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From theoretical framing to empirical testing in risk governance research: moving the field forward

1. Background of the special issue
The recent financial crisis showed that traditional approaches to risk management could not effectively deal with the significant risks that threatened the existence of many financial institutions and other businesses. A more holistic and strategic alternative to risk management may be risk governance (Stein and Wiedemann, 2016). Risk governance at the organizational level may bridge the gap between the “institutionally oriented field of corporate governance and the methodologically oriented area of risk management” (Baule and Fandel, 2016, p. 809). While the origins of risk governance can be found in the socio-political area (Renn, 2008; van Asselt and Renn, 2011), its economic application to corporations has recently received increased attention by researchers. However, such research remains at an early stage. In particular, while some important theoretical framing of risk governance has been performed (Cohen, 2015; Stein and Wiedemann, 2016), further conceptual work is needed and empirical research on risk governance is scant so far (but see some exceptions such as Aebi et al., 2012; Agarwal and Kallapur, 2018; Lundqvist, 2015; Mongiardino and Plath, 2010; Stein and Wiedemann, 2018). Owing to this dearth of the literature, the present special issue of the management research review aims to shed more light on framing and empirically examining risk governance.

This special issue originates from the 6th Annual Conference on Risk Governance held in October 2018 at the University of Siegen, Germany and the risk governance research group at this school. Earlier editions of this conference focused on more general applications of risk governance in practice and led to a number of special issues (see the guest editorials by Baule and Fandel, 2016; Hiebl et al., 2018a, 2018b). The 2018 edition of the conference focused on the theme of this special issue and several papers presented there have been selected for publication herein.

In Section 2, I briefly introduce these papers. I then chart some avenues for future research on framing and empirically examining risk governance in Section 3. In this guest editorial’s final Section 4, I present my conclusions and acknowledgments.

2. Papers included in this special issue
After standard peer-review procedures over several rounds, four papers were selected for publication in this special issue. Two of these offer a holistic view of framing risk governance (Gotteiner et al., 2019; Stein et al., 2019), while the other two tackle specific issues in designing risk governance (Gleißner, 2019; Handschumacher et al., 2019). The four papers are, however, united in underpinning the relevance of risk governance choices and carry important implications for both research and practice.

The first conceptual paper by Stein et al. (2019) aims to raise awareness of the relevance of framing in risk management and risk governance. Based on a five-constituent framing approach, the authors conceptualize how firms’ approaches to handling risks differ depending on the frames they apply and whether they lean toward risk management or risk governance. The paper, therefore, clarifies the distinction between risk management framing and risk governance framing, which is valuable for reducing ambiguity – both in research and in practice – around these two principal approaches to steering risks.
The second conceptual paper included in this special is Gleißner’s (2019) approach to integrating enterprise risk management (ERM) with ideas from value-based management. The paper is motivated by the paradox that existing attempts to link ERM and value-based management are based on the assumption of perfect capital markets, which, however, is thwarted by numerous empirical findings in the literature indicating that the application of ERM is value-enhancing (Grace et al., 2015; McShane et al., 2011; Pagach and Warr, 2011) – a finding indicating imperfect capital markets. Gleißner (2019) describes a value-based risk management model that can circumvent this paradox. His model may, therefore, be of great value for firms wanting to better integrate risk management considerations into their strategic business decisions, and thus, be better equipped to steer the development of firm value.

Similarly, the third conceptual paper tackles a further strategic role in risk governance. Gotteiner et al. (2019) propose an “anti-aging framework” for implementing turnaround strategies based on risk governance. They argue that such a role of risk governance is vital, as turnarounds are often necessary when organizations have not sufficiently considered “higher-level” risks. They note that more strategic, risk governance-oriented thinking in turnaround situations should lead to higher chances of such turnarounds turning out successful – a notion that links risk governance to the literature on organizational failure and decline (Kücher and Feldbauer-Durstmüller, 2019).

The final paper in this special issue, authored by Handschumacher et al. (2019), investigates a specific aspect of risk governance – board interlocks. In the German two-tier system, board interlocks mean that members of the supervisory board of a given firm at the same time hold multiple positions on the supervisory and executive boards of other firms (Andres et al., 2013; Lamb and Roundy, 2016). Handschumacher et al. (2019) hypothesize that such interlocks are related to monitoring effectiveness. Based on longitudinal data from German listed firms, they find that board interlocks have both beneficial and less beneficial outcomes depending on the measure of monitoring effectiveness (e.g. excessive management pay vs pay-for-performance sensitivity). The study, therefore, indicates that board interlocks are neither “good” nor “bad” per se. However, it shows that firms need to carefully weigh the benefits and costs of board interlocks for their risk governance.

3. Suggestions for further research
The papers in this special issue offer much food for thought for further studies of risk governance. In addition to the future research directions mentioned in these papers, some overarching research needs arise from this special issue. In line with its topic, I focus on directions related to theoretical framing and directions related to empirical testing. Note that while the following suggestions for future research are certainly subjective (as is usual in such editorials, cf. Hiebl et al., 2018b; Quinn et al., 2018), it is my hope that they offer some inspiration for fellow risk governance researchers.

3.1 Alternative theoretical framings of risk governance phenomena. Existing conceptual and empirical works on risk governance have mostly been rooted in the prior literature (Mongiardino and Plath, 2010; Stein and Wiedemann, 2016, 2018) or agency-theoretic thinking (Aebi et al., 2012; Handschumacher et al., 2019; Lundqvist, 2015; Sassen et al., 2018). In this issue, Stein et al. (2019) add that framing theory may be a useful lens through which to better understand risk governance and risk management. Besides these, a plethora of further theories are available that could enrich our understanding of risk governance and risk management. For instance, consider the various strands of institutional theory. Some qualitative research has indicated that the implementation and design of risk governance and management systems are heavily influenced by
organizational politics (Arena et al., 2010, 2017; Hall et al., 2015; Lim et al., 2017). Consequently, just as with the related field of management accounting and control (Hiebl, 2018; Markus and Pfeffer, 1983), often-studied pillars of institutional studies such as power and resistance (ter Bogt and Scapens, 2019) also seem important to understand why and how risk governance is put in place. Risk governance research inspired by institutional theory could also adopt process views to better understand how existing risk governance institutions have emerged and can be changed. Also on such questions, several frameworks are available from the related field of accounting (Burns and Scapens, 2000; Quinn and Hiebl, 2018; ter Bogt and Scapens, 2019). Besides, such opportunities at the organizational level, macro-level questions on risk governance could be investigated with the help of institutional theory. For instance, it would be interesting to understand whether and how risk governance institutions in organizational fields such as certain industries or at the economic/political level are shaped and trickle down to individual organizations. Ideas from new institutional sociology (DiMaggio and Powell, 1983; Dillard et al., 2004) could guide such research and illuminate how risk governance could develop into a more widely accepted paradigm. Specific research questions include:

**RQ1.** How are institutions around risk governance shaped in individual organizations over time? How can they be changed?

**RQ2.** To what extent is the construction of risk governance institutions based on “rational” considerations and how far do power, politics and resistance affect the institutionalization of the concept?

**RQ3.** How and why could risk governance become a more macro-level institution for steering risks in business organizations?

Besides such research directions rooted in institutional theory, resource-based thinking could also be applied to risk governance research. Risk governance studies leaning toward corporate governance choices (Handschumacher et al., 2019) have already drawn on resource dependence theory. Besides this theoretical framing, the resource-based view (Barney, 1991; Kraaijenbrink et al., 2010) could also be fruitfully applied to risk governance research (Stein and Wiedemann, 2016). Related research has shown that management control systems can be beneficial for developing key organizational capabilities such as innovativeness and organizational learning, which, in turn, can drive firm performance (Henri, 2006). Given that risk governance and management control share much in common and that some authors suggest that risk management is *de facto* an important control system (Culasso et al., 2016; Nielsen and Pontoppidan, 2019), it seems intuitive that risk governance might also influence organizational resources and capabilities significantly. This notion is underpinned by the idea that risk governance *per se* can be seen as a dynamic capability that could be linked to further capabilities and positive performance outcomes (Stein and Wiedemann, 2016). Specific research questions include the following:

**RQ1.** How does risk governance affect other resources and capabilities and how is it related to organizational performance?

**RQ2.** Under which conditions can risk governance be viewed as a dynamic capability and how does it interact with other resources and capabilities in determining an organization's competitive advantage?

3.2 Conceptually and empirically disentangling risk governance from risk management.

While conceptual research on risk governance has tried to disentangle risk governance from
other concepts such as ERM (Stein et al., 2019; Stein and Wiedemann, 2016), how these concepts can be distinguished empirically remains unclear. For instance, in her survey study of Scandinavian firms, Lundqvist (2015, p. 453) interprets risk governance as a key component of ERM that moves traditional risk management toward ERM. She operationalizes risk governance with a series of questionnaire items and archival measures, and notes that her risk governance questionnaire items “are the typical characteristics of ERM addressing the organizational and holistic nature of risk management as ERM prescribes.”

Alternatively, Stein and Wiedemann (2018) suggest a measurement of risk governance based on their risk governance framework (Stein and Wiedemann, 2016). In contrast to Lundqvist (2015), their empirical approach to studying risk governance is not clearly related to ERM but involves specifically related constructs such as risk culture and the design of risk models. While the conceptual paper by Stein et al. (2019) included in this issue offers valuable propositions on how risk governance may differ from ERM because of different framing, data on how such reasoning fares in an empirical setting are lacking.

Hence, in line with this issue’s central tenet of moving risk governance research forward to empirical testing, it seems necessary at this point to use existing and potentially develop additional systematic measures of risk governance to clarify how organizations approach this paradigm, put it into practice, and distinguish it from approaches such as ERM. Interesting research questions include:

**RQ1.** How do organizations distinguish risk governance from risk management approaches such as ERM? Do these concepts coexist in the minds of executives and supervisory bodies? If so, how are they related?

**RQ2.** Building on the first bullet point, how can we measure risk governance in quantitative research settings such as surveys and archival studies? How would such measures compare with existing measures of ERM (Beasley et al., 2015; Lundqvist, 2015) and how can the two concepts be disentangled in empirical research?

4. **Concluding comments and acknowledgments**

As indicated above, research on risk governance is still in a relatively early stage, and thus, numerous attractive opportunities for future research remain, some of which are indicated above. Nonetheless, the papers included in this special issue bolster our understanding of risk governance and it is hoped that related research will follow suit.

Many actors contributed to the construction of this special issue. First, I would like to thank Lerong He and Jay J. Janney, coeditors of the management research review, for their support. Second, I thank my colleagues Volker Stein and Arnd Wiedemann for their diligent organization of the annual conference on risk governance in Siegen, which kick-started the development of this special issue. Also, I would like to thank the many reviewers for devoting significant amounts of time to providing constructive and cogent reviews, including:

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Finally, it is, of course, the authors of the insightful research papers that have made this special issue possible. They invested much time and thought in creating and improving their research with the help of reviewers and editorial comments. I remain confident that the payoff of their endeavors is not “at risk,” but will materialize in an increased understanding of theoretically framing and empirically testing aspects of risk governance.

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References


Framing risk governance

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Abstract

Purpose – The purpose of this paper is to apply the concept of framing in the field of risk governance and risk management research.

Design/methodology/approach – A five-constituent approach to framing – cognitive, strategic, action, emotional and institutional framing – is applied to contrastively analyze the multifaceted character of the two concepts of risk governance and risk management.

Findings – This paper analyzes the multifaceted utilization of risk governance framing and the conscious demarcation between risk governance and risk management. Risk governance framing strengthens the proactive control of strategic risks with regard to business model adaptation to changing risk landscapes. The verbal imagery of risk governance already sets the agenda for the sustainability-oriented as well as value-oriented steering of the risks of a business model. Following the analysis of the different framing areas, propositions are presented.

Originality/value – Although framing is applied in various academic disciplines, there is limited research relating to corporate risks. While risk governance provides companies with a concept to ensure the sustainability of their business models in the complex risk landscape, the related framing brings the appropriate interpretation and the deliberate tone into focus.

Keywords Framing, Business model, Strategic management, Risk management, Risk governance

Paper type General review

1. Introduction

In strategic management, one of the most crucial tasks is to shape, establish and maintain a sustainable business model. The actors involved, i.e. top management, supervisory bodies and employees, have to cope with a broad range of uncertainties and risks. Stabilizing the firm’s business model, in particular if it is under external or organizational pressure, is one of the recently discussed leadership competences called “dynamic capabilities” (Teece, 2018). It refers to conscious strategic responses in terms of reconfiguring resources and readapting the business model when the risk landscape changes.

Top management is responsible for the preservation of a viable business model and, therefore, has to organize the processes of gaining control over the risks. The first option is to delegate responsibility by mandating the risk management department with the monitoring and mitigation of risks. However – “out of sight, out of mind” – this might endanger business model safeguarding at the top, as well-functioning risk management, aiming at avoiding risk on-site (Ojiako, 2012), filters out a lot of risk information (and coexisting opportunity information) that might be key to business model adaptation at the top level of decision-making. With regard to the given dependence on the situative context, a maturity model reflecting the firm’s ability for continuous improvement in risk work differentiates risk management processes (Farrell and Gallagher, 2015) with maturity levels ranging from traditional “silos” risk management to an integrated risk management such as
Enterprise Risk Management (ERM) with a company-wide portfolio view of all risks (Kimbrough and Componation, 2009; Grace et al., 2014). But although Mikes (2009) describes several ideal types of ERM with varying focus and purpose, Simona-Iulia (2014) still comes to the conclusion that ERM “is an improved version of the traditional risk management, created by expanding its scope” (Simona-Iulia, 2014, p. 282). Recent management research stressing pitfalls related to risk management and ERM (Bromiley et al., 2015) leads to the second option for top management: setting up “risk governance” (Stein and Wiedemann, 2016). This approach ensures that top management still receives risk information from all corporate levels to integrate it into its decisions on business model adaptation and, therefore, strengthens the set of the company’s robustness-increasing measures, i.e. resilience management. Lundqvist (2015) shows the “implementation of risk governance is the active step beyond traditional risk management to ERM” (Lundqvist, 2015, p. 441).

The breadth of conceptual understandings with regard to traditional risk management, ERM, and risk governance – a topic that will be touched upon below – may result in messy overlaps that are likely to exist also in managerial minds. But the terminology in which protagonists talk about risk-related management questions also makes a difference. This very point is the main insight from the research on framing (Allan et al., 2010; Lakoff and Wehling, 2016): There are different ways to address the same issue, and completely different reactions can be induced depending on the way in which an issue is phrased (Entman, 1993).

In the context of business model risk steering, we can scrutinize both options: Which type of framing, i.e. “the language of risk management” or “the language of risk governance”, is more appropriate for a top management that is striving to meet its responsibility for ensuring business model sustainability and, at the same time, seeking to make that responsibility company-wide?

The objective of this paper is to contribute to a broader awareness of framing in risk steering. Existing overlapping conceptual designs of risk management and risk governance can result in ambiguity for managers about actors and roles when talking about risks. Our research aims at clarifying when it is best to speak about risk governance and when it is best to speak about risk management against the background of different risk management implementation stages.

