

# Enterprise risk management: a capability-based perspective

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## Abstract

**Purpose** – The purpose of this study is to enhance the existing enterprise risk-management (ERM) theory by introducing both a resource-based view and a dynamic capability perspective. These strategic management concepts might resolve several theoretical shortcomings in the field of risk management. The concept of risk-management capabilities is proposed as an explanation of a firm's risk resilience.

**Design/methodology/approach** – This paper is conceptual in nature. For illustrative purposes, the paper refers to practical examples.

**Findings** – First, the resource-based view provides a framework that helps to set priorities in risk management. Second, the dynamic capability perspective illustrates how firms can handle unforeseen events. Third, it is proposed that dynamic capabilities are needed to allow a constant reassessment of the impact of specific resources and, consequently, of ERM priorities. Fourth, a risk-management capability, as an integral part of a dynamic capability, allows firms to develop risk resilience in turbulent environments.

**Research limitations/implications** – This paper develops an enhanced framework for ERM within specific boundary conditions. It shows how priorities at the strategic level are to be set, and how these priorities influence the operational level of risk management.

**Practical implications** – The framework provides clear guidelines on setting priorities in ERM and implementing a risk-management process within firms.

**Originality/value** – This study contributes to the theoretical literature on ERM by enhancing it through a new framework. The resource-based view and dynamic capability perspective benefit through insights from risk-management literature.

**Keywords** Dynamic capabilities, Enterprise risk management, Resource-based view, Risk-management capability, Risk-management theory, Risk resilience

**Paper type** Conceptual paper

## Introduction

Risk management is an important topic in management research and practice (Bromiley and Rau, 2016). This study defines risk management as the firm's processes to cope with risks to minimize the volatility of returns and to ensure the firm's survival. *Risk-management processes* involve the identification, assessment and management of threatening events as well as the underlying internal communication, decision-making and monitoring processes that make dealing with those events possible. *Enterprise risk management (ERM) adds a holistic perspective to a firm's risk-management processes, whereby risk management becomes an integral part of a firm's governance and strategy* (Bromiley et al., 2015).

Whether ERM is a "theory", a set of tools and best practices or a set of different theories applicable for separate domains still remains open to scholarly debate. Further challenges, particularly for practitioners, are the unlimited amount of risk a firm is facing and the limited ability to foresee those risks. Although many researchers have contributed valuable tools and resources, it is not feasible, or at least not economic, to address all of the potential risks



(Bromiley and Rau, 2016). Therefore, prioritization is necessary. Some scholars have already developed respective frameworks in this regard (Gatzert and Schmit, 2016; Hopkin, 2015). However, these frameworks are not driven by strategic management considerations. Bromiley *et al.* (2015) argue that among others the managerial perceptions of risk, the implementation of an ERM system and the embeddedness of risk into a firm's overall strategic choices have not yet been addressed sufficiently. According to these scholars, strategy and management scholars are best equipped to address the current gaps in the ERM literature. This study intends to enrich the literature on risk management by introducing a resource-based view and dynamic capability perspective on the topic to address these concerns.

The resource-based view (Barney, 1991, 2001; Wernerfelt, 1984; Prahalad and Hamel, 1990) or resource-based theory (Barney *et al.*, 2011) is one of the most prominent theories in the sphere of strategic management. The theory assumes that there is a heterogeneity of resource endowments between firms and explains the (sustained) competitive advantage of a firm through the possession of resources with certain characteristics. To achieve a sustainable competitive advantage, a firm should possess valuable (V), rare (R), inimitable (I) and non-substitutable (N) resources (VRIN-criteria). This study proposes that these criteria are the underlying pillars of holistic ERM. The aim of ERM is to manage all risks in unison within a coordinated and strategic framework rather than to manage risks independently (Nocco and Stulz, 2006). A transfer of the strategic management concept, i.e. resource-based view, to the risk-management domain might motivate scholars to develop a congruent overarching theory that would be applicable for (strategic) ERM in different domains under different (static or dynamic) conditions.

The dynamic capability perspective is a further development and extension of the resource-based view (Peteraf *et al.*, 2013). One of the main shortcomings of the resource-based view was its limited applicability in dynamic environments. The dynamic capability perspective emerged to address this shortcoming. Dynamic capabilities relate to "the capacity of an organization to purposefully create, extend, or modify its resource base" (Helfat *et al.*, 2007, p. 1) and aims to explain how firms can adapt to rapidly changing and turbulent environments (Teece *et al.*, 1997). This paper argues that insights from the dynamic capability literature can also enrich the theoretical and practical debate on risk management. Each technological change, each new player on the market, as well as each economic or political shift is a source of new risks. To deal with these risks, firms have to invest in the processes and routines underlying their dynamic capabilities.

An enrichment of ERM by management scholars could shift the focus to how firms behave and how this behavior is associated with a firm's performance. By introducing a managerial resource-based and dynamic capability perspective to the field of risk management, this study contributes to theory and practice in various ways. First, the resource-based view provides a framework that helps to set priorities in risk management. Due to environmental complexity, firms are subject to an unlimited amount of potential risks (Bromiley and Rau, 2016, Burisch and Wohlgenuth, 2016; Luhmann, 1995). Management cannot deal with all of them and needs to identify and focus on potential threats with the greatest impact on the firm. Applying the resource-based view clarifies which risks the firm should focus on.

