rapid decision-making and implementation, and this in turn, creates flexibility in response to extreme events (Sullivan-Taylor and Branicki, 2011). Strategic flexibility, a key enabler for SME resilience, comes in the form of short decision chains, rapid and effective internal communications, capacity for fast learning, and the ability to quickly adapt routines and strategies (Pal et al., 2014). Pal et al. (2014) also highlight the positive impact of the learning and cultural aspects ingrained in small to medium-sized family businesses, such as attentive leadership and collectiveness.

The inhibiting factors for SMEs mentioned in the literature include constrained resources (in terms of time, financial, and human capital), reduced discipline in long-term planning and preparation, operational focus, top-down “command and control” management style, and entrepreneurial and informal decision-making (Ates and Bititci, 2011; Vargo and Seville, 2011; Linnenluecke, 2017). Previous research concludes that because SMEs generally lack resources and capabilities, they attempt to strengthen their resilience through strategic and operational readiness and speed (Sullivan-Taylor and Branicki, 2011; Pal et al., 2014). Since survival is seen as part of daily business, SME managers view resilience not as meticulous preparation for a specific extreme event, but as the ability to adapt and improvise as the environment changes. Small, dynamic, entrepreneurial organizations demonstrate what Vargo and Seville (2011) label “ad-hoc resilience” – they are agile but unsystematic in their approach. For example, SMEs are less likely to have formal plans in place that reflect a proactive approach to risk management, such as business continuity plans to deal with business interruptions in the event of a crisis (Bhamra et al., 2011). However, research has found that disciplined planning processes for both risk and crisis as well as for strategy are an important factor in an organization’s ability to thrive in times of uncertainty (Vargo and Seville, 2011).

Based on the work of Weick and Sutcliffe (2007), Sullivan-Taylor and Wilson (2009) derive four categories of managerial capabilities that are required for organizational resilience: technical, organizational, resourcefulness, and rapidity. Further research examines how these capabilities apply to SMEs in the context of threats and extreme events and finds that SMEs fall short in all but rapidity (Sullivan-Taylor and Branicki, 2011). The technical category refers to the managers’ ability to ensure that organizational systems perform to high levels under extreme stress. Inter-organizational dependence is critical in this respect due to the SME’s vulnerable position; however, little is done in practice to understand or mitigate potential threats. The organizational category focuses on the managers’ preparedness to make decisions and take actions to reduce disaster vulnerability and impact. SME managers are found to prefer “muddling through” a crisis rather than taking proactive actions. Resourcefulness, the managers’ capacity to identify potential problems, establish priorities, and mobilize resources to avoid damage or disruption, is identified as a key barrier to resilience in SMEs. Finally, rapidity is the capacity to make decisions about threats without undue delay. Contrary to the first three, this last capability is seen as an important strength of SMEs. As mentioned earlier, SMEs benefit from a flat management structure that enables rapid implementation of decisions and increase agility. They also possess resilience capabilities thanks to their informal approach to dealing with problems on a day-to-day basis. Sullivan-Taylor and Branicki (2011) conclude that since SMEs typically do not possess the resources and technical systems equated with resilience capabilities and despite their rapidity and flexibility, there may be a need for them to become more strategic and proactive in their approach to managing extreme events.

Ates and Bititci (2011) adopt a change management perspective to resilience by relating it to the organization's ability to adapt quickly and effectively to changes in the operating environment. Change management as a process capability is essential to creating resilience in SMEs and is enhanced by a number of factors, such as embracing the organizational, people, and cultural dimensions of change management as well as the operational aspects (e.g., giving employees a feeling of ownership and the freedom to make decisions according to their responsibility area); taking a strategic and long-term planning view of change; paying attention to relationships and communication with external stakeholders (key customers, suppliers and competitors); and anticipating and driving change internally and proactively rather than waiting until change is imposed from external sources (Ates and Bititci, 2011). Sullivan-Taylor and Branicki (2011) also identify effective inter-organizational relationships as enabling rapid implementation of decisions in SMEs, developing supply dependencies, and creating trusted relationships with financial institutions. In contrast, a lack of external support is observed to be a potential inhibitor for SME resilience (Pal et al., 2014).