The paper is structured as follows. After introducing the theoretical foundations of framing and risk governance, we will contrast risk governance framing with risk management framings, leading to five pairs of propositions. We will be able to show that the consciously designed framing of risk governance has distinct comparative advantages in the context of successful business model adaptation, both for top management and for the organization as a whole.

2. Theoretical background

2.1 Framing

2.1.1 Evolution and definition of framing. Framing theory has considerable traction in communication and organizational theory. As early as Burke (1937) made use of the construct of framing in a macro-sociological, historical context. The text Frame Analysis by the sociologist Goffman (1974), inspired by Bateson’s (1972) concept of psycho-social frames, has become fundamental to social science, describing with regards to meta-communication how individuals experience a situation and how an interpersonal consensus about the nature of this social reality can be found. In the 1970s, the concept of framing evolved as an area of interdisciplinary research and drew attention in psychology, linguistics, politics, sociology, economics, journalism and mass communication (Cornelissen and Werner, 2014).
Consequently, definitions of framing are diverse and depend on the related research. In terms of a general definition spanning all fields, a frame is defined as “principles of organization which govern the subjective meanings we assign to social events” (Goffman, 1974, p. 11), which indicates that framing is the process of defining a frame. In a process-related definition, framing is about:

[selecting] some aspects of a perceived reality and [making] them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described (Entman, 1993, p. 52).

As a result of the evolution of framing, different research areas use this concept, among them cognition and decision-making (Goffman, 1974; Argyris et al., 1985), strategic analysis (Allison, 1971) and the evolution of science and technology (Kuhn, 1970; Dunbar et al., 1996). In this paper – and because the conceptual cores of the alternative framing concepts are similar – we do not focus on one single research tradition but instead base our analysis on a broad, comprehensive understanding of framing.

2.1.2 Framing process. Taking the action perspective, framing is, first, a psychological process by that misalignment of interests in organizations can be socio-cognitively mitigated (Donohue, 2011). Framing is, second, an interactional, communicative process accomplished by the use of language, and language in turn impacts social interaction (Dewulf et al., 2009; Gray et al., 2015) and develops meaning (Benford and Snow, 2000; Purdy et al., 2017) through bidirectional negotiation of individual framing over time (Carnevale, 2011).

Entman (1993) described four components of the framing process, namely communicator, text, receiver, and culture. The communicator consciously or unconsciously decides what to say and makes a choice of words and frames. The message is then transmitted through text, which may contain certain keywords, stock phrases or stereotypes. The receiver’s interpretation of the framed text might differ from the communicator’s original intention. Finally, culture represents the accepted set of framings within a group of people. In the framing process, through the selecting function of framing, a piece of information can be made more salient, noticeable, meaningful or memorable. This might increase the probability that the receiver perceives the information as intended and stores it in memory (Entman, 1993).

2.1.3 Functionality of framing. In organizational contexts, framing has been extensively used for the explanation of individual sense-making (Lewicki and Brinsfield, 2011; Cornelissen and Werner, 2014), resulting in a memory structure used to organize and interpret experiences (Perri 6, 2005). Framing has been analyzed by risk researchers to get insights into what is accepted as legitimate (Allan et al., 2010). Morgan et al. (2002) showed that any kind of frame is used to think about and recognize risks. At the collective level, framing aims at collective reality construction, interpretation, and action (Steinberg, 1998; Benford and Snow, 2000). Some researchers stress that framing has a manipulative downside (Kelly, 2017; Litrico and David, 2017; Purdy et al., 2017; Seo and Dillard, 2017); however, this is inherent to any communication, just as Watzlawick pointed out: “One cannot not communicate” (Watzlawick et al., 1967, p. 51).

Framing is also applied to guide individual decision-making (Nutt, 1998; Litrico and David, 2017). One of the most cited study in this context is the experiment by Kahneman and Tversky (1981) that was based on the premise of the expectancy theory, which states that different representations of the same choice problem should yield the same preference. Subjects were confronted with the following situation: the country is preparing for the
outbreak of an unusual disease that is expected to kill 600 people. The subjects were asked
to choose between two alternative countermeasures, A and B. In the first formulation, the
term “save” was used (A: 200 people saved; B: 1/3 probability that 600 people will be saved
and 2/3 probability that no people will be saved). In a second formulation, the same outcome
was described in terms of lost lives (A: 400 people will die; B: 1/3 probability that nobody
will die and 2/3 probability that 600 people will die). Subjects decided completely differently
in the two cases, preferring A in the first formulation and B in the second formulation, which
shows that framing influences risk aversion. Various other studies in finance and risk
research, customized in terms of context and the degree of complexity, have been conducted
to prove this phenomenon (Kirchler et al., 2005). Therefore, framing can be used as a tool for
influencing strategic behavior.

2.2 Risk governance

2.2.1 Evolution of risk governance. The first papers relating to risk governance were
published around the turn of the millennium (Elliott, 2001; Heriard-Dubreuil, 2001).
Originally, the European Commission addressed the topic of risk governance in the context
of a Science and Society Plan as a macro-societal challenge (van Asselt and Renn, 2011).
Following the establishment of the International Risk Governance Council (IRGC) in 2003,
risk governance raised its awareness in the macroeconomic context (van Asselt and Renn,
2011), being expected to support governments, industries and non-governmental
organizations in the management of external risks from the natural, societal and
technological environment, such as disposal of nuclear waste, climate change, bad harvests
or pandemics (Klinke and Renn, 2012). Identification, measurement, management and
reporting of risks were to be taken in light of future systemic consequences [International
Risk Governance Council (IRGC), 2005], resulting in a policy-oriented risk governance
framework (Florin, 2013).

In particular as an answer to the financial crisis, the term risk governance has been
transferred also to the microeconomic context. Notably in the banking sector, risk
governance became of special interest when the European Central Bank implemented this
terminology in 2016 in the course of the release of the Supervisory Review and Evaluation
Process (European Central Bank, 2016). With regard to financial institutions, risk
governance was introduced “as the framework through which the board and management
establish the firm’s strategy, articulate and monitor adherence to risk appetite and risk
limits, and identify, measure and manage risks” (Gontarek, 2016, p. 120). This signification
was still very similar to traditional risk management that is tightly related to internal
control with objectives focusing on operations, reporting, and compliance. Seeking to
broaden traditional risk management in a strategic sense, Lundqvist (2015) was one of the
first academics to demand additional governance functionalities that had, up until then,
been missing in traditional risk management. Her idea was to refine one of the most popular
ERM frameworks, the US-based “Enterprise Risk Management – Integrated Framework”
published by the Committee of Sponsoring Organizations of the Treadway Commission
(COSO) (2004), as a governance-improved risk management function. Yet, the three COSO
internal control objectives of risk management could be found, extented by strategic
objectives. In 2017, the updated version of this framework was renamed “Enterprise Risk
Management – Integrating with Strategy and Performance”. Even this enlarged ERM
maintained the problem that businesses had all sorts of risk-mitigating functions at the
operative level but persistently failed to cope with risks that affected the overall business
model at the strategic level (Stein and Wiedemann, 2018). For example, how could it still be
possible that companies that invested huge amounts of money in risk management and
ERM, “suddenly” faced thousands of charges and lawsuits (Comfort and Choudhury, 2016 in conjunction with Leidner and Lenz, 2017) that actually endangered their survivability?

Obviously, the emergence of risk governance in the organizational context was driven by failures and weaknesses in both risk management and corporate governance that had originally been intended to protect the organization from all kinds of risks threatening its sustainability. In this paper, we will not enter into detailed criticism of corporate governance and risk management (Stein and Wiedemann, 2016). It is, however, important to emphasize that risk management, which is defined as the process of identification, measurement, analysis, and control of risk, focuses on reducing risk by sophisticated quantitative modelling, above all in the finance industries (Hardy and Maguire, 2016). Standardization of risk models and risk management processes leads to a rather mechanistic risk management that is perceived as effective if it filters out all or as many as possible of the risks and controls them, keeping them away from top management. Unfortunately, top management then is no longer able to integrate the – now missing – risk information into its strategic decisions for the future (Stein and Wiedemann, 2018). At the same time, corporate governance cannot fill this gap, as many of the country-specific regulations have a narrow focus on risks related to leadership disability, regulatory compliance, and lack of transparency (Gericke, 2018) and corporate governance is largely malleable for companies and is often conceptualized as a tick-box approach (Arcot and Bruno, 2007), with no explicit focus on business-model-related risk control.

Necessary further developments will have to reflect the rationale that “the risk landscape of a corporation has to be captured holistically and circulated to the top management as the final decision-makers on corporate strategy” (Hiebl et al., 2018, p. 318). At this point, country-specific particularities of different management traditions, supervision systems, and corporate governance come into play. Apart from national regulations, however, many foundations of management responsibilities and actions are internationally accepted and approved so that in the following we will talk about the core of risk-related steering that is generally accepted.

2.2.2 Definition of risk governance. In recent years, the corporate pursuit of controlling risk has seen several unfortunate developments. Volkswagen’s emissions scandal and the abundance of lawsuits surrounding Walmart mark only two prominent examples of large companies. In both cases, neither the mechanisms of corporate governance nor those of risk management – and both functions were equipped with the utmost possible resources – have reacted sufficiently to the threats that the companies were exposed to. Consolidating operative and strategic risk for the sake of controlling risk as a whole appears to be the central problem since, when considered individually, both risk management as well as corporate governance are subject to constant change and development. The prevailing (structure-driven) corporate governance and (process-driven) risk management seem insufficiently coordinated, i.e. have evolved into two coexistent but isolated pillars. Literature on current research seems to back this observation: Papers on risk management predominantly appear in journals of finance and accounting (Bromiley et al., 2015, p. 265), whereas research on corporate governance seems associated mainly with the fields of business law and business ethics.

The core of this question how to reunite two streams of theory and practice has not yet led to a general consensus as there are three possible solutions for the problem:

1. Subsuming risk management under corporate governance; this solution attracts only minor attention in research (Sassen, 2014) since corporate governance tends to approach the qualitatively oriented field of legal studies rather than the quantitative field of risk management research.
Subsuming corporate governance under risk management; this is the approach ERM takes (Arnold et al., 2012) that is attributed the leading and controlling role in risk steering which determines structures, responsibilities, authorization, and roles for decision-making (Lundqvist, 2015, p. 442), clearly addressing elements of corporate governance.

Closing the gap; this solution makes the attempt of bridging risk management and corporate governance by leaving the two pillars highly specialized, while drawing a conceptual connection between their respective steering deficits.

Risk governance bases its legitimization on the revealing of deficits in the steering of risk that are related to the business model. While accusing operative risk management of possessing a standardized constriction, it illustrates that corporate governance, over time, has become an instrument of specifying management accountability rather than an actual means of strategically controlling risk. A company’s management then is inclined to merely “tick the boxes” to avoid managerial misconduct, and ensure compliance with regulations and transparency. Instead of enhancing either risk management or corporate governance, however, risk governance (this made-up word combines terms from each function) chooses solution (3): it serves as a mediator between the two functions without trying to replace either one. On the contrary, risk governance accepts the necessity of both risk management and corporate governance, but intends to solve their respective deficits in a complementary fashion by adding monitoring and advising functionalities and by organizing a hierarchy-spanning interconnection of risk assessment. In this sense, risk governance is first and foremost an overarching philosophy of controlling strategic business risk which aims at permeating a company with its stakeholder-oriented take on the issue (Stein and Wiedemann, 2016, p. 813).

Risk governance can be defined as the firm’s entirety of collaborative processes of interaction and decision-making among the actors involved in the collective problem of controlling the risk-related complexity in its internal and external environment. It aims at adapting the business model to changing risk landscapes to maintain the firm’s sustainability and ongoing value creation.

In practice, this means bridging the gap between risk management which is located within the operating departments and management-born corporate governance. Risk governance seeks to use the risks recognized in operation to support the management in making basic decisions regarding the company’s business model, thus rendering those decisions (not only in theory) strategically relevant. Stein and Wiedemann (2016) attribute to risk governance four central tasks: designing risk models for the company, determining model risks, adapting progress in risk research to the specific conditions of the firm, and providing top management with various risk perceptions so that it will be able to integrate this into its decision-making on business model adaptation. With its four tasks, risk governance forces the management to continuously align the business model with the prevailing risk environment. With regards to concrete goals, milestones, the relevant stakeholders’ goals and interests, the availability of resources and incentive systems, this alignment is to initiate a reorientation of future strategies, or even a revision of current ones.

Applying risk governance is intended to help top management keep track of the variety of interlinked risks threatening the organization’s business model, in particular in the era of digitization, social media, and real-time information processing. The interconnection of organizations, society and technology is shaping a new risk landscape which in turn impacts top management activities of seeking a sustainable future for their companies. In
the following, the constituents of risk governance will be specified in the sense of framing objects.

3. **Research model**
Conceptually, in this paper, we will specify the framing of risk governance. We will show how risk governance protagonists have intentionally shaped five types of framing: cognitive, strategic, action, emotional, and institutional. Taken together, these five types of framing, besides of representing the diagnostic, prognostic and motivational core framing tasks characterized by Snow and Benford (1988), cover all aspects of a concept’s usability for management purposes:

- what it is (cognitive);
- which intent it has (strategic);
- how to use it (action);
- how to feel about it (emotional); and
- how to fit it into intra-organizational and external systems (institutional)

We will contrast this with the respective framing used by risk management protagonists, to clarify the distinctions. For a more granular analysis, we will differentiate between three risk management maturity levels: first, a basic risk management which focuses on isolated analyzes of individual risks (the risk silo conceptualization); second, an integrated risk management; and third, a holistic risk management.

Methodically, we will base our analysis on recent literature from the fields of risk governance and risk management, applying a four-step argumentation. We will start by providing the theoretical explanation on the framing category. On this basis, this type of framing will be applied to risk governance on the one hand and risk management on the other. We will conclude by deriving propositions that tentatively relate both risk governance and risk management to its respective value contribution. Their wording indicates that firms can choose to frame their risk work in a particular manner. Firms talking about, using, or implementing the risk governance framing will impact risk work in a particular way that will in the different framing dimensions lead to different effects in comparison to those firms using the risk management framing.

4. **Contrastive analysis of risk governance framing**

4.1 **Cognitive framing**
Cognitive framing aims at establishing a knowledge structure that helps individuals organize and interpret new experiences (Lewicki and Brinsfield, 2011). It also directs and guides information processing (Cornelissen and Werner, 2014) by forming the basis for a consistent understanding of a specific terminology. Kaplan (2008) stresses the importance of cognitive framing in periods of high uncertainty where it becomes central to strategy-making processes as it directs managerial attention and thus influences a company’s response to changing circumstances.

Cognitive framing of risk governance points to what risk governance intends to be: the missing link between risk management and corporate governance. That is why the term risk governance combines one word each from risk management and corporate governance. However, risk governance means more than simply blending the both terms. The deliberate connotation refers to the underlying complexity of relating risk steering with the permanent dynamic adaption of the business model at the strategic level of an open organization. Risk
governance is to be understood as a fundamental steering philosophy demarcated from traditional risk management and corporate governance (Stein and Wiedemann, 2018), embedding it as a cornerstone of contemporary corporate management: “Risk governance, based on dynamic capabilities, will serve as an internal consultant and as a motor for increasing the company’s potential for strategic agility” (Stein and Wiedemann, 2016, p. 828).