Second, the dynamic capability perspective indicates how firms can cope with unforeseen events. A lot of risk-management theory and practice focuses on the *ex ante* identification of risks. Typical examples are compliance and due diligence processes (Clarke and Varma, 1999). Nevertheless, there are always going to be circumstances that firms cannot foresee. Many firms face a large number of low-probability, but high impact events. The low

probability makes *ex ante* management of each uncertain event infeasible or at least uneconomic (Bromiley and Rau, 2016). Possessing dynamic capabilities provides firms with routines and processes that allow the firm to recover from those events quickly. Thus, applying a dynamic capability perspective supports *ERM* to move beyond an *ex ante* prediction of risky events by providing managers with the tools to recover from risky events that may occur.

The structure of this paper is as follows: It starts with a short review of the state of the art of risk management, moving toward the application of the resource-based view in strategic risk management. Afterward, this study applies the dynamic capability perspective to address environmental dynamism, which is known to be crucial for risk-management processes. Inspired by the capability-based perspective, the concept risk-management capability is proposed. Whereas the first part of this paper deals with strategic risks, the second part shows how the dynamic capability framework enables organizational risk resilience to deal with operational risks. This paper, therefore, addresses strategic and operational risks separately. The third part discusses boundary conditions of the framework. The discussion on how these strategic management perspectives are insightful for risk-management scholars and practitioners concludes this paper.

### Theoretical foundations of risk management

According to Dubin's (1976) framework, a "theory" needs to consist, first, of clearly defined units; second, of causalities among those units; and third, of contingency factors that create boundary conditions for the causalities. Weick (1995) proposes a differentiation between the process (theorizing) and the product (theory). The latter cannot exist without data, hypotheses or without being rooted in the analysis of literature.

Risk-management scholars arguably agree on some units of the theory (as proposed by Dubin, 1976). This study indicates at least three very commonly discussed units of risk-management theory: first, the risk-management cycle (or the steps of risk identification, risk assessment, risk management, risk monitoring, etc.); second, risk assessment (probability of risk vs expected amount of damage); and third, types of risk management (risk avoidance, risk mitigation, risk transfer and risk acceptance) (e.g. ISO 31000:2009 as presented by Purdy, 2010; Leitch, 2010).

First, the risk cycle includes the main steps of working with risks (Falkner and Hiebl, 2015). For example, the norm of ISO 31000:2009 defines the following steps: establishing context, risk identification, risk analysis, risk evaluation, risk treatment, communication and consultation and risk monitoring and review (Purdy, 2010). The Institute for Risk Management adds the firm's strategic objectives (as a starting point), but also focuses on risks and opportunities, thus, including not only risks but also opportunities (Hopkin, 2015). Carbone and Tippett (2004) propose their own risk-management cycle. This cycle is, on the one hand, more detailed, since each step includes a short description (e.g. assigning likelihood, impact and detection values instead of a simple "risk analysis"). On the other hand, the authors do not include monitoring processes and the recursive nature of the cycle. Other authors (Baker, 1997) and institutions (e.g. CoCo in Canada or COSO in the USA) may differ slightly in the terminology of the steps, but the unit of the theory is clear – there are certain steps, which a firm should follow to be able to work with risks.

Second, risk assessment seems to be an established unit of risk-management theory. To assess risks, a firm has to evaluate the probability of the occurrence of a risky event and the possible amount of damage caused by the risky event (Bromiley and Rau, 2016). Some scholars add additional aspects of risk assessment that should be evaluated. For example, Holzhauser *et al.* (2016) integrate individual risk tolerance. Carbone and Tippett (2004)

propose the evaluation of the detection method values. The scholars argue that the detection method and techniques are crucial for a timely response to a risky event. Similarly, [Elkington and Smallman \(2002\)](#) add the notion of the timing of the risks identified, and [Baker \(1997\)](#) includes the notion of secondary risk (stemming from the initial risks) analysis. The core of risk assessment is, however, the probability of occurrence and the amount of possible damage or loss.

The third established unit of risk-management theory consists of four techniques for risk management. [Elkington and Smallman \(2002\)](#) define them as prevention, reduction, transfer and contingency. Differently named but in the same vein are the risk-management techniques defined by [Carbone and Tippett \(2004\)](#), which are as follows: avoidance, transference, mitigation and acceptance. [Hopkin \(2015\)](#) names the techniques as “Tolerate: accept/retain”, “Treat: control/reduce”, “Transfer: insurance/contract” and “Terminate: avoid/eliminate”. Some scholars add additional techniques for risk management e.g. [Spikin \(2013\)](#) splits risk management into two strategies: risk control and risk finance. Risk control includes techniques of risk avoidance, risk terminating, risk prevention, risk reduction, risk directive, risk detective and risk corrective. Risk financing includes techniques of risk retention, risk toleration, risk sharing and risk transfer. [Hillson \(2002\)](#) proposes additional response options for positive uncertain events, which a firm might face such as exploitation of opportunities, sharing, enhancement and ignorance. As can be seen, although named differently, those techniques share similarities and ultimately represent a detailed view of four very common techniques. Therefore, risk-management techniques represent another established unit of risk-management theory, at least in the Western world. As [Shafique et al. \(2013\)](#) point out, risk-management practices differ in Islamic financial institutions and, therefore, a cultural bias may exist.

Apart from alternative theories of risk management such as the ecocentric approach ([Shrivastava, 1995](#)), the dynamic approach ([Rasmussen, 1997](#)) or dynamic risk management ([Fehle and Tsyplakov, 2005](#)), the above-mentioned units *also construe the foundation of ERM theory* ([Bromiley and Rau, 2016](#); [Spikin, 2013](#)). ERM is arguably the most holistic concept in the field of risk management at the moment. It proposes a coherent systematic approach toward risk management in contrast to managing risks separately ([Bromiley et al., 2015](#); [Nocco and Stulz, 2006](#)). Moreover, it incorporates both strategic and traditional risks ([Ibik and Obi, 2014](#)). ERM applies the usual tools and techniques of risk management, but does it in a systematic way. The responses to risks are made, among others, in the context of the firm’s environment and communication systems ([Bromiley and Rau, 2016](#)).