For an SME to achieve resilience, some scholars advocate its capability of efficiently responding to the changing environment through so-called ambidexterity (Iborra et al., 2020; Coreynen et al., 2021). Ambidexterity allows firms to reconcile two seemingly opposing properties – on the one hand stability, reliability, and efficiency in the face of adversity (through planning, routines, consistency, and control), and on the other hand flexibility and adaptability to changing circumstances through innovation and experimentation. Resilient organizations develop an ability to switch between planned responses and adaptive actions as the conditions change. Vargo and Seville (2011) provide some guidance on how to manage the paradox between planning and adaptiveness along four enabling dimensions: leadership, culture, decision making, and situation awareness. Coreynen et al. (2021) find that the personality traits of the leader (including introversion and tolerance for uncertainty) are important explanatory factors of an SME's resilience to the Covid-19 crisis.

Demmer et al. (2011) identify several factors that engender resilience in SMEs and develop a two-stage conceptual model of the strategies and practices that SMEs may apply, with a focus on renewal and business model innovation. The first stage in the model is to lay a foundation for renewal by having top management champion innovation, strengthening both internal and external knowledge networks, transitioning to organic organizational structures in which managers are process owners, and implementing strategic planning processes with an entrepreneurial focus. The second is to implement an on-going strategy of renewal by embedding customers in value chains, being aggressive in identifying new options and opportunities, externalizing some innovations through M&A, investing in human resources to foster innovation, and generously supporting a portfolio of strategic experiments.

7. How boards can support organizational resilience

This section builds on existing corporate governance and resilience research to explore what characterizes an effective board-level response to risk and adversity. We identify current board practices that support both pre-crisis preparedness as well as the organization's ability to adapt to a rapidly changing environment. Those practices relate to the role of the board (risk oversight, strategic advice, and CEO selection), the board structure (board composition and risk governance structure), and board processes (risk oversight processes and board dynamics).

7.1. The role of the board in times of uncertainty and crisis

Boards are responsible for monitoring corporate performance and the successful execution of the company strategy. Part of their monitoring role is related to risk oversight, defined as the board's supervision of the company's risk management systems and processes. The topic has received increased attention in both the academic and the corporate world in recent years because of the tightening regulations and new governance standards that have triggered a wave of changes in risk oversight practices. A 2020 survey conducted by INSEAD, Board Agenda, and Mazars reveals concerns about the way boards consider the future risks their companies face. The study concludes that companies need to get better at scanning the horizon and preparing for the unexpected (INSEAD et al., 2020). Boards can help their organization navigate the turbulent environment by sharpening the management team's alertness and sensing skills.

Besides their monitoring role, boards increasingly play a strategic advisory role. They do not only control strategy implementation but are also actively involved in setting and approving the company's strategic direction. In this respect, it is the board's responsibility to develop a strategic stance to dealing with risk and oversee how risk events – both positive and negative – could support or hinder the achievement of the company's strategic objectives. Research by North Carolina State University found that 76% of corporate boards do not substantively discuss top risk exposures in a formal manner when addressing the organization's strategic plan (Beasley et al, 2020). One way for boards to help companies explicitly embed risk in strategy formulation is through active board participation in scenario planning exercises (Ramírez and Wilkinson, 2016). By stress-testing the company's strategic plans across a broad range of future states of the business (including outlier scenarios), the board can assess the company's resilience to shocks and encourage management to take precautionary measures already at an early stage.

Another critical role of the board is appointing the CEO. Section 5.5 highlighted the importance of resilient leadership to support an organization's ability to quickly recover from setbacks. Hayes (2016) calls for boards to consider the resilience potential as a criterion for evaluating candidates for the CEO position. His recommendation is based on empirical evidence that CEO resilience is positively related to firm performance and the amount of strategic dynamism the CEO engages in. The weight directors should allocate to resilience in CEO candidate evaluations is shown to be context-dependent, with high levels of resilience required in complex environments, crisis-prone industries, when directors are seeking high levels of strategic dynamism, and a high degree of munificence of the industry. However, the research also warns boards to be aware of the drawbacks associated with "over resilience" at the top, which negatively impacts firm performance, decision-making quality, and team task commitment.