In contrast, cognitive framing of risk management limits it to a rather mechanistic approach that is concentrated on a broad variety of coping strategies for the mitigation and minimization of the risk effects mainly without addressing the underlying causes and uncertainties (Field et al., 2006). Risk as the object of risk management activities appears to be an end in itself which is other than a means to an end, i.e. the business model. The cognitive framing of risk management becomes visible within the language of the widely standardized processes of identification, assessment, planning, avoidance or reduction and reporting of risks that are adhered to strict process stages and to a predefined risk policy (Aven, 2016). Broken down by maturity level, the mechanistic mitigation relates to single risks (basic), risk portfolios (integrated) or risk networks (holistic). The downside of this approach is that relying on a standardized framework can lead to uncovered risks in periods of change (Dunbar et al., 1996). For instance, in the context of digital transformation, new types of risks emerge that may impact the business model of any organization but are not yet covered by risk management processes (Loebbecke and Picot, 2015). Framing of traditional risk management is not – and framing of holistic risk management such as ERM is only to some extent (Farrell and Gallagher, 2015) – directed towards early warning functions that discover emerging risks, and especially not those related to the overall business model, at an early stage.

Thus, we propose the following:

\( P1a \). Firms applying the cognitive framing of risk governance direct the usage of firm resources towards risk-related adaptive steering of the business model.

\( P1b \). Firms applying the cognitive framing of risk management direct the usage of firm resources towards mitigating and minimizing risks.

4.2 Strategic framing

Strategic framing sets the focus on purpose, intent, and functionality. It elaborates “how – through language and symbolic gestures – strategic actors attempt to frame courses of actions and social identities to mobilize others to follow suit” (Cornelissen and Werner, 2014, pp. 182-183). This means that strategic framing refers to a “set of cause-effect understandings about industry boundaries, competitive rules and strategy-environment relationships available to a group of related firms in an industry” (Nadkarni and Narayanan, 2007, p. 689). It contributes to the construction and negotiation of shared meaning, assuming that a common understanding of particular courses of action and their effects will emerge through interaction over time (Dewulf et al., 2009; Benner and Tripsas, 2012).

Strategic framing of risk governance highlights its purpose of long-term value creation and business model sustainability to mobilize trust and, subsequently retention, of a wide range of external investors and internal human resources. For example, risk governance framing calls to initiate the process by that a company is permeated by stakeholder-oriented risk control from a strategic perspective (Stein and Wiedemann, 2018), making the 360 degree alertness a normality in the corporate self-conception. That broad perspective, demanding risk detection in terms of the “unknown unknowns” (Luft and Ingham, 1955)

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**Framing risk governance**

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from everybody involved in the corporate system, ensures that the interests of employees, managers, suppliers, and numerous other stakeholders are each considered equally relevant for business model adaptation and, therefore, corporate development. Risk governance is framed as an integrative approach which aims at sending clear ethical signals to every stakeholder underlining the dominant significance of risk-related sustainability (Stein and Wiedemann, 2016).

Strategic framing of risk management points to its purpose to build up a control system that ensures risk immunity for the corporate system so that business processes will continue to run smoothly. Even a more mature risk management approach like the integrated risk management restricts the stakeholders that are addressed to intra-organizational functions such as finance, managerial accounting and internal auditing as well as to external supervisory authorities of the respective industry. Linguistic expression is deployed to appreciate financial stability and liquidity rather than corporate development in uncertain times (de Mailly Nesle, 2015), and the language used is the language of figures. Looking at financial institutions for example in Europe, banks are obliged to establish an elaborate risk management function and an explicit risk strategy (European Banking Authority, 2017) to avoid financial risks. This risk strategy covers risk management objectives for the key business activities and corresponding quantitative metrics and calculations as well as prescribed risk reporting (Federal Financial Supervisory Authority (BaFin), 2017). Basic risk management is related to known risks and predefined measures of financial stability that have to be met (Gericke, 2018). The integrated risk management directs its strategic framing to risk aggregation and adds the enhancement of (financial) stakeholder value, while holistic risk management considers emerging risks (Mikes and Kaplan, 2015) and financial stability forecasting with quantitative risk assessment still being prevalent.

We therefore propose:

\[ P2a. \] Firms applying the strategic framing of risk governance create stakeholders’ trust in long-term corporate development in uncertain times.

\[ P2b. \] Firms applying the strategic framing of risk management create stakeholders’ trust in financial stability and liquidity in uncertain times.

4.3 Action framing

Action framing is the creation of action-oriented sets of beliefs and meanings (Benford and Snow, 2000) aimed at simplifying and condensing aspects of the “world out there” to tell people what they should do and how to use what they have acquired through cognitive framing. Action framing results in people becoming active drivers of a particular idea (Snow and Benford, 1988).

Referring to risk governance, action framing emphasizes the core activities of risk governance, consisting of four clear-cut tasks (Stein and Wiedemann, 2016):

1. the design of a set of alternative risk models to broaden top management’s perception of potential future risks and overcome the prevalence of merely reactive risk models;
2. the determination of model risks, in particular those resulting from risk models if incorrectly specified, or inapplicable or incorrectly implemented;
(3) proactive “research and development” on risk issues to ensure awareness of potential future risks and benefits from recent advances in risk research and practice; and

(4) internal risk consultancy for top management, i.e. taking responsibility for communicating the various risk perceptions so that top management is able to integrate them into its decision-making on business model adaptation.

Taken together, action framing of risk governance is a demand for organic mental openness to anticipating systemic change and urges corporate actors to permanently re-contextualize business model risk steering as the consequence of an ongoing risk screening. Furthermore, it gives corporate risk culture a specific flavor of collective responsibility and proactivity.

Action framing of risk management primarily takes up the terminology of the international standard ISO 31000 (2009) for risk management from 2009, recently updated in 2018. As a generic standard, ISO 31000 gives general guidance on risk management architecture, principles, framework and process. The seven core activities of risk management are:

1. avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk;
2. accepting or increasing the risk to pursue an opportunity;
3. removing the risk source;
4. changing the likelihood;
5. changing the consequences;
6. sharing the risk with another party or parties (including contracts and risk financing); and
7. retaining the risk by informed decision.

Risk management activities are directed towards reactive routine operations with a rather reductionist mentality and mechanistic notion. This applies to all three risk management maturity levels, with holistic risk management especially focusing on process transparency (Oliva, 2016) and building up organizational slack as a reserve to mitigate risks (Chopra and Sodhi, 2004).

Thus:

P3a. Firms applying the action framing of risk governance evoke the comprehension of risk steering as a systemic and organic approach in an open realm of experience.

P3b. Firms applying the action framing of risk management evoke the comprehension of risk steering as a reductionist and mechanistic approach in a default process.

4.4 Emotional framing

Emotional framing is making something attractive to get the involved people commit themselves and also refers to “moral imagination” (Werhane, 1998) to broaden one’s mental mindset. Habitual language and positively connoted cultural symbols can be used to create common ground and to motivate others to cooperate (Fligstein, 2001), and using emotional framing is expected to raise the individual level of alertness and recall of information (Strongman and Russell, 1986). Emotional framing plays an important role in the affective perception and comprehension of potential risks (Choi and Lin, 2008).
There are two components in risk governance emotional framing: First, the sustainability of the business model provokes positive resonance because the connotation of sustainability is social responsibility, ethics, transparency, humanity, ecology and safe workplace (Carroll, 1999; McWilliams and Siegel, 2001) which is altogether the basis for contemporary organizational legitimacy. By that, risk steering as a whole addresses not only dangers but also opportunities for maintaining a successful company. Second, the intended value creation through overall risk robustness triggers positive associations both with economic value and with cultural values in the sense of risk culture, combining economic metrics with desirable culture (Gibbons and Kaplan, 2015). This is the necessary condition for long-term success and organizational viability.

Emotional framing in risk management differs in its affective focus that is directed towards threat and its avoidance. Risk management is praised effective if it achieves the de-risking within a risk appetite or even the far-reaching absence of dangers rather than the creation of opportunities, even if integrated risk management generates a comprehensive list of risks that might jeopardize the company’s achievement of objectives, or holistic risk management strives to take non-quantifiable and emerging risks into consideration in the sense of developing alternative future risk scenarios, i.e. “risk envisionment” (Mikes, 2011, p. 226). Furthermore, risk management framing emotionally communicates time pressure: For example, the value-at-risk measure as one of the most cited techniques in risk management (Jorion, 2007) is limited to a short period, such as one to ten days for market risks (Dias, 2013). In financial institutions, the obligatory 12-month forecast for internal capital adequacy planning (Federal Financial Supervisory Authority (BaFin), 2017) is already perceived long-term.

We therefore propose:

P4a. Firms applying the emotional framing of risk governance help management and employees increase their motivation and self-efficacy in shaping the company’s future.

P4b. Firms applying the emotional framing of risk management help management and employees increase their motivation and self-efficacy in averting damage to the company.

4.5 Institutional framing
Institutional framing influences people on how to connect a process with internal and external structural conditions of an organizational system. Institutional framing “scripts behaviors in an institutional field” (Cornelissen and Werner, 2014, p. 185). This involves the “creation of shared conceptions” (Scott, 2003, p. 880). Going beyond intra-organizational institutionalization, institutional framing is used to “provide macro-structural underpinning for actors’ motivations, cognitions, and discourse at a micro level” (Cornelissen and Werner, 2014, p. 206). This implies that framing on one institution can be concatenated with the framing on related institutions, clustering the respective frames (Schön and Rein, 1994).

Institutional framing of risk governance operates in the direction of decentralized involvement and participation. It is a fundamental insight from cybernetics that for a complex system in a changing environment to be stable, the number of states that its control mechanism is capable of attaining, i.e. its repertoire of responses to challenges or “variety”, must be greater than or equal to the number of states in the system being controlled – or, as Ashby (1956) framed his famous law of requisite variety, only variety can absorb variety. Therefore, institutional framing of risk governance accentuates additional control
mechanisms and structural coping capacities such as interfaces between top management and the overall system of internal and external monitoring and supervision, or intensified flows of information from and to internal and external supervisory bodies. For example, it strengthens the conceptualization of intra-organizational risk governance circles (Stein et al., 2018b), which are comparable to quality management circles (Adam, 1991). Those circles consist of employees from across the company who discuss their risk perception and their assessments of the consequences of risks for the business model. The claim “every employee is a risk owner” reflects the crucial role of individual instincts and experiences. The risk governance circle is invited to collect potentially relevant information and to communicate it to the top management so that it will benefit from comprehensive risk-related information without being overloaded (Stein et al., 2018b). Top management has to react to that information, both by considering it for the business model and by giving feedback to the risk governance circle. In creating problem-solving variety, institutional framing coins risk governance as the core of a participative business risk monitoring and supervision system with mutual assumption of responsibility.

Institutional framing of risk management is usually embedded in a top-down approach (Gericke, 2018). In many organizations, especially in financial institutions, responsibility for the risk management process is assigned to a Chief Risk Officer (CRO) (Gontarek, 2016). Although the CRO is a member of the board, this does not necessarily ensure that top management is aware of all relevant risk information needed for its decision-making. Furthermore, at a basic risk management level, isolated groups of individuals with a silo mentality in risk management (Lundqvist, 2015) may focus on single risks, leaving organization-wide risk management an incoherent patchwork (Bromiley et al., 2015). To overcome this obstacle, integrated risk management intends to consolidate all (quantifiable) risks to one risk statement. While it takes into account diversification effects and links risk management with performance measurement (Mikes, 2009), non-quantifiable strategic risks fade into the background. At the highest maturity level of risk management, companies aim with the holistic risk management approach at further improving their processes and standardizing a company-wide framework (Oliva, 2016). Taken together, creating anytime financial security in a centralistic approach advocates massive reduction of problem-solving variety for the single decision makers not to overstrain them.

This enables the formulation of the following propositions:

**P5a.** Firms applying the institutional framing of risk governance promote the establishment of participative steering of business model risks by purposely supporting investments in additional problem-solving variety.

**P5b.** Firms applying the institutional framing of risk management promote the establishment of centralized steering of (financial) risks by purposely supporting investments in the reduction of problem-solving variety.

5. Discussion
Deliberate framing with regard to risk steering has yet remained largely unexamined, leaving room for interpreting the subtle connotations that both of the terms risk governance and risk management can sometimes convey. Based on a five-constituent framing approach, our research suggests a comprehensive risk governance terminology that makes clear when it is best to speak about risk governance and when it is best to speak about risk management. Contrasting risk governance framing with risk management framing allows a distinction to be drawn between the two concepts (Table I), reducing existing ambiguity.
Table I. Comparison of risk governance framing and risk management framing

<table>
<thead>
<tr>
<th>Framing category</th>
<th>Risk governance</th>
<th>Maturity level: Basic silo risk management</th>
<th>Risk management</th>
<th>Maturity level: Integrated risk management</th>
<th>Maturity level: Holistic risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive framing</td>
<td>Risk-related adaptive steering of the business model</td>
<td>Mitigation and minimization of single risks</td>
<td>Mitigation and minimization of risk portfolios</td>
<td>Mitigation and minimization of risk networks</td>
<td></td>
</tr>
<tr>
<td>Strategic framing</td>
<td>Broad stakeholder focus, aimed at corporate development</td>
<td>Limited stakeholder focus, aimed at financial stability and liquidity</td>
<td>Limited stakeholder focus, aimed at financial stakeholder value</td>
<td>Limited stakeholder focus, aimed at financial stability forecasting</td>
<td></td>
</tr>
<tr>
<td>Action framing</td>
<td>Systemic and organic approach in an open realm of experience (strategic, proactive)</td>
<td>Reductionist and mechanistic approach in a default process (operative, reactive)</td>
<td>Reductionist and mechanistic approach in a default process (operative, predefined)</td>
<td>Reductionist and mechanistic approach in a default process (strategic, predefined)</td>
<td></td>
</tr>
<tr>
<td>Emotional framing</td>
<td>Positive connotation of long-term sustainability (social responsibility, ethics, transparency, etc.) and values (economic, cultural)</td>
<td>Positive connotation of short-term avoidance of threats and damage under conditions of time pressure</td>
<td>Support of investments in the reduction of problem-solving variety by justifying top-down standardization, silo mentality, no company-wide consistency, centalistic approach</td>
<td>Support of investments in the reduction of problem-solving variety by justifying top-down standardization, Chief Risk Officer, risk-based performance measurement, centralistic approach</td>
<td>Support of investments in the reduction of problem-solving variety by justifying top-down standardization, Chief Risk Officer, company-wide framework, centralistic approach</td>
</tr>
<tr>
<td>Institutional framing</td>
<td>Support of investments in additional problem-solving variety, “every employee is a risk owner”, participative approach</td>
<td>Support of investments in the reduction of problem-solving variety by justifying top-down standardization, Chief Risk Officer, risk-based performance measurement, centralistic approach</td>
<td>Support of investments in the reduction of problem-solving variety by justifying top-down standardization, Chief Risk Officer, company-wide framework, centralistic approach</td>
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</table>
Of course, the paper has some limitations. Conceptually, we used a risk management maturity model, but as part of our argumentation, ERM and the COSO framework adopting own techniques and templates of risk management framing are not considered in detail. According to COSO’s information, its risk management process which “provides the right framework for boards to assess risk and embrace a mindset of resilience” (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017, p. 2) has gained broad acceptance by organizations. The updated and retitled publication (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2018) promises to more clearly connect ERM with a multitude of stakeholder expectations and postulates risks to be positioned in the context of organizational performance which in turn enables organizations to better anticipate risk. Within the scope of the paper, alternative ERM frameworks (Rubino, 2018) have also not been considered. The second limitation is the up to now missing empirical testing of our theoretical propositions.