The implication of ERM, however, is challenging. Enormous efforts are required to implement this top-down approach throughout all hierarchical levels ([Beasley et al., 2005](#)). One reason is that the number of possible risks is almost indefinite and the attempt to systemize them might be very problematic ([Bromiley and Rau, 2016](#); [Burisch and Wohlgemuth, 2016](#); [Luhmann, 1995](#)). The follow-up decisions as well as their implementation represent snowball-like growing efforts that represent money and time spent (or lost).

It is important to notice that while the units of ERM theory are clear, some causalities and boundary conditions are not always clarified. An attempt to find as many possible risks as well as an attempt to calculate cost efficiency of available risk-management techniques is hardly feasible in practice ([Bromiley and Rau, 2016](#); [Burisch and Wohlgemuth, 2016](#)). Of course, there are many individual issues which bear risks in themselves, but risk management should focus not on listing all possible risks and risk factors, but on framing them, e.g. through the implementation of an ERM system ([Harrington et al., 2002](#)). The current study aims to improve the structuring and prioritizing of risks and joins [Harrington](#)

*et al.* (2002), for example, in the notion that risks should be treated systematically and not by using a “silo” approach, which is usually found in empirical papers on risk management. Furthermore, this study stresses the dynamic nature of the environment and, thus, its related risks. Scholars and practitioners often focus on the estimation of probabilities and losses based on previous experiences, which might be misleading. Instead, they should focus on dynamism, the unpredictability of the environment and the necessary routines and capabilities to handle them. Finally, this study wants to redirect the enthusiasm of scholars and practitioners on risk identification techniques (Kinateder and Wagner, 2014). They are without any doubt needed, but it needs to be admitted that uncertainty, unpredictability or “blind spots” need to be approached through capabilities to deal with uncertain events rather than trying to develop the longest possible list of an infinite number of risks.

In conclusion of the theory review section, it is worth noticing that the “theory” of risk management, *as well as its extension, i.e. ERM*, still lack conditioning, an overarching framework and basic causalities. Conditioning would foster the application of tools and procedures. An overarching framework would support the applicability in different domains. Basic causalities would support the decision-making in setting priorities and applying the appropriate tools. Therefore, this study proposes another approach to ERM, which is rooted in the resource-based view (see for a review Barney *et al.*, 2011). The mentioned perspectives can be merged to one overarching theoretical framework. This adds the missing elements to make ERM a “theory” according to Dubin (1976). Practitioners and scholars need a framework that will aid them in identifying potential risks, how to deal with them, how to deal with their uncertain occurrence and how to identify their impact through a chain of causalities. The approach “each business has its own risk management” might only partly be correct, as the underlying purpose is similar. This study proposes a framework, which might help in identifying different types of risks, independent from the organizational type to set boundary conditions. Moreover, the proposed framework resolves the struggle of what risk management is about: managing negative environmental events only or also seizing opportunities and positive outcomes of uncertain events. To give answers to the proposed questions, this study introduces the resource-based view and its further development – the dynamic capability perspective – to the sphere of ERM in the next section of this paper.

### **Priorities in ERM: toward a resource-based view**

A firm faces an unlimited amount of risk. Each resource relates to a number of risks, e.g. being simply unavailable (Manuj and Mentzer, 2008), representing sunk costs (Clark and Wrigley, 1997) or being wrongly applied (Scott and Vessey, 2002). Similarly, each action relates to risks, e.g. due to information asymmetry, moral hazard or hidden action (Ferraro, 2008), or by not being applied or applied in a wrong manner under unsuitable conditions. Therefore, the interaction of resources and actions is also risky (e.g. the notion of secondary risks by Baker (1997)). Furthermore, the individuals that take or do not take action, e.g. by being “boundedly rational” (Simon, 1979) and by default having the wrong perceptions and making false evaluations of the situation, should be acknowledged. A lack of motivation and job satisfaction (Ilardi *et al.*, 1993) and other aspects represent behavioral risks. A complete list of risks a firm can face is impossible to create and every strategic action is subject to unforeseeable blind spots (Burisch and Wohlgemuth, 2016). Identifying “all possible risks” and subsequently assessing them according to their probability and impact is thus not feasible.

The same notion appears in the paper by Bromiley and Rau (2016). The scholars refer to portfolio theory as an appropriate solution. In the field of corporate finance, portfolio

selection theory (Berger and Fieberg, 2016; Markowitz, 1952) has been developed as a solution *that makes the identification of every specific risk unnecessary*. Instead of “putting all eggs in one basket”, an investor can minimize risk, by investing in a broad portfolio of investments. Depending on the correlation between the investments, the risk will never be higher than by investing in one security as the risks’ positive and negative consequences partly outweigh each other. A correlation of -1 would even indicate the absence of risk (operationalized as standard deviation). Although this is a valuable approach for investment decisions, a perfect diversification is hardly feasible within firms. Firms specialize in certain activities to develop core competencies. These core competencies are the underlying reasons why firms can operate successfully in competitive markets in the first place (Prahalad and Hamel, 1990). Applying portfolio selection theory would suggest operating in the opposite market (indicating a complete negative correlation). It is very unlikely that a firm can gain a sustainable advantage in one field and also in the complete opposite as every core competence is also a core rigidity (Leonard-Barton, 1992) and it is impossible to excel in all potential businesses. Strategic management research shows that overcoming the problem of unlimited risks by diversifying strongly is thus not a completely feasible option.