7.2. Structuring the board for risk oversight

The corporate governance literature has extensively studied the impact of structural board characteristics on the company's performance. We highlight two board structure attributes that have been studied in the context of risk oversight but are also particularly relevant for resilience in a broader sense – the board composition and the risk governance structure.

Research has identified board composition as a critical contributor to effective risk oversight, both in terms of the board members' expertise as well as the diversity in the composition of the board and its subcommittees. First, for board members to exercise their risk oversight duties requires that they have the proper knowledge and skills to engage in a productive dialogue about important risks. Research has identified a positive relationship between board and committee members' expertise (e.g., finance expertise or industry experience), and outcome variables such as the maturity of the organization's risk management processes or the company's performance and risk (Aebi et al., 2012; Ittner and Keusch, 2015). Second, board composition also relates to the diversity in directors' knowledge, skills, and experience. Besides a healthy mix of gender, age, nationality, etc., complementarity of skills and experience on the board allows for a richer understanding of the risks the organization is faced with and thus enhances the board's strategic decision-making (Slagmulder, 2021). Half of the respondents in the INSEAD et al. (2020) survey had transformed the diversity of their boards to strengthen the company's response to risk management challenges.

Having a solid risk governance structure in place enables an organization to stay ahead of the risks that threaten its business operations, which is a critical aspect of resilience. The risk governance structure refers to the formal risk responsibilities at board level and the chain of command for reporting risks to the board. It includes the presence, independence, and functioning of a specialized risk committee (or a combined audit and risk committee) at board level as well as the interactions between the chief risk officer (CRO) and the board. Good governance practice draws a clear line of responsibility between the executives who act as the first-line risk owners, an independent risk function that coordinates the risk management process, and the non-executive directors who evaluate the quality of the risk controls and specify the company's risk appetite (Slagmulder, 2021). During a crisis, the board committee tasked with risk oversight may be solicited to a greater extent than under normal circumstances to assess the impact of the disruption. Survey results indicate that boards are evenly split on whether they have a special crisis management committee or not (INSEAD et al., 2020). However, they may opt not to delegate the task of dealing with the crisis to one of its committees and instead, consider it the duty of the full board.

7.3. Board processes to support resilience

Besides the board structure, directors rely on formal risk reporting and risk oversight processes to prepare for and respond to risks and adversities. The annual risk oversight process that boards participate in is one of the foundational elements of planned resilience as it prepares the organization for significant and/or emerging risks and helps to develop an understanding of their impact on the economics of the business (Ittner and Keusch, 2015). To enable an insightful board-level discussion about risk and resilience, the topic needs to be made explicit on the agenda with sufficient board time allocated to it. In companies that favor less formalized board processes, directors may not follow a calendar-driven approach to risk oversight but consider it more of an ongoing dialogue with the management (Slagmulder, 2021).

Board members can only meaningfully contribute to a company's resilience if they are able to make informed decisions about major risks. A key question for directors is how to ensure they are apprised of the most significant risks the organization is faced with, and how to use that knowledge in their decision making. Regular risk reporting to the board helps offset the information asymmetry that naturally occurs between executive and non-executive board members (Ittner and Keusch, 2015). A structured risk report typically contains the full spectrum of top risks to be discussed in the audit and/or risk committee and the full board as well as a visual representation of their impact (in terms of expected losses) and likelihood or frequency of occurrence. However, it is important for board members to learn about the key risks and resilience of the business not only by relying on risk reports but also by getting out of the boardroom and visiting the management in their day-to-day operations. That way, directors gain a thorough understanding of the business and learn about new developments in technology, industry, and society at large that could have an impact on the organization's strategy and risk profile (Slagmulder, 2021).

A critical success factor for achieving organizational resilience, besides the board-level processes that deal with risk exposures, is to ensure that the various board members, with different experiences and backgrounds, succeed in interacting in a productive manner and making collective decisions. Directors contribute to organizational resilience by creating a boardroom atmosphere that allows for open discussion and constructive dissent. Such board dynamics require the allocation of sufficient time to challenge (as opposed to passively listening to presentations) and a genuine openness to alternative points of view, both of which are facilitated by the board chair. Having diverse and sometimes diverging points of view in the boardroom is beneficial from a resilience perspective because it helps bring fresh perspectives into the board's strategic risk deliberations (Slagmulder, 2021). An important requirement is to provide a psychologically safe environment for executives, in particular the CEO, to discuss sensitive risk issues in complete transparency and trust with the board. The role of the board in achieving resilience is also to support the development of a risk-aware culture across the organization. Creating the desired risk culture is achieved by setting the right "tone at the top" and promoting organizational values in line with the desired risk appetite (Slagmulder, 2021).