The emergent propositions for framing risk governance represent the authors’ initial attempt to develop a terminology that may facilitate the distinction of different types of risk steering. Since propositions are declarations of associations between abstract constructs, it is clear that at this stage they represent no more than tentative theoretical relationships. As a conceptual basis, however, they will extend the understanding of two completely different rationales of risk steering and provide significant insights into how managers with different risk steering orientations may apply different framings and may form different risk control systems based on the same initial situation.

The development of propositions lays the ground for and highlights the need of further empirical studies in carefully specified contexts. Future researchers could test them in the form of hypotheses in various industry settings and across different firm sizes. In particular in financial industry, risk steering is subject to an enormous amount of supervisory regulations and restrictions which could make it an ideal area for investigating the varying proposed framing outcomes. Different cultural environments will as well have an effect on framing that is based on language and, therefore, on culture (Kramsch, 1998).

Methodologically, an obvious first step would be to test the propositions by applying qualitative research methods. As measuring management’s framing activities and framing perceptions may be challenging, ethnographical methods of data collection (Gobo and Molle, 2017) could be applied, complemented by multiple triangulation techniques to avoid potential biases. Apart from interviewing managers, another way is to use secondary data that represents corporate communication on risk-related issues. The Enron email network (Klimt and Yang, 2004) seems to be an ideal case to assess management’s communication and, therefore, framing on risk steering, since it covers the full email message texts and attachments of around one million Enron’s staff emails between 1999 and 2003, originally made public in the internet by the Federal Energy Regulatory Commission during its investigation of the Enron bankruptcy of 2002.

6. Conclusion
This paper offers a range of contributions not only for research but also for companies and supervisory bodies. The exploration of potential consequences of framing the organization of risk steering as risk governance or risk management or a combination of both will allow for a more precise formation of corporate risk steering with all its actors and roles. This is in line with the premise of Snow et al. (1986) stating that frame alignment such as the frame amplification that we did it in our paper, is a necessary condition for micromobilization and participation of people in movements or change. Risk governance is applicable for all types of organizations, regardless of their risk management maturity level. Further, it opens new
perspectives for small and medium-sized organizations in particular (Stein et al., 2018a) as those organizations focus on non-financial risks like growth risks and risks related to management and employee retention (Falkner and Hiebl, 2015).

In conclusion, risk governance as a recent development is just starting to find its way into companies and their corporate risk culture. The framing analysis has strengthened our conviction that the deliberate framing of risk governance might increase knowability of design alternatives, reduce uncertainty and make ambiguity slightly more controllable in the end. What definitely becomes clear in the end is, depending on how people talk about an issue, something different comes out. Based on that, we anticipate for risk governance to render companies more viable and sustainable for the future.

References
Burke, K. (1937), *Attitudes towards History*, University of CA Press, Berkeley.


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Cost of capital and probability of default in value-based risk management

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Abstract
Purpose – This paper aims to present the combination of enterprise risk management (ERM) and value-based management as especially suitable methods for companies with a shareholder value imperative. Among its major benefits, these methods make the contribution of risk management for business decisions more effective.

Design/methodology/approach – Any possible inconsistencies between ERM, generating value because of imperfect capital markets and the CAPM to calculate cost of capital, which assumes perfect markets, must be avoided. Therefore, it is imperative that valuation methods used are based on risk analysis, and thus do not require perfect capital markets.

Findings – Value-based risk management requires the impact of changes in risk on enterprise value to be calculated and the aggregation of opportunities and risks related to planning to calculate total risk (using Monte Carlo simulation) and valuation techniques that reflect the effects changes in risk, on probability of default, cost of capital and enterprise value (and do not assume perfect capital markets). It is recommended that all relevant risks should be quantified and described using adequate probability distributions derived from the best information.

Practical implications – This approach can help to improve the use of risk analysis in decision-making by improving existing risk-management systems.

Originality/value – This extension of ERM is outlined to provide risk-adequate evaluation methods for business decisions, using Monte Carlo simulation and recently developed methods for risk–fair valuation with incomplete replication in combination with the probability of default. It is shown that quantification of all risk using available information should be accepted for the linking of risk analysis and business decisions.

Keywords Corporate governance, Risk management, Valuation, Cost of capital, Enterprise value, Probability of default, Risk aggregation, Risk quantification, Value-based management

Paper type Viewpoint

1. Introduction: decision support and value-based risk management
There are alternative frameworks that can help improve risk management, e.g. the concept of risk governance as used by Stein and Wiedemann (2016) and the enterprise risk management (ERM) framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO ERM)[1]. However, these frameworks remain at a rather general level because they should be applicable to all types of companies and so they do not offer any explicit methodical link to enterprise value or value-based management (VBM). In particular, there is no well-founded approach for consistent translation of the aggregate total extent of risk to the expected value of cash flows, cost of capital and probability of default, which determines the enterprise value. The purpose of this conceptual study is to propose a measurement and assessment tool for complementing a risk governance or an ERM
framework, specifically for companies with the shareholder value alignment that accept to quantify all relevant risks (an assumption that is discussed below). This tool can help to realize the consistent combination of ERM and VBM using the Monte Carlo simulation. It goes hand in hand with an improvement of the link between risk analysis, corporate planning and corporate decision-making (especially in terms of investments). Thus, ERM can be subsumed under general VBM (Farrell and Gallagher, 2015).

Furthermore, many changes in an enterprise’s risk situation result from decisions made consciously by enterprise management; with clear implications. Well before a corporate board makes a significant decision, it should determine the implications that the decision will have for future expected profits (cash flows), the scope of risk, the future rating, the cost of capital and the enterprise value. This is recommended, as it is seen as a risk management task to support the preparation of business decisions. Enterprise value is a performance measure and decision criteria that expresses a risk–return profile, if total risk is captured by cost of capital (Section 3).

The relation of risk to value drivers and enterprise (and shareholder) value has been referenced in the literature without any adequate methodology being offered for its calculation. The literature is scant on the effects of reductions in the scope of risk for cost of equity (as this is not necessarily in the focus of ERM, see Mikes, 2009). Given that ERM has a value-generating effect, which results from imperfections in the capital market, cost of equity, logically, must not be derived from models of perfect capital markets (such as in the Capital Asset Pricing Model, CAPM, Section 2). It would therefore also be inconsistent if the CAPM were to be used to determine cost of equity, as in the work of Faupel and Michels (2014) on the costs and benefits of a value-based risk management. It is also a shortcoming, when changes in the probability of default caused by changes of risk are ignored. Following the literature linking risk management (in imperfect capital markets) with a value-based framework (for perfect markets), this article presents a tool for assessing enterprise risk and to improve the link between VBM and ERM, without requiring the assumption of a perfect capital market (and thus also is not reliant on the CAPM for deriving cost of equity). Changes in risk can thus be consistently captured in their effects for the expected cash flows, the cost of debt, the cost of equity and the probability of default (probability of insolvency, insolvency risk). This is possible through the combination of risk management methods with the recently developed valuation methods in imperfect markets (risk value models).

This article and the methods presented here are based on some assumptions. First, risk is considered being a possible plan deviation containing opportunities and threats alike. Second, supporting the preparation of business decisions is generally considered a risk management task. Third, it is taken as given that there are companies that want to combine ERM and VBM and – so far – their VBM is based on CAPM. Moreover it is assumed, the capital market is imperfect with financing restrictions (insolvency risk) (Section 2).

Additionally, in this article, quantification of all relevant risks takes precedence (based on the best information available). Though it is recommended to quantify all risks, to derive cost of capital and probability of default, it does not follow that a qualitative representation would be irrelevant. For example, Stoel et al. (2017) verify that qualitative risk information in a report is beneficial to the decision-making of the senior management (especially in strategic risk management). Therefore, the methods described in this paper are a supplement to risk governance framework and to strategic management (and they do not replace any other ERM tools but CAPM).

The methods presented in this article are suggested for companies that have established a corporate planning procedure and consider the enterprise value (or shareholder value) as performance measure, while also calculating the cost of capital using CAPM (VBM).
are particularly suitable for companies with their ERM driven by a shareholder value imperative (“ERM by the numbers”, Mikes, 2009) and less for companies with a focus on a risk-based internal control imperative (Mikes, 2009; Kaplan and Mikes, 2016). They are usable for both listed and unlisted companies, because the calculated shareholder value can be interpreted as an expression of the risk–return profile, being a useful target and decision criterion for unlisted companies. Value should be understood as a model-based calculation of a monetary amount that is equivalent to risky future cash flows (from the perspective of the shareholder).

Thus, the following is demonstrated: risk management essentially renders benefits due to imperfections in the capital market (Section 2). Specifically, it generates economic benefits when the results of risk analyses figure into business decisions (so they have effects on actions).

The methods of evaluation used are given in Sections 3 and 4. In particular, it is shown that two risk-dependent value drivers should be noted in the calculation: the probability of default \( p \) and the cost of capital \( i \), which can be derived directly from the results of the risk analysis. Both value drivers are dependent on the aggregate total extent of risk (instead of stock return volatility). Consequently, risk aggregation is required in addition to analyses of individual risks (Section 5). To conduct a risk aggregation, an adequate quantification of all relevant risks and the Monte Carlo simulation needs to be done. This requires the assumption that all risks are quantifiable, if one accepts subjective risk quantification. This recommendation is in line with the theory of subjective decision values that are relevant for business decisions (Matschke et al., 2010). Section 6 summarizes the results of these investigations (and quotes some limitations).

2. Economic benefits of risk management and its contribution to enterprise value

ERM’s benefits are substantiated by capital market imperfection, which can be empirically confirmed, and they can explain the specific impact of ERM on enterprise value (as discussed below). However, if capital markets are imperfect, then no models of perfect markets should be used to derive cost of equity (this includes the CAPM), and the possibility of an insolvency should be taken into account. This section summarizes the state of empirical capital market research, starting with a summary of ERM’s benefits, to explore the implications of value-based ERM and, in particular, the derivation of cost of capital as risk-based value drivers.

Which benefits can be expected from ERM? The reduction of the volatility of cash flow is a task of risk management to boost planning security (Amit and Wernerfelt, 1990). This value contribution of ERM can result from accounting for capital market imperfections such as taxes, financing restrictions (Froot et al., 1993; Chen and King, 2014), agency costs (Jensen and Meckling, 1976), and bankruptcy costs (Kraus and Litzenberger, 1973). Due to imperfections in capital markets and imperfect diversification among investors, reductions in idiosyncratic risks may generate value (Pagach and Warr, 2011; Nocco and Stulz, 2006[6]). Predictable cash flow trends reduce the likelihood of having to rely on expensive external sources of financing or breaching covenants (Myers and Majluf, 1984; Li and Wu, 2009).

The assumption of a perfect capital market would clearly obviate the need for risk management, as it would not be able to contribute positively to enterprise value (Kürsten, 2006, on the theoretical principles). The instruments deployed would mean that the transfer of risk (e.g. by purchasing options on commodity prices) would incur costs that would precisely offset the benefits of risk reduction in such a market. The importance of risk management is only made clear in the reality of many market imperfections (Kürsten, 2006;
Stier, 2017, with a reference to institutional and industrial economics), which also make enterprise-specific risks relevant to valuation (Froot et al., 1993). Entrepreneurs in small and medium-sized enterprises, in particular, who tend to invest much of their assets into their own enterprise, clearly gain an advantage by taking enterprise-specific risks into consideration (Kerins et al., 2004; Torous and Brennan, 1999). Only in an ideal, but unrealistic, model, such as set out in neo-classical capital market models (such as the Modigliani–Miller thesis and the CAPM), do enterprise-related risks need not be addressed. In real companies, operating in real product and capital markets, risk management significantly contributes to corporate success.

Beginning in the 1980s, empirical capital market research has uncovered influences on equity returns, anomalies that cannot be explained by the CAPM. Fama and French (1993) established an empirically based three-factor model that constitutes an effective alternative to the CAPM. This model focuses on price/book ratio (the HML factor) and the size of the enterprise (SMB, “small minus big”) as factors that can explain equity returns. Using this model, Carhart (1997) developed a four-factor model, in which the momentum factor, which has been confirmed in numerous empirical studies, is included as a further factor for explaining equity returns (Jegadeesh and Titman, 1993; Fama and French, 2015 with a five-factor-model).

For risk-management purposes, the volatility anomaly is particularly interesting because it demonstrates the importance of risk and questions a basic assumption of the theory of perfect capital markets, namely, that higher risk (volatility) leads to higher return (Ang et al., 2009). Joyce and Mayer (2012) indicate that low fundamental risk (cash flow volatility of the company) causes higher stock returns. The empirically confirmed relevance of enterprise-specific (idiosyncratic) risks, such as those expected to be in imperfectly diversified capital market operators, is taken to be additional justification for business risk management (for corresponding valuation models, see Merton, 1987). The volatility anomaly corresponds to the risk–return paradox, which is well known in the field of strategic management research (Budd, 1993; Bowman, 1980). Even very profitable companies (quality companies per Piotroski, 2000; see also Asness et al., 2019) achieve above-average stock market returns. This can be explained by their systematic undervaluation.

Empirical studies of capital markets also describe the distress risk anomaly. Campbell et al. (2008) showed that not even the stock market takes adequate account of ratings and the probability of default (p). Companies with heightened p produce below-average stock market returns that cannot be explained by the CAPM or Carhart’s model (1997), and consequently p is a relevant value driver (Section 4).

In his work on model assumptions and the empirical results of recent years, Dempsey (2013) concludes that the CAPM has completely failed (Shleifer and Vishny, 1997; Lamont and Thaler, 2003; Subrahmanyam, 2010; Rossi, 2016; Fernández, 2017).

Krause and Tse’s (2016) expansive literature review, which investigates the importance of risk management for enterprise value, confirms this: “risk management increases firm value and returns, while reducing return and cash flow volatility” (Krause and Tse, 2016, S. 56)[7]. Ittner and Keusch (2017) state in their abstract:

Our results highlight the important influence that risk management value creation can have on the use and benefits from risk-focused planning and control practices. Organizations that primarily focus on minimizing risks within budget or reducing the total cost of risks tend to make less use of these practices, have higher stock price volatility, and achieve lower firm value than those that have taken greater steps to holistically consider both the upsides and downsides of risk.
Greater risk leads to higher cash flow fluctuation risk and greater need for scarce and expensive equity capital, resulting in higher cost of capital. However, only through the explicit consideration of imperfections in capital markets (in particular the asymmetric distribution of information, financing restrictions or the inability to replicate risky cash flows)[8], it is possible to demonstrate the value contribution of risk mitigation or hedging [9].