Instead of introducing some diversity into firms, to overcome the problem of unlimited risks, some researchers propose creating a hierarchy of a firm’s risks and dealing with the most prominent items on this list. For example, Gatzert and Schmit (2016) regard reputation risk management as a top priority. Hopkin (2015) mentions the structuring of risks into four groups: financial, infrastructural, reputational and concerned with the marketplace. Although the main idea is very valuable, this concept leads to some problems in further application stages. This study agrees that the first priority should be strategic, instead of operational goals. In a second stage, however, it is not clear which strategic goals or which department should be prioritized. Whereas structuring risks and ranking them is arguably a feasible way to overcome the infinite number of risks, this study assumes that the criteria for such structuring should be rooted in the strategic considerations of the resource-based view.

The resource-based view explains the (sustainable) competitive advantage of firms through resource heterogeneity. Every firm possesses different resources, but only a few of them can provide a firm with a (sustainable) competitive advantage. In case a competitor would be able to imitate or substitute this specific resource, the competitive advantage would only be temporary until it is copied. Resources that fulfill the VRIN criteria (valuable, rare, inimitable, non-substitutable) are of highest strategic relevance. A routine or a bundle of routines, a capability or a competence can be such a resource (Barney, 1991). Whereas ERM would propose the analysis of all possible risks or risks concerned with each resource, this study proposes that this is physically not possible, especially in the light of interdependence and evolution of risks.

From the strategic point of view, core competencies that fulfill the VRIN criteria, represent the area in which potential risks have the highest impact. This study argues that it is not the whole (core) business, which should be analyzed for risks, but the VRIN resources, which allow the business to sustain in competitive markets. Spikin (2013, p. 99) refers to those as core (business) risks which “[...] would become a potential source for expected incomes and return to the organization”.

Bromiley and Rau (2016) assessed that the number of managerial consideration for one risk lies at 128. An unpredictable number of identified risks, thus, should be multiplied by 128. An application of the resource-based view, thus, supports firms to clearly prioritize risks and reduces the number of risks a firm should deal with. It also provides an overarching theoretical framework for risk management. Risks that concern the firm’s core competencies should be addressed first, as they threaten the firm’s survival (Prahalad and Hamel, 1990).

Going back to the risk-management techniques, the proposed approach allows to *more* easily choose the appropriate technique. Acceptance, for example, which should be concerned with risks of low probability might not be applicable to VRIN resources anymore, since even with the lowest probability the risk might threaten the core of a firm's business. Risks related to the core competencies should in the best case be avoided completely or at least reduced to the best possible degree. Vice versa, even those risks which are highly probable might be "accepted" as long as they do not impact the core competence.

Prahalad and Hamel (1990) provide scholars with an example of general electric (GE) selling some strategic business units. GE aimed at increasing competitiveness through getting rid of businesses in highly competitive sectors of the economy. Selling businesses was seen as an avoidance of risks concerned with less competitive components. At the same time, GE did not recognize that some of its VRIN-based core competencies relied on those units. Thus, they were not able to achieve a (sustainable) competitive advantage in their core products any longer. Even the cost-producing risks might be accepted to retain the core competence and hold the market for products of other companies. As illustrated by this example, not all risks have to be addressed and some of them should deliberately be ignored if the company wants to possess a (sustainable) competitive advantage. Hubbard (2009) provides an example of risk filters by HAVI Group. The firm did not prioritize their risks based on the VRIN criteria but on the usual risk-management techniques. The risk filters were ordered according to the following priority: transference, operational, insurance and retention. However, as the example by Prahalad and Hamel (1990) showed, a transfer of a part of the core competence (VRIN resource) to another company, even when going in line with the priorities of risk filters by HAVI Group (see for a detailed description Hubbard, 2009), may lead to a loss of the (sustainable) competitive advantage.

### **ERM in dynamic environments: toward risk resilience**

Risk management is a dynamic process (Fehle and Tsyplakov, 2005). To be able to respond to changing risks caused by the dynamism of VRIN resources, firms need to develop routines or a specific capability, since a simple set of tools and techniques might not be sufficient anymore. To sustain one's competitive position in dynamic environments, a firm has to develop a risk-management capability for top tier management:

A risk-management capability for top management is concerned with a strategic decision on which resources (including routines, capabilities, competencies and other organizational resources) are subject to the VRIN criteria and require particular attention. It is the ability to repeatedly avoid, mitigate, transfer or deliberately accept chosen risks under changing conditions, and it allows a firm to create value through elimination or mitigation of threatening internal and external events.

A risk-management capability addresses the dynamism of a firm's environments, which is important since the resource-based view is criticized for its static nature (Teece *et al.*, 1997). The concept of dynamic capabilities, for instance, was introduced to equip the resource-based view for environmental dynamism. A risk-management capability is logically a part of a dynamic capability. It is crucial for the theory since it points out the fact that the VRIN nature of resources changes over time.