8. Summary and conclusion

This paper provides an overview of the existing research on organizational resilience, with specific attention being paid to the SME context. The term "organizational resilience" broadly refers to an organization's strength and recovery when encountering major uncertainty or adversity. Since most, if not all, companies are likely to face some unforeseen risks or disruptions during their lifecycle, resilience is considered a desirable capability to develop. This paper aims to both enhance our understanding of what makes some organizations more successful than others in dealing with disruption as well as the implications for corporate governance practice.

Organizational resilience is a multifaceted concept that is explored by an increasing number of scholars across a diverse research base. From our literature review we identify different perspectives regarding the meaning and operationalization of organizational resilience. The process-based view refers to the timeline of a company's resilience efforts – before, during, and after the adversity. When it comes to the organizational capabilities involved, the literature considers both the planned and adaptive side of resilience. Planned resilience is about creating the necessary discipline of preparing for risk and adversity. It relies on organizational resources, routines, and risk management systems to proactively mitigate the downside effects of risk and capitalize on upside opportunities. However, effective resilience in a dynamic business environment is not only about preparing for future setbacks (i.e., planned resilience) but also about adapting to changing circumstances (i.e., adaptive resilience). Resilience thus augments traditional risk management practices with capabilities that help organizations to anticipate, prepare for, recover from, and adapt to both expected and unexpected disruptions.

The purpose of this paper is also to gain a deeper understanding of how organizations make resilience work in practice. Resilience mechanisms documented in the literature include the availability of material and intangible resources, an organization structure and governance designed for decentralized decision making and collaboration with other players, scenario planning and risk management processes, an adequate information infrastructure for monitoring and responding to risks, an enabling and inclusive leadership style, and an organization culture that promotes both risk awareness and innovation. We conclude that while formal governance structures and planning processes are key ingredients of organizational resilience, other, less tangible mechanisms, such as leadership practices and organizational culture, are also important.

Our literature review shows that there are no universal "off the shelf" answers to the question how to successfully overcome adverse events and adapt to a new environment. We have identified a set of common attributes and capabilities for organizational resilience, but companies operating in different business contexts (industry, type of risk, ownership structure) can be expected to take different paths to ensuring their ongoing relevance and success. This paper pays special attention to how SMEs develop resilience to withstand challenges and emerge stronger. Although SMEs are regarded as the backbone of many countries' economy, their resilience has been a less studied topic in the academic literature. One lesson learned is that SMEs have a relative advantage in terms of size, flexibility, and ambidexterity, but they tend to be less systematic in their approach to resilience. Research argues that a proactive stance to resilience and some formalization of the relevant structures and processes may be beneficial for SMEs to be prepared for unexpected setbacks and leverage the full potential of opportunities.

Finally, we have summarized insights from the academic literature about generalizable practices that boards can apply to strengthen resilience in the organizations they oversee.

First, for organizations to prosper in the face of adversity, boards need to monitor the risk controls the company has put in place and the development of organizational capabilities, including resilient executive leadership, to deal with turbulent times. Whereas management tends to focus on the operational and compliance requirements of risk management, the responsibility of the board, on top of their monitoring role, is to develop a strategic perspective of the potential downside impact of major risks and any strategic opportunities the company might seize from adversity. Second, organizational resilience is supported by the design of an appropriate board-level structure and processes. In addition to putting together a team of knowledgeable, diverse, and well-informed directors, resilient companies benefit from structuring the roles and responsibilities for risk oversight at board level. Third, equally important for resilience besides the implementation of formal risk oversight processes is the creation of healthy board dynamics. In this respect, it is critical to facilitate constructive challenge and open discussions about risk and opportunity in the boardroom. In addition, directors are responsible for ensuring not only that a suitable risk management infrastructure is in place but also that an effective risk culture is nurtured across the organization.

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