The above considerations indicate that ERM can be used to generate value. Risk management yields economic benefits when risks in business decisions are taken into account adequately (risk focused planning and control practices, see Ittner and Keusch, 2017). Therefore risk analysis is necessary before any business decision is made that may change the overall risk exposure, to determine how the decision could impact expected cash flows, probability of default, cost of capital, and ultimately enterprise value (which is a measure that combines expected cash flow with associated risks in a single key figure). The traditional CAPM is not able to calculate cost of capital or enterprise value; for this, risk analysis and enterprise value should be linked better. An alternative link to ERM and VBM is described below. Decision oriented risk management can use enterprise value or shareholder value as a target, which requires a mapping of the risks to the expected cash flow value, the cost of capital, and the probability of default (Sections 3 and 4). Cost of capital and enterprise value depend on total extent of risk, which in turn requires adequate risk quantification (Sections 5.1 and 5.2) and the aggregation of risk with reference to corporate planning, using a Monte Carlo simulation, a key technology for combining risk management and VBM (Section 5.3).

### 3. The link between enterprise risk and the cost of capital

For reasons discussed, it is not possible to calculate the value contribution of risk management via cost of capital, as long as one uses the traditional approaches of finance theory, especially the perfect markets hypothesis (here, in particular, the CAPM fails). The direct link between the results of risk analysis (and risk aggregation) and cost of capital as well as enterprise value is only possible with the valuation methods, which use risk–value models with incomplete replication, that have been developed in recent years[10] these allow the deduction of cost of capital directly from the scope of risk as measured by a suitable risk measure (R)[11]. It should be noted that the derivation of cost of capital and the values for cash flow is not a heuristic but follows directly from two less restrictive assumptions, as indicated below.

To determine the value of a risky cash flow $Z$ (e.g. flow to equity) an incomplete replication may be performed (Dorfliehter and Gleißner, 2018). It is not necessary to assume a perfect capital market.

This method is based on assumption (1) that equal quantities of risk $R(Z)$ and equal expected cash flow ($E(Z)$ or $\mu$) at the same time imply identical values. Therefore, a ($\mu$, $R$) decision criterion is assumed that includes the ($\mu$, $\sigma$) principle[12] of the CAPM as a special case (a “risk-value model,” Sarin and Weber, 1993). Furthermore, a second assumption (2) must be made regarding alternative investments. For instance, there should be two alternatives, such as a risk-free investment with return $r_f$ and a broad stock market index with uncertain return $r_m$ (with $E(r_m) > r_f$ and $\sigma(r_m) > 0$).

The goal of the valuation method of incomplete replication is to determine the amount of money needed to invest in the capital market to provide alternative investment opportunities so that the same expected cash flow and the same risk as the enterprise being valued are obtained (so their value $V = x + y$, where $x + y$ is the investment in the stock market and risk-free investments). The value corresponds exactly to this investment sum
and depends on the total extent of risk. The calculation of the cost of capital is easy to perform in the next step.

To calculate the value, just as much capital $x$ is now fictitiously invested in the stock market index and capital $y$ in risk-free investment, the risk of this replication portfolio matches the risk of cash flow $Z$ (formula 1).

**Formula 1**

$$R(Z) = R(x \cdot (1 + r_m) + y \cdot (1 + r_f))$$

Here, risk is measured by a risk measure $R(Z)$, that is, by the standard deviation $\sigma(Z)$ or the value at risk (VaR ($Z$))[13].

The expected value of the cash flow of the investment in the replication portfolio should also correspond to the expected value of the cash flow $E(Z)$ (see formula 2).

**Formula 2**

$$E(Z) = E(x \cdot (1 + r_m)) + E(y \cdot (1 + r_f)) = x \cdot (1 + E(r_m)) + y \cdot (1 + r_f)$$

The value $V(Z)$ of cash flow $Z$ corresponds to the sum of $x$ plus $y$ (as a result of assumption (1)).

As in the CAPM, it is possible here to use covariance $\text{Cov}(Z, r_m)$ as a risk measure $R(Z)$, whereby only the non-diversifiable amount of risk is included in the valuation (Robichek and Myers, 1966). Solving formula 1 and 2, we get $x$ and $y$ and so:

**Formula 3**

$$V(Z) = x + y = \frac{E(Z) - \frac{E(r_m) - r_f}{\sigma^2(r_m)} \cdot \text{Cov}(Z, r_m)}{1 + r_f} = \frac{E(Z) - \lambda \cdot \sigma(Z) \cdot \rho}{1 + r_f}$$

with $\lambda = \frac{E(r_m) - r_f}{\sigma^2(r_m)}$ as market price of risk (Sharpe Ratio) and with $\rho$ as the correlation of $Z$ to $r_m$ (Dorfliehter and Gleißner, 2018). It should be noted that these valuation equations do not claim to explain current market prices, which are normally not identical with values (imperfect markets).

This valuation implies the cost of capital $(i)$, if

**Formula 4**

$$V(Z) = \frac{E(Z)}{1 + i}$$

where formula 4 is solved for $i$ (with a risk diversification factor $d = \rho$)[14]

**Formula 5**

$$i = \frac{1 + r_f}{1 - \lambda \cdot \frac{\sigma(Z)}{E(Z)} \cdot d} - 1 = \frac{1 + r_f}{1 - \lambda \cdot C \cdot d} - 1 \approx r_f + \lambda \cdot C \cdot d$$

Coefficient of variation $C$ is the ratio between $\sigma(Z)$ and $E(Z)$, and express the relative risk of the Cashflows (as $\sigma(Z)$ is die standard deviation in absolut values). This is a key figure for planning security and income risk. Parameter $\lambda$ shows an additional return per unit risk and expresses the risk–return profile of alternative investments. Given that shareholders
may own additional assets (and so may not bear all the enterprise's risks), risk diversification factor \((d)\) must also be taken into account. This parameter presents the proportion of risk that is relevant for the shareholder in formula 5; and is of relevance for the valuation and cost of capital.

If flow to equity is used as \(Z\), the cost of equity is obtained. If operating free cash flow is used, the weighted average cost of capital (WACC) is directly obtained, without needing the cost of equity and debt to be calculated first or to be weighted appropriately. The total extent of risk determines the total cost of capital. Determining the total WACC in this way is comparatively simple, and there is no need for leveraging or deleveraging.

Therefore the conclusion is that risk analysis and risk aggregation \((C)\) can be linked with the cost of capital as a value driver using formula 5 (as alternative to the CAPM). Thus, it is possible to express changes in risk in terms of enterprise value or shareholder value, if we accept to quantify and aggregate all relevant risks (Section 5). Risks do not only affect cost of capital but also one further value driver, the probability of default (Section 4).

4. Distress risk, rating and probability of default as value drivers
The opportunities and risks encountered by an enterprise can trigger deviations from management planning and cause cash flow fluctuations, which can even lead to insolvency. It should be noted that business risks can potentially affect the following three areas of enterprise value:

1. capital of debt (Baule, 2018) and the costs of equity as well (Section 3);
2. expectation values of cash flow (deviations from the figures from management planning); and
3. implications of risk (especially their consideration in light of a company’s eventual termination) and the risk-being capacity affect probability of default, which affects expectation values of cash flows and their development over time (“insolvency risk” or “distress risk”).

Therefore, the probability of default is an additional value driver and a measure of distress risk[15] that depends on the total extent of risk (Schmidt and Obermüller, 2014). The probability of default is relevant not only for listed companies but also for non-listed SMEs, because it can be understood to be operationalization of the goal of surviving (or insolvency risk).

How can the probability of default be mapped in the valuation of an enterprise? In the detailed planning phase of cash flows, it must be directly considered in determining expected values (as a scenario in which shareholders may have zero income for the entire future). It is generally recommended to map insolvency scenarios in simulation models as well (Section 5.3). Beyond considering the insolvency scenario in detailed planning, it should be noted that the possibility of insolvency is present in each future year, in the continuation phase.

Assuming, that the probability of insolvency remains constant during the continuation phase (according to the steady state assumption in the perpetuity model), this leads to continuously falling expected values of cash flow (over the course of time). This has the effect of a negative growth rate (Gleißner, 2010; IACVA, 2011; Knabe, 2012; Saha and Malkiel, 2012).

Given the (conditional) expected values of cash flow (flow to equity) \(E(Z)\), the future growth rate \(g\), the probability of default \(p\) and the cost of capital \(i\), the following formula 6
characterizes the value \( V(Z) \) of the cash flows of the continuation phase (terminal value) in dependency on \( p \):  

**Formula 6**

\[
V(Z) = \sum_{t=1}^{\infty} \frac{E(Z) \cdot (1 - p)^t \cdot (1 + g)^t}{(1 + i)^t} = \frac{E(Z) \cdot (1 - p) \cdot (1 + g)}{i - g + p} 
\]

In the determination of an infinite series (the Gordon Shapiro model), the probability of default \( p \) (like the growth rate) appears in the numerator for each individual period (see formula 6). Resolving the series, however, entails that the probability of default (like the growth rate) moves into the denominator. Nonetheless, this does not mean that there is a double inclusion or that the probability of default would be a component of the cost of capital (it is not a distress premium).

The probability of default depends on
- risk-bearing capacity (equity capital);
- expected cash flows; and
- distribution of cash flows around an expected value (cash flow risk; see Schmidt and Obermüller, 2014).

The probability of default can be estimated using financial figures such as equity ratio and return on capital employed. Financial figures, also calculated based on plan values, however, do not capture the future cash flow risks (income risks). A better way to calculate \( p \) for each year would require a combination of corporate planning and risk analysis, along with a Monte Carlo simulation (Section 5.3). Risk aggregation enables adequate recording of distress risks in the expectation value of the cash flows, as this captures possible interruptions of cash flow due to insolvency. The probability of default arises directly from the number of insolvency scenarios in a period.

### 5. Quantification of risk and risk aggregation

#### 5.1 Appropriate risk quantification

A risk is the possibility that an unpredictable future may bring deviations from a plan. Risk is the generic term for both opportunities and threats (that is, both positive and negative deviations from plan). In decision-oriented and value-oriented risk management, the opportunities should also be taken into account to avoid wrongly rejecting options for actions that add value.

Given that expected values of cash flows, the probability of default, cost of capital, and enterprise value are dependent on the total extent risk, it is necessary to quantify and aggregate all relevant financial and non-financial risks to adequately calculate these key figures. Therefore, this article recommends and discusses this (see 1 and 5.2).

To calculate with risk, all relevant risks should be measured (with reference to corporate planning). A risk management approach rigidly maintaining that all risks can be quantified by parameters of probability and consequence (amount of damage described with one value) is too simple. In fact, most risks should be seen as partaking of a range. Some risks also have a probability of (almost) 100 per cent. Customer demand, costs, commodity prices, exchange rates and interest rates are typical representatives of this risk category and can correspondingly be described by a nominal distribution. With these types of risks, deviations from the plan will certainly materialize – the only question is how large they will be. In principle, the adequate description of risks should permit an entire spectrum of
probability distribution and stochastic processes (Vose, 2008). For example, lower limit, upper limit and mode (of a triangular distribution) can be used to describe opportunities and threats regarding a planned cost item. Even for event-driven risks, quantification requires more than amount of damage and probabilities. It is likewise characteristic of such risks that the consequence in the case of occurrence is itself uncertain. That is to say, it requires the appropriate probability distribution to be described.

5.2 The assumption all risks are quantifiable
To calculate the effects of all risks on cost of capital and enterprise value, it is recommended to quantify all relevant risks, using the best available information (in this regard, see Holton (2004) and Sinn (1980), with reference to other studies). Ideally, risk quantification would be based on a large historical dataset (e.g. loss events), that is representative for the future and enables a definitive derivation of a suitable probability distribution, along with an efficient and unbiased estimate of the related parameters (“frequency-based approach”).

However, the reality of ERM is that these optimal conditions are not often met, and as a result of unsatisfactory (objective) risk data, the quantification of certain non-financial risks is often foregone as unquantifiable and part of the uncertainty, in Knight’s (1921) sense.

A quantification of all risks is possible if we do not limit ERM to frequency-based approach to calculate probabilities and the paradigm of “objective risks” (in the paradigm, with objectivized risk measurement, no complete quantification of all risks is possible). The Bayesian approach forms a basis for the quantitative description of all risks, because it allows to connect data and belief (Norland and Stabile, 2000). According to the subjectivist understanding of probability, it essentially expresses the confidence level of decision-makers (Holton, 2004) (17). Furthermore, the parameters of probability distributions can be described as random variables. Consequently, uncertainty of the estimated probability can be considered (Sinn, 1980; Liekweg, 2003). The suggestion to use subjective estimation to qualify risks is in line with the conception of a subjective decision value as decision criterion (Matschke et al., 2010).

In this paradigm poor data quality does not justify avoiding risk quantification. If a risk is not considered in risk aggregation and evaluation, it is rated at zero. To avoid this, quantification should be performed using the best available information, even subjective estimates by experts (Hubbard, 2014). The acceptability of such estimates can indeed be assured through suitable methods, such as an obligation for a plausible derivation or debiasing strategies. Likewise, the use of subjective estimations of risks and their use in risk management is methodologically permissible, as shown by Sinn (1980). Subjectively estimated risks can be processed in the same way as objectively quantified ones. According to Sinn (1980, pp. 5-46), Knight’s (1921) different levels of uncertainty can always be traced back to the case of a “certainly known objective probability,” which can then be used for further analyses and decisions. E.g. in the “principle of insufficient reason,” all possible situations are considered equally probable if there is no information on their relative probabilities (the Laplace rule).

If only “objective risks” are accepted, it is not possible to quantify all risks (but it is highly recommended to accept a risk quantification based on best available information including experts’ estimations).

5.3 Risk aggregation with reference to corporate planning
Cash flow volatility, cost of capital and the probability of default are dependent on the total extent of risk, which is determined through the combination of several individual risks. Because risks cannot simply be added, it is recommended to use Monte Carlo simulation[18]
6. Summary, recommendations and limitations

The paper outlines methods to risk assessment as a basis for decision-making, assuming that risk management should contribute to the preparation of business decisions. The bullet points below summarize the most important ideas of the paper:

- **Figure 1.** Corporate planning, risk aggregation and valuation with Monte Carlo simulation (own graphic)

**Note:** The rating table is based on data from Mock (2017)
Risk management creates benefits and increases enterprise value owing to empirically proven capital market imperfections, such as financing restrictions that do not allow the use of the CAPM to calculate cost of capital.

It is recommended that all business decisions should be evaluated for their impact on enterprise value (as a performance measure), considering the expected value of cash flows, the probability of default, and the cost of capital.

The expected cash flows, cost of capital, and the probability of default may be affected by any risks, which requires that risks related to corporate planning be aggregated (risk aggregation itself requires risk quantification). Thus, Monte Carlo simulation takes on a key role as a management tool (in place of the CAPM with the beta-factor).