Dynamic capabilities represent "the capacity of an organization to purposefully create, extend, or modify its resource base" (Helfat *et al.*, 2007, p. 1). If a market emerges, collides, splits, evolves or dies, dynamic capabilities allow firms to reconfigure their resource base (Eisenhardt and Martin, 2000). For ERM, dynamic capabilities indicate the changes in VRIN resources. For example, new technological developments might make the current technologies of the firm obsolete. Even if these technologies are part of a VRIN resource or

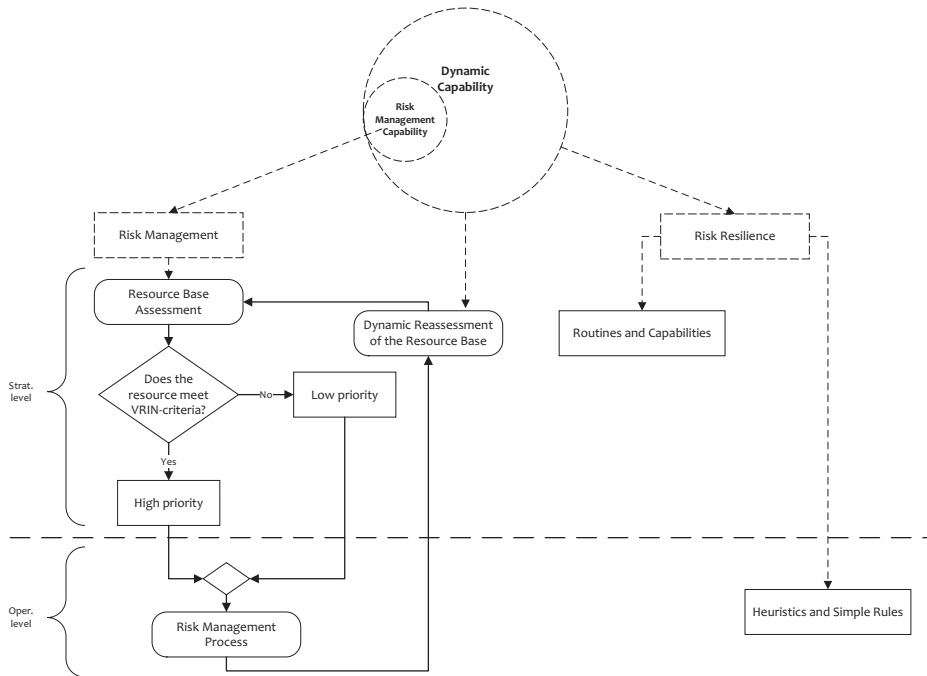
capability, a firm will need to adopt a new technology and get rid of the old one. This drastically impacts on ERM. The processes and routines, which were aimed at, for example, risk retention concerned with the older technology, must be restructured and adapted to the need of the new technology. The introduction of the automatization of a product line will, thus, reduce risks concerned with employees since their role will become less salient. At the same time, risks of new automated processes, such as information security risks, will increase drastically. *ERM* is, therefore, not only dynamic but requires synchronization with the dynamic capability of a firm.

Dynamic capabilities allow for better risk management since they not only focus on preventing events, but also on the development of organizational resilience to deal with events which have already occurred. Bromiley and Rau (2016) propose that the *ex ante* identification of all potential risks is not feasible or is at least uneconomic. Instead, firms need to build organizational resilience – a capability to respond to unanticipated events. This is also the concern of the dynamic capability perspective, namely, to respond to environmental uncertainty through resource reconfiguration. A dynamic capability is a higher-order routine that supports the adjustment of ordinary routines to changing environments (Winter, 2003), e.g. after a risk became a threatening event. In contrast to (enterprise) risk management, which focuses on risk identification and *ex ante* preparation, a dynamic capability proposes in addition to a sensing capacity, also the capacity to seize an opportunity (for example, how to respond to a threat), and the capacity to transform the resource base of the firm accordingly (Teece, 2007). Thus, dynamic capabilities go beyond the forecasting of risks, by making the firm resilient to risks. Once an unlikely event occurs, the firm possesses the capacity to adapt successfully:

Strategic risk resilience is the ability of a firm's management to timely identify and shape risks, to set priorities and to maintain risk management based on these priorities under dynamic external and internal conditions.

Resilience goes beyond ERM capabilities. As Starr *et al.* (2003, p. 76) argued, while ERM proposes to focus “on the nature of specific vulnerabilities [...] to help firms protect potentially weak links from low-probability catastrophic risks”, enterprise resilience planning enhances a firm's speed and flexibility. The scholars also add that resilient enterprises are agile, networked, sensing and prepared. Hamel and Valikangas (2003) argue that from the moment when companies no longer hinge on momentum and start facing systemic external challenges, their success begins to depend “on the ability to dynamically reinvent business models as circumstances change” (Hamel and Valikangas, 2003, p. 55). Similarly, when companies start facing new threatening events, they cannot rely on simple risk identification techniques and need an according capability. Some scholars, however, overlook the logical problem of *ex ante* identification by, for example, saying firms “need to identify their supply chain vulnerabilities and target the capabilities that need to be strengthened” (Fiksel, 2015, p. 79). The logical problem remains the same – the “needs” have to be identified *ex ante*, which brings scholars back to the problem of an infinite number of risks and blind spots. As already argued, risk management in a dynamic world needs more than *ex ante* ERM – it needs a dynamic capability framework incorporating both *ex ante* and *ex post* tools. Figure 1 illustrates the outlined framework. The risk-management capability concept is depicted as a part of the larger dynamic capability concept. The risk-management capability is mainly concerned with the risk-management process as such at the strategic level (assessment of VRIN-related risks) and the operational level (risk-management process). First, dynamic capabilities allow for a dynamic reassessment of VRIN-related risks in accordance with environmental dynamics. Second, dynamic capabilities allow for risk resilience at the strategic level (development of according routines and capabilities) and at

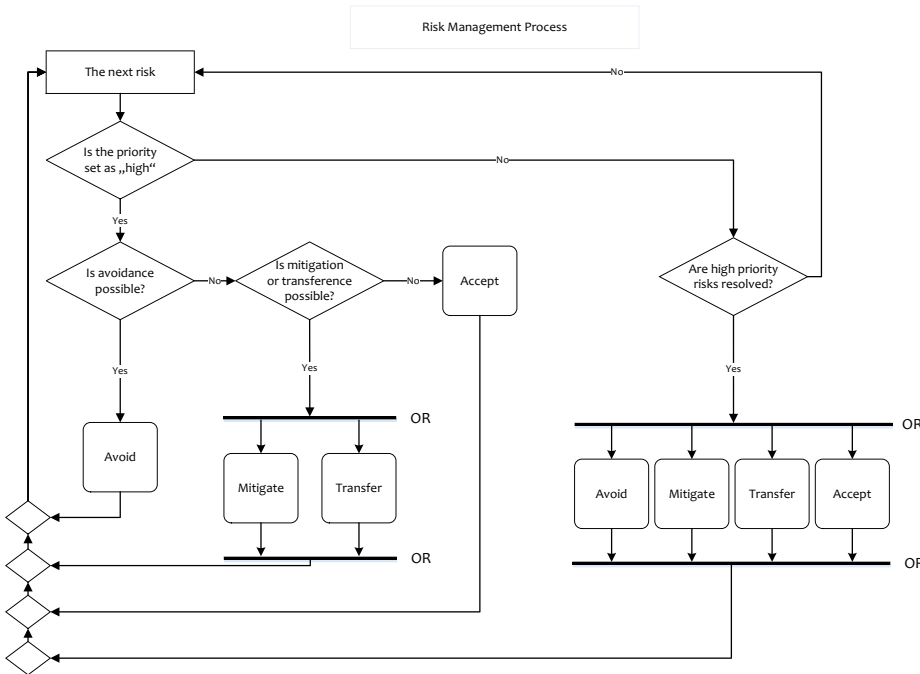




**Figure 1.**  
The new framework of risk management

the operational level (provision of simple rules and heuristics). Both high- and low-priority risks are handled using risk-management processes (see Figure 2), but in a different order (high priority VRIN-related risks first). The techniques can at times be the same but their application order may differ. The latter issues are discussed below and partly depicted in Figure 2.

An example of enhancing strategic risk resilience through deliberate investments in the underlying routines and processes would be the creation of dynamic managerial capabilities (Adner and Helfat, 2003; Martin, 2011). Adner and Helfat (2003), for example, argue that a dynamic *managerial* capability is construed by managerial human capital (e.g. managerial knowledge and skills), managerial social capital (e.g. social connections) and managerial cognition (e.g. mental models). Consequently, one way of investing in a firm's risk resilience would be the introduction of a chief risk officer (CRO) position and filling this position by a manager with appropriate knowledge, skills and access to social networks. This notion is also supported by Bromiley *et al.* (2015) who discuss the influence of appointing CRO on a firm's performance and related issues. For example, a study by Beasley *et al.* (2005) showed a statistically significant positive impact of the CRO on ERM deployment. In another example, Liebenberg and Hoyt (2003) show that a CRO reduces information asymmetries in the communication of risk profiles to lenders. Similarly, a CRO can communicate information, e.g. on risk priorities, internally. Teece (2007) mentioned the aspect of communication by top-tier management as playing a crucial role in garnering loyalty and commitment and achieving adherence to efficiency and innovation. A better communication of issues concerned with risks might increase the ability of a firm to withstand when unlikely events happen and achieve higher efficiency in ERM.



**Figure 2.** Application of the VRIN-based priority algorithm in operational risk management: an example

### Operational risk management: application of the dynamic capability perspective

Strategic long-term risks and operational short-term risk do not necessarily share the same characteristics (Bromiley *et al.*, 2015). Consequently, risk-management processes and routines at both levels differ due to the incommensurability of the levels of analysis. Nevertheless, the operational level of risk management should be integrated into the proposed framework by introducing a risk-management hierarchy. There should be systematic strategic choices in place that create a systematic treatment of risks (Strobl, 2016).

The operational level is concerned with “how we earn a living now” (Winter, 2003, p. 992), while the strategic level is concerned with keeping the operational income flow sustainable in the future. Following this logic, operational risks are concerned with “how we deal with risks now”, whereas a strategic risk-management capability gives an answer which resources and related risks should be the highest priority. The levels are therefore in hierarchical order.

A risk-management capability is the concern of strategic management, whereby a firm’s management identifies the VRIN resources (Barney, 1991) and, thus, sets priorities for operational risk management. For example, if a firm faces a risk related to a VRIN resource (as defined by the management, strategic level), the personnel has to respond to it in the first instance (operational level). This response is also restricted by several risk-management techniques. As previously argued, the technique of acceptance should be avoided for such risks, even if this creates high costs. After the main issue is resolved, the operational staff can address the remaining risks. The techniques may differ: for the not prioritized risks, more economical solutions are feasible, for example, the simple acceptance technique, because even a probable risk may not threaten the (sustainable) competitive advantage of the firm (see Figure 2). Figure 2 explains the decision process concerning the priorities in risk

management and of the application of risk-management techniques. *The high-priority risks need to be managed first and foremost, and only when these risks have been taken care of, less important risks can be considered.* For example, in case a mid-level manager or an employee encounters a risk, they should act according to the set priorities. If the priority is low and there are no other risks to manage (right side of the figure), then any appropriate risk-management technique can be applied. However, if the priority is high or if there are other risks with higher priorities, they have to proceed with the avoidance technique. If this technique is not applicable, mitigation or transferring should be applied. Risk acceptance is the last option a manager or an employee should seize when facing a high-priority risk. This kind of restriction appears as the only economical way to deal with the unlimited number of risks. The lower the priority of the respective risk, the higher should be the likelihood of risk acceptance.