To capture it in the cost of capital all significant risks should be described using suitable probability distributions or stochastic processes. A comprehensible, but possibly subjective, quantification of risks should be conducted to include risks in enterprise valuation. Here is a critical assumption: it is necessary to accept that all risks are quantifiable (based on the best available information, subjective estimations, too).

A drawback of this approach is that specific competences (and training and tools) are needed and the quantification of risks takes time (and causes costs). Moreover, it could be that wrong assumptions concerning risk may cause wrong decisions (there is a decision-making risk) but it is only a wrong decision in a narrower sense if the mistake based on the available information would have been recognizable, in principle.

If the presented assumption concerning risk quantification is accepted, the suggested methods offer a better link of risk management and VBM (with risk aggregation as the basis for deriving a risk-adequate cost of capital and a probability of default). It can help to improve the contribution of risk management for business decisions. The methods showed that calculating the cost of capital depending on the result of risk aggregation can be used to complete such risk management frameworks as COSO ERM and the risk governance approach.

Notes
1. For a comparison of traditional risk management with enterprise risk management, see the overview in McShane (2017, p. 143) and Hunziker (2019, p. 175) also regarding ISO 31000.
2. See, e.g. Arena et al. (2010).
4. Kürsten (2006) emphasizes here that in a perfect capital market, corporate value cannot be raised through by hedging.
5. The idea of this type of combination of risk analysis and costs of capital may have appeared for the first time in Gleißner (2005), although it was merely for a special case (value at risk), without consideration of the probability of default and without valuation theory. Likewise, only the weighted average cost of capital is derived, not the actual cost of equity from risk analyses. Already in Coenenberg (1970) pointed to the possibility of using the Monte Carlo simulation for the company valuation.
6. For the assessment of the significance of risk-related cash flow shortfall, see also Nocco and Stulz (2006).
7. See also D’Arcy and Brogan (2001), McShane et al. (2011) and Smithson and Simkins (2008).
8. Breaching the spanning characteristic of capital markets.
10. See Dorfléitner and Gleißner (2018) for the fundamentals and the state of the research and extensions (for multi-period cash flows).
11. The measure of risk must be homogenous and position or translation invariant.
12. Expected utility theory is not assumed. $\sigma$ is the standard deviation, $E[f_{\cdot}]$ an expected value.
13. It is possible to use risk measures to record changes in the level of risk scope in the valuation object by the valuation subject.
14. Assumption: $\lambda \frac{\sigma(f(z), \cdot)}{E(f(z))} - d < 1$.
15. Formal a lower partial moment (LPM).
17. Holton (2004, p. 24) explained this as follows: “Consequently, it is impossible to operationally define risk. At best, we can operationally define our perception of risk. There is no true risk.”
19. It is interesting to note that most publications on risk management singularly fail to address risk aggregation.
20. This applies if either systematic risks can be reduced (in a cost-effective way) or if unsystematic (enterprise specific) risks are relevant to the valuation (Gleißner, 2010; Lahmann et al., 2018).

References


Knight, F.H. (1921), Risk, Uncertainty and Profit, Houghton Mifflin Company, Boston, MA.


Further reading


About the author
Prof Dr Werner Gleißner, doctor in economics, does research in risk management, valuation, financial economics and management decisions. The focus of his research is integration of the methods of risk management, valuation and financial rating (especially using the Monte Carlo simulation). He is CEO at FutureValue Group AG and Honorary Professor at the Technische Universität Dresden (Business Administration, esp. Risk Management). Werner Gleißner can be contacted at: fachartikel@futurevalue.de

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Fighting organizational decline: a risk-based approach to organizational anti-aging

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Abstract

Purpose – Most mature organizations face a major decline in performance at some time during their existence. For more than three decades, it has been suggested that the management practices that could cure a troubled company could have also kept it well. Inspired by this concept, this paper is proposing a preventive approach to early implementation of turnaround strategies as an alternative for otherwise traumatic rescue efforts, further along the downward spiral.

Design/methodology/approach – Corporate turnaround strategies and associated risks are integrated with a risk-based approach, along with a proactive decision-making process. The link between turnaround research, resource-based view, the sources of organizational decline, and the governance of organizational-decline-related risks – is explained.

Findings – The integrated model streamlines a preventive organizational process for considering the suitability of commonly used turnaround practices – for the non-crisis business routine of a mature company. By considering and adjusting the risks associated with such practices, it addresses risk aversion at the early stages of decline and determines the optimal sequence and timing of retrenchment and recovery activities. As such, it encourages mature companies to take actions for reducing their exposure to organizational decline. Accordingly, the model is named the “Anti-Aging” framework.

Research limitations/implications – Empirical testing of the suitability of turnaround strategies for non-crisis situations is proposed as a direction for future research.

Practical implications – The Anti-Aging framework opens an opportunity for the senior management of a mature organization to respond earlier to organizational decline and avoid the trauma associated with otherwise more challenging conditions, for the benefit of all stakeholders.

Originality/value – The Anti-Aging framework proposes an innovative way of bridging the gap between the benefits of early implementation of turnaround strategies, and major obstacles faced by willing, traditional management teams of mature organizations.

Keywords Strategic management, Corporate turnaround, Anti-aging, Anti-decline, Organizational decline, Risk governance, Turnaround risks

Paper type Conceptual paper

Introduction

Most mature organizations face a major decline in performance, at some later stages in their life cycle (Hofer, 1980; Lester et al., 2003; Pretorius, 2008; Trahms et al., 2013). Like any living system, they are exposed to aging, and experience decline. Up until the early 80’s, it seemed that “there may be no solution to the problem of how to manage decline well. It may simply be impossible” (Thurow, 1981). It has been argued that organizational failure is caused by external factors, such as those related to the market or industry, over which management has little or no control; this is known as the deterministic view (Mellahi and Wilkinson, 2004). This approach may have reflected traditional management practices known at the time, which were observed to be insufficient as these
methodologies had been responsible for bringing companies to mortal jeopardy in the first place (Finkin, 1985).

Over the years, a new breed of management practices has been empirically found to be effective in the recovery from a major organizational decline, which is known as corporate turnaround strategies (Grinyer et al., 1990; Schoenberg et al., 2013). In addition, empirical studies have shown that very few business failures are the result of external factors (Boyle and Desai, 1991). Rather, it has been widely demonstrated that the companies that had been in relative decline with regard to their industry managed an effective process of sharp and sustained recovery (Grinyer et al., 1990). Such turnaround strategies and findings actually put the deterministic approach in question. It has become clear that there is much a distressed company could do and that the identification of managerial responses was becoming increasingly important (Pearce and Robbins, 1993). However, the theoretical ground of this phenomenon remained insufficient, fragmented, inconsistent (Pearce and Robbins, 1993; Trahms et al., 2013), and still under-specified in terms of methodologies and techniques (Safrudin et al., 2014).

On top of its theoretical challenges, the field of corporate turnaround has been also challenged by its levels of effectiveness and consistency: it became evident that traditional turnaround efforts are not consistently successful, thus resulting in failure far more often than in success (Pearce and Robbins, 1993). Specifically, timing and financing, in that order, have been found to be the most critical factors on which success depends upon (Pretorius and Du Preez, 2013; Vriesendorp and Gramatikov, 2010). The earlier you respond to decline, the less cash you lose, and the less dependent you are on such financing to survive. Some respond earlier and more effectively than others by implementing the necessary changes (Armenakis and Fredenberger, 1995; John et al., 1992). Going further down the spiral as the organization nears bankruptcy, it becomes increasingly more difficult for the firm to extricate itself from the impending financial disaster (Daily and Dalton, 1995; Gopinath, 1991).

The impact timing has on financing options and on the effectiveness of turnaround strategies provides a lead while searching for more effective ways of coping with organizational decline: the early, preventive implementation of turnaround strategies may be a critical success factor in fighting this issue. But there are also obstacles to such early, preventive implementation. One straight forward obstacle is the unfamiliarity with turnaround strategies by traditional management teams (Finkin, 1985; Fredenberger et al., 1997). Another practice-oriented obstacle to early, preventive implementation of turnaround strategies is the risks associated with such strategies: as current commitments become riskier to change, managers are motivated to work with what they have inherited. They lack the appetite for making difficult decisions and risky changes that upset the status quo (Huff et al., 1992; Slatter and Lovett, 1999).

Overcoming timing and risks associated with turnaround efforts and facilitating early, preventive implementation of turnaround strategies may have valuable implications: the well-planned, gradual implementation of turnaround strategies was found to predict more-effective turnaround efforts, as compared to a traumatic, crisis-driven, “grenade-type” one (Cameron, 1994). If such an implementation could be encouraged by addressing the obstacles described above, we may be able to more effectively fight against organizational decline.

In this article, we propose a risk-governance-based approach to the routine implementation of corporate turnaround strategies. The proposed approach aims at leaping over three major obstacles, described above as the road-blocking early, preventive implementation of turnaround strategies: the unfamiliarity with such strategies by
traditional top-management teams, the risks associated with such strategies, and the timing of implementation. To support such an approach, we show that:

- Corporate turnaround strategies address the main theories describing the cornerstones of organizational performance and sources of organizational decline.
- A key challenge in organizational mortality is the late initiation of turnaround strategies.
- Turnaround strategies introduce a specific range of risks that need to be managed to support early, voluntary implementation.
- Institutionalized risk governance that goes beyond the methodological management of such risks is an appropriate platform for supporting the early, routine, proactive, preventive and selective use of turnaround strategies.

By supporting the arguments listed above, we hope to encourage further organizational “Anti-Aging” research.

**Linking organizational performance, decline and turnarounds**

Various theories have been developed over the years to enhance our understanding of organizational decline, its sources, and our ability to rejuvenate the organization. While some have taken a more exogenic approach, attributing the sources of organizational decline to industrial and environmental developments, others volunteered internal factors to take the blame for it. Contemporary research, however, suggests a more integrative framework (Mellahi and Wilkinson, 2004). Similarly, in turnaround practice, both strategic and organizational factors must be considered in any search for a better understanding of what caused the initial failure (Arogyaswamy et al., 1995; Stopford and Baden-Fuller, 1990; Trahms et al., 2013). Accordingly, the range of commonly used and effective turnaround strategies includes both operative and strategic ones (Schoenberg et al., 2013).

A good starting point for demonstrating the link between organizational theory, decline, corporate turnaround and rejuvenation would be the very basic one: the preconditions for superior organizational performance and health, as presented by the resource-based view (RBV). RBV deals with basic, competitive-capability related questions, such as how resources are or should be applied and combined and what makes competitive advantage sustainable (Peteraf, 1993). Similarly, turnaround strategies are aimed at achieving performance acceptable to a firm’s stakeholders through reorientation of positioning, strategy, structure, control systems and power distribution (Pretorius, 2008). If turnaround jargon was allowed, referring to “cash running short” as bleeding, it could be stated that turnaround research and RBV are blood-related: turnaround research aims at helping firms reach the performance levels and practices targeted by RBV after failing to do so. This “blood relation” is reflected by the way corporate turnaround strategies aim at helping firms rejuvenate and meet each one of the RBV conditions for sustainable competitive advantage, as demonstrated herein.

Corporate turnaround research is based on the perception that since all businesses in an industry are similarly affected by external elements, each business survives these changes only because of the capabilities of its management (Scherrer, 1988). Such perception also entails that organizational “aging” and decline is the result of less-than-effective management of the organization, its resources and the sensing mechanisms related to its long-term survival (Weitzel and Jonsson, 1989) as opposed to deterministic market conditions. As such, it practices what Resource Heterogeneity preaches, namely,
that firms of varying resources and capabilities are able to compete in the marketplace, and those who maintain superior resources and capabilities are able to gain a competitive advantage and earn rents (Peteraf, 1993). To start addressing less-than-effective management, top management teams are commonly replaced early in the turnaround process (Grinyer et al., 1990; Schoenberg et al., 2013). The basic assumption is that the top management team of a failing company holds a set of strong, aged, unsuitable business beliefs that led to their blindness, inaction and failure to sustain a superior performance (Arogyaswamy et al., 1995; Daily and Dalton, 1995; Gopinath, 1991; Hofer, 1980). Replacing such a TMT aims at unchaining a firm from the lower levels of resource-heterogeneity performance.

Next, distressed firms implement various turnaround strategies to both shed resources, to increase efficiency and excess capacity, and add resources, to renew the resource portfolio (Yeh and Fang, 2011). Such resource shedding and addition actually updates the given firm’s portfolio of resources and is vital for maintaining superior resources and capabilities, as called for by RBV (Sirmon and Hitt, 2003). For example, debt restructuring is triggered for recovering from a cash crisis and stabilizing a firm’s cash position (Filatotchev and Toms, 2006). Working capital improvements aim at generating additional cash and are listed among the most prolific among the first activities to be implemented to support further performance-improving strategies (Schoenberg et al., 2013). Simultaneously, or after the cash crisis is over, “Sharpbenders” apply a cost efficiency strategy to reduce expenses relative to their industry peers and to better control such costs and production capacities (Grinyer et al., 1990). Another example is the strategic focus strategy that entails determining the markets, segments, niches, products, and customers that have the potential of generating the greatest profits and shrinking back activities towards those areas (Arogyaswamy et al., 1995; Hambrick and Schecter, 1983; Kow, 2004; Schoenberg et al., 2013; Sudarsanam and Lai, 2001). Investing in research and development and training is a turnaround strategy that adds resources after other resources have been shed (Yeh and Fang, 2011). All the turnaround strategies listed above aim at moving a firm upward to acceptable levels of performance in regard to resource and performance heterogeneity from its current position as an underperformer among its industry peers.

Some strategies also create “isolating mechanisms” which protect individual firms from imitation. For example, cost efficiencies/reduction and process-improvements create relative effectiveness (Hambrick and Schecter, 1983) and a causal ambiguity regarding the ways of achieving superior efficiency (Lippman and Rumelt, 1982). Such a causal ambiguity makes the superior performance more difficult to imitate by industry players and contribute to the creation of ex post limits to competition, as advised by RBV, to preserve heterogeneity and sustain competitive advantage (Peteraf, 1993). Working-capital improvements is another strategy that can create isolating mechanisms by allowing for price discrimination that can strengthen the long-term relationship between the firm and its customers (Rehman et al., 2017). Organizational learning is another isolating mechanism (Peteraf, 1993), or in a turnaround context, cultural unlearning (Nystrom and Starbuck, 1984).

Other turnaround strategies serve the imperfect resource mobility or ex ante limits to competition conditions of RBV. A new, more capable TMT, for example, is a resource that is imperfectly mobile. Similarly, the establishment of performance management, as a part of the culture-change strategy, and discrimination of compensation on the basis of excellence strengthens the loyalty of top performers and undermines their perfect mobility as a human resource. Growth strategies, such as developing new products and adding new distribution channels create ex-ante limits to competition. Expanding through acquisitions provides
opportunities for both creating such ex-ante limits through imperfectly mobile resources that acquired companies have, such as technology, loyal clientele, patents and trademarks.

Table I demonstrates the link between corporate turnaround strategies and RBV by presenting the preconditions for RBV that each strategy serves.

A deeper understanding of the link between turnaround and organizational aging and decline can be obtained by observing the way turnaround strategies address the various sources of decline. The sources of the decline are important determinants of the turnaround process (Hugh, 1986), and such sources have been classified over the years as either external or internal. External sources of decline include environment or industry-related forces, such as technological, regulatory, economic or others, related to demographic changes (Scott, 1992), turbulent demand structure, or the number of industry players (Mellahi and Wilkinson, 2004). Such perspectives suggest that management teams have little to no control over such forces and that organizational aging, decline and death are unavoidable. Internal causes of decline relate to failing managerial responses to both internal and external threats. Failing managerial responses are attributed to various organizational studies or organizational psychology theories, such as groupthink, upper echelon, course of success and threat rigidity (Mellahi and Wilkinson, 2004). Whether the causes of decline are external or internal, corporate turnaround research rejects the deterministic perspective. Instead, it places the responsibility for the detection of changing trends and the implementation of timely responses to adverse changes in market demand or competition – at the doorstep of top management (Grinyer et al., 1990). Top managers are expected to be in charge of their firms and are held responsible for the firm’s performance (Hugh, 1986; Meindl et al., 1985).

Having clarified that the responsibility is laid on the shoulders of top managers, their response to decline and crisis should be appropriate to the cause (Hofer, 1980; Hugh, 1986). External causes can be effectively addressed through strategic responses, such as a focus on the firm’s core activities or growth strategies (Boyne and Meier, 2009; Pearce and Robbins, 2008; Schoenberg et al., 2013; Yeh and Fang, 2011). In turn, if the cause is internal, the solutions should be operative ones, such as cost control and plant modernization, with the aim of improving internal operational efficiency (Yeh and Fang, 2011). Although external factors are the most frequent causes of decline (Grinyer et al., 1990), “Sharpbenders” tended to focus more heavily on improving internal factors (Safrudin et al., 2014; Scherrer, 1988), as they usually had fewer opportunities to improve their operating efficiencies rather than their strategic position (Hofer, 1980).

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Table I. Turnaround strategies and resource-based view (RBV) conditions
Obstacles to timely implementation of turnaround efforts

Although the objective of reaching and sustaining superior performance is well acknowledged, too many firms fail to convert such acknowledgment into timely responses to organizational decline. Too often, challenges are not addressed before a cash-crisis evolves, putting a firm’s survival in question (Daily and Dalton, 1995; Gopinath, 1991). At such point few options remain and a set of radical, aggressive, traumatic, short-term-oriented efforts are triggered, also known as corporate turnaround strategies (Huff et al., 1992; Pandit, 2000; Pretorius, 2008; Sudarsanam and Lai, 2001; Trahms et al., 2013). Although aiming at recovering a firm from existence-threatening decline, turnaround efforts are often triggered too late and fail (Hofer, 1980; Lymbersky, 2014). By adopting turnaround strategies early enough, rejuvenation could take place without the traumas usually associated with a crisis situation (Midanek, 2002; Slatter and Lovett, 1999). Therefore, the question is: what could help trigger turnaround efforts earlier.

The risks associated with corporate turnaround strategies may provide a partial explanation as to why such strategies are still triggered more commonly as a reaction to challenging circumstances (Reeves et al., 2018) rather than proactively and preventively. Based on the cumulative prospect theory and empirical findings, organizations will follow the patterns of risk aversion for losses of low probability and risk seeking for losses of high probability (Tversky and Kahneman, 1992). In other words, if decline involves high losses for an organization, managers may become more risk-seeking (McKinley, 2017; Morrow et al., 2007). Otherwise, at the early stages of decline, or when decline is not yet noticed, they may avoid risk. From a practical standpoint, when immediate survival is put in question, such risks are weighed against the risk of doing “too little too late” (Bibeault, 1999, p. 85). The “risk if you do and risk if you don’t” dilemma requires a balance that facilitates a turnaround process (Whitney, 1998, p. 161). Similarly, the management of a highly leveraged, troubled company is motivated to take earlier action to avoid defaults (Jensen, 2010). But when immediate survival is not put in question, there is no risk in place to be weighed against the risks associated with the implementation of turnaround strategies.

The risks associated with turnaround strategies

If risk aversion is one of the factors that hold back responses to organizational decline at its early stages, then closer acquaintance with applicable risks is vital. Systematic indexing of the risks associated with turnaround strategies and tactics will provide a basis for managing such risks, and encouraging such early responses. Also required is the distinction between these two levels of turnaround practices: Turnaround strategies refer to the key set of activities employed to halt the decline and stimulate the upturn cycle, representing “What needs to be accomplished”. Each turnaround strategy includes a variety of isolated, focused activities, also known as turnaround tactics, specifying “How to accomplish” such turnaround strategies (Hoffman, 1989). The risks associated with selected turnaround strategies and tactics are demonstrated hereby.

Management change

Replacing non-performing, senior managers is a common turnaround strategy and frequently undertaken early in the turnaround process (Grinyer et al., 1990; Schoenberg et al., 2013). However, it exposes a firm to some associated risks:

- The departure of key staff can make a change more difficult to achieve, due to the industry knowledge lost, particularly if the decline is industry-based (Schoenberg et al., 2013).
• Introduction of new reporting relationships and deterioration in informal communication channels create high levels of internal disruption (Friedman and Saul, 1991).
• The benefits of changing executives may be outweighed by the costs (Arogyaswamy et al., 1995).

Financial restructuring
A distressed firm that needs to avoid default must restructure the terms of its debt contracts as an alternative for filing for bankruptcy (Gilson et al., 1990). Common turnaround tactics under this strategy include loan restructuring (Fredenberger and Bonnici, 1994), reduction of dividends (DeAngelo and DeAngelo, 1990; Sudarsanam and Lai, 2001) and issuance or repurchasing of shares (John et al., 1992). Risks indicated with regard to this strategy include the following:
• Getting more money when the firm is losing will subsidize a bad business, institutionalize its problems, and postpone a fix. That will make recovery more difficult to achieve (Sutton, 2002).
• Leveraging beyond an optimal point, to a level where a company cannot service its debt, will start a chain of events leading to insolvency (Bibeault, 1999).

Working capital improvements
Working capital refers to a firm’s net, current assets. Mathematically, it is calculated by subtracting the firm’s current liabilities from its current assets (Singhania et al., 2014). Working capital improvements provide opportunities to relieve some of the cash pressure, make later fundraising from external sources easier, and free cash for investment opportunities (Slatter et al., 2006; Teng, 2010). Selected tactics and associated risks include the following:
• Short-term cash management creates a heavier work-load, due to the daily or weekly cash forecasting and the control it requires (Bibeault, 1999; Slatter and Lovett, 1999).
• Negotiating extended payment terms with creditors may give vendors the impression that the firm is distressed, and lead to responses such as reduced credit terms, built-in “late pay” pricing, or even to the loss of critical vendors (Slatter and Lovett, 1999; Whitney, 1998).
• Reducing investments in inventory may lead to lost sales due to stock-outs (Teng, 2010; Whitney, 1998), dilution of the existing product range or brand, and a financial reporting hit, if liquidated items have not been provisioned (Slatter and Lovett, 1999).
• Accelerating billing and collection processes, or factoring customer invoices may be externally interpreted by debtors as a symptom of decline (Slatter and Lovett, 1999).

Cost reduction
Cost reduction refers to “belt-tightening” cutbacks in operating costs, for the purpose of quickly increasing profit or improving cash-flow (Grinyer et al., 1990; Hugh, 1986; Pearce and Robbins, 1993; Schoenberg et al., 2013; Sudarsanam and Lai, 2001). Risks related to this strategy generally reflect the need for a balanced implementation:
Solely cutting costs can reduce employees' morale and commitment, resulting in increased staff turnover of the most talented employees (Barker and Mone, 1994).

Over-perusing cost efficiencies may lead to unsuccessful turnaround efforts, and exacerbate the decline (Boyne and Meier, 2009).

Lack of investment in new technology, people, and capital - may be interpreted by analysts as a symptom of decline (Slatter and Lovett, 1999).

Reduction of R&D may weaken the firm for the future (Hambrick and Schecter, 1983).

Cutting costs at the expense of quality or customer service can lead to rapid loss of sales (Roman, 2010). Moreover, cutting costs alone, without improving quality, will lead to an ineffective downsizing effort (Cameron, 1994).

Cutting marketing and sales expenses would further damage the company's sales potential, and even strategic position (Teng, 2010).

Specific tactics under this strategy also expose to specific risks:

- **Downsizing excessive workforce** may adversely affect employees’ morale, trust, motivation, and productivity (Brockner et al., 1988; Cameron, 1994). When Unions are active, the response may have an additional adverse effect (Teng, 2010).

- **Cutting basic salaries and benefits, adding performance-based bonuses** may seldom lead to an exodus of employees (Perry, 1986), but may develop low productivity in unionized plants (Finkin, 1985). Potential hazards can be mitigated when management signals that it will “make it up” to employees and keeps its word once conditions improve (Perry, 1986).

- **Outsourcing processes and converting fixed costs into variable ones** allow a firm to leverage the specialist capabilities of vendors, standardize processes, focus scarce internal resources on its core business, and avoid non-core distractions (Finkin, 1985; McIvor, 2013). However, risks involved with outsourcing include: lower quality or service levels that may damage a firm’s competitive advantage, reputation, or customers’ loyalty (Roman, 2010), lower staff motivation, resistance from the functions affected, a firm’s challenge in defining the service levels required from potential vendors, and an adverse effect on core processes due to high levels of complexity and interdependencies with outsourced processes and functions (McIvor, 2013).

- **Eliminating specific, non-profitable products within viable product-lines** aims at addressing product proliferation within the product-market segment in which the company competes (Schreuder et al., 1991). A specific risk in applying this tactic is the classification of individual products based on inaccurate profitability calculations (Bibeault, 1999).

- **Cutting current, non-urgent expenditure** is another commonly used and effective tactic during the early stage of a turnaround-process (Finkin, 1985; Schoenberg et al., 2013). Specifically, reduction of costs supporting product quality and standards should basically be avoided, if relevant to customer preferences (Finkin, 1985).

**Strategic focus**

Focus on the firm’s core activities was consistently found to be an effective turnaround strategy as long as the sources of decline are external (Boyne and Meier, 2009;
Pearce and Robbins, 2008; Schoenberg et al., 2013). Focusing entails determining the markets, segments, niches, products and customers that have the potential of generating the greatest profits, and shrinking back activities towards these areas (Arogyaswamy et al., 1995; Hambrick and Schecter, 1983; Kow, 2004; Porter, 1988; Schoenberg et al., 2013; Stopford and Baden-Fuller, 1990; Sudarsanam and Lai, 2001). Risks indicated in the literature include the following:

- The classification of product lines based on inaccurate profitability calculations (Bibeault, 1999).
- The loss of strategic value due to a line of business which was selected for divestment (Whitney, 1998).
- An increase in the firm’s unit cost structure, as a result of the divestment (Slatter and Lovett, 1999).

Critical process improvements
Operational turnarounds often involve a strategy of “doing things better”. Three main tactics are called for across the board, these are: improving marketing and sales processes; improving operational processes; and improving key support processes. Each type of process may be improved from cost, quality, and time perspectives, as well as customer orientation (Kow, 2004). One risk being indicated with regard to this strategy is the urge to push a stable, efficient process beyond its limits, up to a point where efficiency is challenged by the change (Roman, 2010).

Culture change
Changing an organization’s culture is another, commonly used turnaround strategy (Armenakis and Fredenberger, 1995; Armenakis et al., 1995; Muczyk and Reimann, 1989; O’Reilly, 1989; Schoenberg et al., 2013). Related, widely described tactics include destroying adverse behaviors (Kanter, 2003; Kow, 2004; Nystrom and Starbuck, 1984); Clarifying the organizational structure, roles and responsibilities (Lorange and Nelson, 1987); Implementing performance management (Gotteiner, 2016); and developing innovation (Kow, 2004; Lorange and Nelson, 1987; Stopford and Baden-Fuller, 1990). Examples of the risks associated with such tactics are:

- Implementing performance management: One of the central problems of goal or target setting is the tendency to direct efforts and vision towards inside processes, rather than towards the market, through the eyes of customers and competitors (Day and Moorman, 2013; Drucker, 1976). Given that what you measure is what you get (Kaplan and Norton, 1992), wrong goal or target setting may lead an organization to deterioration, rather than improvement.
- Developing innovation: The risk involved is related to the unpredictability of success, low success rates, and investment costs involved (Pearce and Robbins, 2008).

Growth strategies
Growth strategies include tactics aiming at pushing growth, such as developing new product-market positions, adding or developing new distribution channels (Schreuder et al., 1991), expanding through acquisitions (Hugh, 1986), broadening a product line, or entering new...
Risk governance as a facilitator of organizational anti-Aging
The nature of actions listed above, and the risks associated with such actions reflect risks of a higher order. Such risks go beyond the financial and operational level of a company, and reach the level of strategic management. Similarly, managing such risks goes beyond the methodological level and reach the contextual level of business environment and challenges. Another, fundamental challenge is that the very inclusion of organizational-decline related risks in a routine risk-management process – is not obvious. In fact, if such risks were routinely included in a typical risk management process and agenda – the higher-level risk of organizational aging and decline would be addressed sooner. But that’s not the case, yet.

Risk governance can provide an opportunity to direct the risk management system to desired areas, and control it (Lundqvist, 2015). It is a process that goes beyond the metrics and the technical management of risks, by covering management’s blind or largely neglected spots, and by enriching the routine risk-management process with a recontextualization mechanism (Stein and Wiedemann, 2016). Exposure to organizational decline is one of those blind spots that top-management teams overlook, and a desirable, context-driven area to direct the risk-management process to. Specifically, risk governance can potentially address various outcomes, including firm performance, monitoring effectiveness and lower earnings volatility (Hiebl et al., 2018). As such, it leads to long-term viability and value creation - in spite of external and internal dynamics – and contributes to securing the future legitimacy of the company (Stein and Wiedemann, 2016). For all the characteristics described above, risk governance can be useful in institutionalizing the anti-aging framework.

Proposing an “anti-Aging” framework
After having linked organizational performance and decline theories with corporate turnaround research, discussed the obstacle of risk aversion at the early stages of decline to more effective turnarounds, indexed the various risks associated with turnaround efforts,
and identified risk governance as a useful in institutionalizing an anti-organizational-decline framework – these elements are integrated hereby into a coherent “Anti-Aging” framework. The proposed Anti-Aging framework aims at encouraging the early, routine, proactive, preventive and selective implementation of turnaround strategies for the sake of postponing the lifecycle-stage of organizational decline or preventing decline from deteriorating further and evolving into a crisis.