An illustrative example would be the acquisition of WhatsApp by Facebook. Many argued that the acquisition premium was overpriced. However, Facebook's crucial VRIN resource was at risk because the younger audience left the network. Social networks largely dependent on the number of users. The more users a network has, the higher are the benefits for the involved users (Lin and Bhattacharjee, 2008). The number of users appears to be the VRIN resource for a social network. It is valuable: Each additional user creates additional value for its products and services. It is rare: Although there are many potential users, only few firms achieve a critical mass for a snowball-like attraction of further users. It is both inimitable and non-substitutable: Even though a social network can enhance a number of users in the short term, e.g. using promotion, the "living" community where profiles are up-to-date and activity of users is high is hardly imitable or substitutable.

Following the logic of the presented framework, Facebook should first of all avoid any risks concerned with resources in its core, and it did. An acquisition of WhatsApp by competitors, such as Google, would have had severe consequences. Therefore, *acceptance* of the independent presence of WhatsApp as a risk was not a feasible option. Facebook possessed an integrated messenger already that might have allowed for risk *mitigation*. The additional acquisition, however, was aimed at *avoiding* the risk completely. It assured the retention of the younger audience and, thus, of the VRIN resource. Investing around \$20 billion for a messenger with about 1 billion users paying \$0.99 for its usage a year would not have been suitable for a low-priority risk, as the cost would have largely exceeded the benefits. The VRIN-related ERM approach, however, is not only about cost-efficiency. It allowed avoiding fatal strategic consequences, at least at that point in time.

The second application of the proposed framework at the operational level is cost optimization through an enhancement of organizational resilience. The introduction of dynamic capability-based ERM allows moving from forecasting risks to the ability to adjust once an unlikely event occurs. This shift is necessary as forecasting risks is problematic according to Bromiley and Rau (2016). In addition, blind spots always exist according to Luhmann (1995) and Burisch and Wohlgemuth (2016). Since the number of risks goes to infinity, the costs concerned with the identification of those risks are, theoretically, infinite too. Nevertheless, if a firm develops simple rules for *ad hoc* problem-solving (Eisenhardt and Martin, 2000) and avoids a high degree of inflexible routinization at the operational level to be able to respond quickly to unforeseen challenges (Wohlgemuth and Wenzel, 2016), it may increase its resilience toward dynamic environmental threats.

Therefore, a non-routinized solution for operational risk management is sought for several reasons. First, capabilities and routines are still restricted by "blind spots" and cannot identify all systemic risks (Luhmann, 1995; Burisch and Wohlgemuth, 2016). Second, there are non-systemic, force majeure events that do not allow for a patterned routinized

response. Furthermore, a dynamic capability should be characterized by a non-routinized operational level (Eisenhardt and Martin, 2000, Wohlgemuth and Wenzel, 2016). Winter (2003, p. 992) argued that “there are many ways to change”. He proposes “*ad hoc* problem-solving” or the “firefighting mode”. In this mode, a firm needs to respond without having a pattern for action. Similarly, Eisenhardt and Martin (2000) propose relying on simple rules. The scholars argue that in highly turbulent environments, a routine cannot be developed. This notion goes in line with the developed framework. For strategic risks, a set of routines and capabilities should be developed. These routines are prioritized due to VRIN criteria. At the operational level, on the contrary, a firm needs to develop a set of simple rules and *ad hoc* problem-solving. An example of such rules can be “No deals with unknown sellers” or “Buy when cheap, sell when expensive”. Under stable conditions, a firm’s personnel might have enough time to make a complex assessment and choose the most appropriate technique of response. In dynamic conditions, however, a simple guidance or rule might be the only available option.

The notion of “*ad hoc*” risk management is helpful for risk management *but seems to be associated with the “silo” approach rather than with ERM. The dynamic capability perspective helps to incorporate this approach to ERM* in that it, first, explains what should be done in the event of a force majeure; and, second, it constantly develops the strategic risk-management capability. Once a “firefighting” mode is performed, it becomes a learned “decision option” for managers (as mentioned by Winter, 2003, p. 991; Bogodistov, 2013) that can be applied in the further prioritization of new VRIN-related risks. Thus, *ad hoc* problem-solving or the firefighting mode represent organizational resilience too.

### Boundary conditions

Boundary conditions are one of the main aspects of theorizing. The proposed framework draws mainly on the resource-based view and its extension, i.e. the dynamic capability perspective. Accordingly, similar boundary conditions should apply. First, the important underlying pillars of the resource-based view are the heterogeneity of resources among firms and firms’ striving for (sustainable) competitive advantage (Barney, 2001). A firm’s resources only meet the VRIN criteria in case they are not possessed by others. Thus, firms in a competitive parity situation, in which competitors possess similar resources, might not be able to rely on the proposed prioritization scheme as they simply do not possess VRIN resources. The same applies for firms that do not strive for VRIN resources in the future, i.e. a (sustainable) competitive advantage (Kraaijenbrink *et al.*, 2010).

A second important consideration is firm size. Connor (2002) argued that small firms are beyond the boundaries of the resource-based view, as they possess only a few resources. Particularly intangible resources or a specific combination of resources can be subject to the VRIN criteria and, therefore, a source of competitive advantage (Barney, 2001). The more resources a firm possesses, the higher is the likelihood of an inimitable firm-specific combination. Although Connor’s (2002) exclusion of small firms might be an extreme position, the current study agrees to the basic argumentation that the more resources a firm possesses, the higher is the likelihood that one of them is of strategic value and should subsequently be prioritized. Risk-management scholars already emphasized that risk-management practices differ between small and medium enterprises (SMEs) and larger firms, partly because SMEs possess a smaller set of resources (Falkner and Hiebl, 2015). These limited resources may also limit the ability of smaller firms to address risks appropriately.

A third consideration might be environmental dynamism. The dynamic capability perspective emerged, because the resource-based view does not adequately address environmental dynamism (Tece *et al.*, 1997). Eisenhardt and Martin (2000) argued that dynamic capabilities are less patterned in highly dynamic environments and instead become simple rules rather than routinized processes, which are suitable in moderately dynamic environments. Thus, the degree of environmental dynamism might influence the applicability of the framework. Interestingly, a systems theoretic perspective (Luhmann, 1995) suggests the opposite. The more dynamic the environment, the more complex should be the firm's processes (for an extensive debate see Eisenhardt *et al.*, 2010; Schreyögg and Sydow, 2010). Although scholars do not agree on the appropriate management mechanisms in dynamic environments, they agree that this is an influential factor. Many risk-management scholars already incorporate dynamics in their frameworks (Arena *et al.*, 2010; Fehle and Tsyplakov, 2005).

A fourth and related boundary condition could be the industry sector. Neither the literature on the resource-based view nor the literature on the dynamic capability perspective stresses industry restrictions. In fact, the resource-based view emerged as an alternative to industry-related strategy models (Porter, 1980). However, the risk-management literature acknowledges that risk-management practices differ in different industries. Beasley *et al.* (2005) found different ERM implementation stages in different industries. Further research might identify the possibility of industry-specific boundary conditions for the proposed framework.

A fifth boundary condition might be the specific psychological state of the decision-makers (Ashkanasy, 2003). In the field of dynamic managerial capabilities, Bogodistov (2015) showed that negative emotions may help managers to notice new risks, but positive emotions might be needed to make a decision and incorporate an opportunity or a threat. Probably the most important psychological factor for risk management is risk aversion. Hiebl (2012, 2014) found that family firms tend to be more risk averse. This finding, on the one hand, supports the importance of psychological factors as boundary conditions; on the other hand, it introduces the ownership structure as an indicator for risk aversion and, therefore, the likelihood of the framework's implementation. Ownership structure might be another (sixth) boundary condition of the framework. Future research might investigate the role of boundary conditions empirically.

### Discussion and limitations

This study contributes to the literature and practice of risk management in different ways. First, as a theoretical contribution, it integrates ERM into the broader resource-based view and dynamic capability framework. This study did not intend to reduce the role of ERM, but to open up ERM to insights from the dynamic capability perspective, e.g. the role of management during adaptation (Martin, 2011), the role of routines (Wohlgemuth and Wenzel, 2016), and the impact of environmental uncertainty (Bogodistov and Botts, 2016). The dynamic capability literature also benefits from this integration – dynamic capabilities are criticized for their vague nature (Arend and Bromiley, 2009). The inclusion of risk management on both strategic and operational level makes the concept of dynamic capabilities more precise. This study intends to stress this notion because it is opening new avenues for dynamic capabilities operationalization (Arend and Bromiley, 2009; Burisch and Wohlgemuth, 2016). The inclusion of ERM into the concept of dynamic capabilities strengthens the latter one. *It allows for incorporating dozens of years of experience of risk-management research and the more recent holistic perspective of ERM.*

Second, adding insights from the resource-based view provides practitioners with clear priorities for *ERM implementation*. The core competencies, according to the VRIN criteria, should be management's focus in the risk-management process. Nevertheless, managers should bear in mind that not all risks can be foreseen or managed. Setting the wrong priorities can harm the firm's survival. It should be noted that although the right priorities are set, the number of risks for the set priorities still remains indefinitely high. Setting priorities is rather a pragmatic approach to restrict and direct the efforts of ERM. This study also provides guidelines for the application of risk-management techniques, e.g. the acceptance of risks is not recommended for VRIN-related risks. It is still a matter of debate, how much effort an organization should invest into the avoidance, mitigation or transfer of VRIN-related risks. Further research might address this aspect.

Third, whereas the resource-based view provides a measure to assess the potential impact of a risk, this study additionally provides a framework that deals with the uncertain occurrence of risks. Since not all risks can be foreseen or managed, this study provides a possibility to build organizational resilience, by relying on dynamic capabilities for risk transformation at the strategic level and non-routinized *ad hoc* problem-solving at the operational level (Wohlgemuth and Wenzel, 2016). For practitioners, this implies that they should not only rely on *ex ante* forecasting of risks but also on the development of *ex post* adaptation mechanisms that address risks. A forecasting of potential events is relevant for strategic risks that threaten a firm's VRIN resources. However, operational risks should be addressed by developing resilience.

An investment into a dynamic capability is one of the options to optimize ERM. It might be much more economic to develop a certain capability instead of constantly investing in a search for an unlimited amount of risks. Dynamic capabilities, however, are not the panacea, since they are restricted by blind spots. As some scholars argue, no firm that possesses some dynamic capabilities is "able to adapt to everything". A firm can only achieve a certain level on the interval from being completely rigid to being completely amorphous (Burisch and Wohlgemuth, 2016; Bogodistov, 2013). For risk-management practitioners, this implies that a firm can never be completely protected from risks, but it can develop different degrees of risk resilience.

Finally, this paper proposes the application of the dynamic capability perspective for ERM. Although VRIN resources should be prioritized for risk management, the VRIN nature of resources changes over time. According to the developed framework, dynamic capabilities are needed to allow a constant reassessment of the resources quality and, consequently, of the ERM priorities. If a firm wants to be successful in risk management, it has to dynamically adapt to the environmental challenges. For practitioners, this implies that they should routinely reassess their resource base. A firm should primarily take into account the changing nature of resources' impact on the firm and only secondarily the changing nature of risks. This study has made the first step in this avenue. A further theoretical discussion is encouraged.

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