The Anti-Aging framework applies risk governance for the purpose of directing the company’s risk management process to address the exposure to organizational decline. Risk governance is appropriate for such a task, as it proactively searches for any imaginable risks, and prepares the company not only by assessing these risks but also by preventing unofficial, informal and unauthorized malpractices of corporate behavior (Stein and Wiedemann, 2016). Such a process can cover a broad range of topics, including the identification, evaluation, controlling and communication of various types of risks, together with institutional questions how to establish a risk culture in organizations (Baule and Fandel, 2016). Such topics can be applied to corporate turnaround practices and their associated risks, while supporting the context-driven identification of practices that could address potential exposures to organizational decline. As a part of this framework, commonly used risk-management methodology is applied by optimizing the magnitude and likelihood of consequences, both positive and negative, to achieve a net increase in benefit (Purdy, 2010). To a large extent, the entire process entails managing people, processes, data, and projects (Coleman, 2011) in the context of addressing the exposure to organizational decline. In other words, this framework calls for directing the risk management process towards the risks associated with turnaround efforts at the early stages of organizational decline, to mitigate such risks, decrease the levels of risk aversion, and trigger such efforts before a decline evolves into a crisis. Figure 1 visualizes this approach and is followed by a detailed explanation.

Step 1. The process starts with a periodical, proactive identification and consideration of the current sources of a challenge. Such identification and consideration help tackle challenges with appropriate managerial responses (Hofer, 1980; Hugh, 1986). Specifically, challenges should be identified as either internal, external or both (Mellahi and Wilkinson, 2004), based on a detailed analysis. First, the solidity of the current and projected cash-position should be assured (Midanek, 2008). Then, a data-driven examination of financials, operations, and sales is advised (Fredenberger and Bonnici, 1994). Valuable questions will make use of such data, such as: Which products, markets, and customers are the most and least profitable? (Scherrer, 1988); What levels of staffing are right for various areas of the organization? (Hitt et al., 1994); Which products or functions can be purchased rather than made or employed in-house? How effective are current incentive pay systems in driving productivity? (Finkin, 1985); Which factors have a high impact on performance? (Grünberg, 2004); Which policies need to be changed? (Hugh, 1986). The following questions should go beyond the numbers to a qualitative analysis. Questions should be higher-level ones, such as: What business are we in and how do we fit? What are the company’s key strengths and how are they being deployed? What customer need do we really fill? Are customers leaving? Are new ones arriving? Why? Where are problems coming from? (Midanek, 2008). No decisions are made at this stage.

Step 2. Given the type of challenges identified, management can better focus on the type of response required, whether operative or strategic. Basically, operative responses suit internal challenges and strategic responses suit external challenges. However, no clear cut course of action exists and the turnaround research consistently calls for a mix of both

Step 3. Given the type of response desired, management is presented with a range of effective, commonly used turnaround strategies (Schoenberg et al., 2013) that it can choose from. Although researchers have not yet come up with a model for selecting turnaround strategies (Pretorius, 2008), such indexing may help leap over the obstacle of unfamiliarity with turnaround strategies by top management (Finkin, 1985; Fredenberger et al., 1997). Responses of a strategic type may include strategies, such as focus on the firm’s core activities or growth-related ones. The other strategies mentioned are more operative or change-facilitating ones. However, a mix of strategies can and should be pursued (Hambrick and Schecter, 1983; Hofer, 1980; Hugh, 1986; Kow, 2004; Robbins and Pearce, 1992).

Step 4. Given the turnaround strategies selected, management is encouraged to select from a variety of isolated, focused turnaround tactics specifying “how to accomplish” such strategies (Hoffman, 1989).

Step 5. Based on the type of challenges identified, the turnaround strategies that suit such challenges and the more concrete turnaround tactics being considered, management can establish the more specific, tailored context of its periodical response. Specific decisions are
considered at this stage, such as: What costs to cut? Which customers to keep? (Scherrer, 1988); What pricing decisions need to change? What is to be manufactured and where? How much inventory to keep? (Finkin, 1985); Are any management changes required? (Hugh, 1986); Are there any alternatives for layoffs? (Perry, 1986); and the like.

Step 6. Objectives, targets and goals should be set for each course of action being considered. To avoid performance management traps, management is called to consider the OPTIMAL MBO approach, enriching the traditional management-by-objectives approach with corporate turnaround elements. As such, objectives, targets, and goals relating to the periodical response being considered should take into account: (O) objectives, outside-in, (P) profitability (budget)-related goals, (T) target setting, (I) incentives and influence; (M) measurement; (A) agreement, accountability, appraisal, appreciation and (L) leadership support (Gotteiner, 2016).

Step 7. Various selected types of risks associated with turnaround strategies and tactics are presented, as indexed in this study, to support the identification of risks. However, additional types of risks may apply and as such a wider range of risks should be thoroughly and carefully considered. Specifically, risk identification must incorporate a stakeholder perspective (Barney, 2018). Among others, that entails the identification of various risks related to shareholders, employees, unions, customers, suppliers, lenders and regulators.

Steps 8-10. Risks are analyzed and evaluated in accordance with commonly used risk-management frameworks. That includes the rating of risks in terms of probability and potential impact. If the current risk levels are higher than the levels acceptable to the organization, ways of mitigating the risks should be considered and undertaken. In a turnaround-research context, these stages provide an opportunity to address the duality of retrenchment and recovery: both forces that play an important role during turnarounds are contradictory and complementary, and integrating them together allows for the creation of a positive effect on performance (Schmitt and Raisch, 2013). The mechanism of risk rating and evaluation called for serves such a beneficial integration by letting a risk-based perspective determine the optimal sequence and timing of various retrenchment and recovery activities.

Step 11. Anti-aging activities can be triggered after diagnosing the sources of challenge, considering suitable strategies and tactics, establishing the specific context, setting objectives, targets, and goals, identifying associated risks and analyzing and mitigating such risks.

Step 12. Close monitoring, reporting and consultation take place across implementation to assure the achievement of process objectives.

Overall, the model is designed to direct the firm’s risk management process to cover the exposure to organizational decline, and encourage the top management to routinely identify business challenges, consider effective, commonly used turnaround practices for tackling such challenges, and adjust the levels of risks associated with such practices to the levels that suit the business routine.

Conclusion
For more than three decades, it has been suggested that most organizations face a major decline in their performance at some time during their existence. Unless addressed early and effectively, such a decline evolves into a crisis and puts an organization’s existence in jeopardy, thus requiring traumatic rescue efforts. It has also been suggested that the early, preventative implementation of turnaround strategies could save organizations from such trauma. However, this concept did not gain wide traction. To date, organizational recovery efforts mostly get triggered further along the downward spiral and often fail.
Three obstacles to early, preventive implementation of turnaround strategies are addressed by this study: a limited familiarity with turnaround practices by a top management team, the specific risks associated with such practices, and risk aversion that discourages such a course of action at the early stages of organizational decline. These obstacles are addressed by introducing a model that integrates corporate turnaround, risk governance and risk management elements to direct the risk management process towards exposure to organizational decline, and to facilitate the adjustment of applicable risks to non-crisis situations. On top of addressing risk aversion, the risk governance and management mechanisms that lie at the heart of this model also facilitates a beneficial integration of retrenchment and recovery activities, which is typical of turnaround processes, by coordinating their sequence and timing. The model being proposed is named the Anti-Aging Framework.

The Anti-Aging Framework aims at bridging the gap between the benefits of the early, routine, proactive, preventive, and selective implementation of turnaround strategies and the obstacles faced by a willing top-management team. Bridging that gap opens an opportunity for top management teams to respond earlier to organizational decline and avoid the trauma associated with otherwise more challenging conditions for the benefit of all stakeholders. For example, the Anti-Aging Framework may encourage low-margin firms to proactively address their cost structure, while managing the associated risks, before such margins deteriorate further. Similarly, it may encourage no-growth firms to acquire synergetic businesses, as long as their cash reserves still support it. As such, the Anti-Aging Framework provides firms with options for both corporate-renewal content and the tools for coping with obstacles to such renewal initiatives.

The Anti-Aging Framework also has some limitations. While it addresses three prominent obstacles to the early, preventive implementation of turnaround strategies by top management teams, additional obstacles exist. Such obstacles may include a managerial fixation on unsuccessful past strategies (Castrogiovanni et al., 1992), weak early-warning signals (Grinyer et al., 1990), fear of conflict (Lorange and Nelson, 1987), individuals who may block moves that threaten their interests (Lohrke et al., 2004), and more. However, techniques for tackling such obstacles exceed the scope of this paper.

The Anti-Aging Framework provides valuable direction for future research. One fundamental direction should aim at pursuing empirical evidence regarding the suitability of turnaround strategies for non-crisis situations. Such suitability is not obvious: given the risks associated with such strategies, as demonstrated in this paper, there is no evidence that such risks can actually be mitigated and adjusted to suit non-crisis situations. If such evidence could be presented, the concept of Anti-Aging could progress from pure theory to a concrete impact on management science.

References


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Do board interlocks support monitoring effectiveness?
Evidence from listed German companies
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Faculty of Economics and Social Sciences, Universitat Hamburg, Hamburg, Germany

Abstract
Purpose – This paper aims to investigate the relationship between board interlocks and monitoring effectiveness for listed German companies in a context of risk governance. While agency-theory and resource-dependence-theory suggest a positive association between board interlocks and monitoring effectiveness, reasons such as limited temporal resources of busy board members may suggest a negative association.

Design/methodology/approach – By using panel data regression, the authors examined the association between board interlocks and monitoring effectiveness, which was approximated by excessive management compensation, pay-for-performance-sensitivity and CEO turnover-performance-sensitivity. The data set comprises 3,998 directorships for 132 listed German companies covering the period 2015-2017.

Findings – The authors find that board interlocks are associated with not only a more excessive management pay and less performance-sensitive turnover but also a higher pay-for-performance-sensitivity.

Originality/value – The study examines the impact of multiple directorships based on a German panel data set that includes both multiple appointments of members to national supervisory boards and all other appointments to national and international executive and supervisory bodies. The authors compile three measures to operationalize monitoring effectiveness.

Keywords Multiple directorships, Board interlocks, Corporate governance, Supervisor board, Monitoring effectiveness, Management compensation, Pay-for-performance, CEO turnover

1. Introduction
Implementing risk governance practices is one of the primary tasks of the board of directors (Stein and Wiedemann, 2016). In cases of scandals, boards are frequently made responsible and publicly discredited for low monitoring quality (Sassen et al., 2018). The debate on risk governance has raised the issue of whether board interlocks are beneficial for firms and board’s monitoring qualities. Board interlocks mean that supervisory-board members hold multiple seats on supervisory and executive bodies of other companies. Interlocking directorships can have an advantageous or disadvantageous impact on the monitoring performance of a supervisory board. It might be beneficial for knowledge- and experience-acquisition, etc. (Harris and Shimizu, 2004). In contrast, the growing demands on supervision raise the question of whether the holders of multiple directorships can appropriately fulfill their supervisory tasks (Fernández Méndez et al., 2015), as limited temporal and cognitive resources may reduce the monitoring performance of the board member (Ferris et al., 2003).

Although the benefits of board interlocks for monitoring effectiveness continuously raise the interest of researchers, knowledge of related mechanisms remains far from complete.
While some studies have examined the association between board interlocks and various aspects of corporate governance (Jiraporn et al., 2009; Coles et al., 2014), they yielded inconsistent results. Most of these studies have focused on directors holding multiple supervisory board seats (Andres et al., 2013; Rapp and Wolff, 2010), neglecting to consider directors with additional seats on executive bodies. Considering executive board memberships (Acharya and Pollock, 2013; Oehmichen et al., 2017a) is necessary when assessing the consequences resulting from holding multiple board seats. Previous studies are limited and not comparable, as they use varying measures for board interlock. Prior studies focus on the relationship between multiple memberships and firm performance. However, performance is influenced by several unobservable factors and thus the connection between supervisory board activities and companies’ success is contentious in research. Additionally, endogeneity problems hinder to derive a conclusion about causal relationships between board interlocks and companies’ success. As monitoring is the main task of supervisory boards, it seems appropriate to directly examine the relationship between board interlocks and monitoring outcomes.

Given these circumstances, we aim to answer the following research question:

**RQ1.** Do board interlocks support monitoring effectiveness?

The study examines multiple memberships of supervisory-board members in supervisory and executive bodies and the implications for monitoring effectiveness in the context of the two-tier board system predominant in Germany (Douma, 1997). We consider interlocking directorships, where a member of a supervisory board is also a member of the executive or supervisory board of at least one other legally independent national or international company. From a theoretical perspective, we follow Oehmichen et al. (2014) and use agency theory and resource dependence theory to explain monitoring mechanisms. In context of the agency theory (Jensen and Meckling, 1976), additional information and experience gained by supervisory board members through memberships on other boards can be beneficial for monitoring effectiveness, thereby reducing agency cost. Resource-dependence theory supports this assumption by highlighting the beneficial effects of the resources that directors serving on multiple boards provide (Oehmichen et al., 2014; Heyden et al., 2015). Nevertheless, limited temporal resources of busy board members may lead to an adverse impact of multiple directorships due to distraction and overload (Ferris et al., 2003).

We chose a country-specific context, as prior studies have focused primarily on the US context. This has led to calls for international and diverse research perspectives (Fiss, 2006; Flickinger et al., 2016) which can be achieved by investigating different institutional contexts (Sanders and Tuschke, 2007; Lamb and Roundy, 2016). Against this background, we present a current dataset of the largest listed German firms. Our study provides implications for research on board interlocks by considering how its monitoring mechanisms may differ in the German context. We chose Germany because of its two-tier corporate-governance system, which encompasses different monitoring mechanisms contrasting those of the one-tier system which prevails in US or Anglo-Saxon corporate governance. The two-tier system establishes a legal separation between management and supervisory tasks. The CEO leads the management board while the chairman of the board leads the supervisory board (Flickinger et al., 2016; Grigoleit et al., 2011). Monitoring outcomes are reflected by specific mechanisms, which we address by approximating monitoring effectiveness by the following three supervisory decision outcomes:
(1) to prevent excessive management compensation;
(2) to ensure pay-for-performance-sensitivity; and
(3) to guarantee CEO turnover-performance-sensitivity.

While these supervision mechanisms are typically investigated individually, this study expands past findings and considers all three measures for monitoring effectiveness.

Methodologically, we apply panel data regression to assess the relationship between board interlocks and monitoring effectiveness. Our analysis includes data of 132 listed companies of the German stock indexes (DAX, MDAX, SDAX and TecDAX) for the period 2015-2017 as well as information of 3,998 members of their supervisory boards.

We contribute to the literature in multiple ways. First, we use agency-theory and resource-dependence-theory to examine the relationship between board interlocks and monitoring effectiveness. Second, we accommodate the request for broadening knowledge on corporate governance, specifically board interlocks for different national contexts. Our study uses Germany as research context, as Flickinger et al. (2016) classify this country as an example of a significant economy with a two-tier board system.

This article is organized as follows: Section 2 provides a literature review, while Section 3 introduces theoretical background and the development of hypotheses. Section 4 explains the research design, including sample selection, data collection, variables used and methodology applied. Section 5 presents the findings from the descriptive analysis and regression analysis. We close with a conclusion.

2. Literature review: association between board interlocks and monitoring effectiveness

Close to our research question, for instance, Grigoleit et al. (2011) and Oehmichen et al. (2014) examine the influence of the membership of a former executive in the supervisory board on the performance of German companies. Further studies focus on the association between board independence and firm performance (Chowdhury and Wang, 2009; Hwang and Kim, 2009) or board interlocks and firm performance (Ferris et al., 2003; Field et al., 2013), acquisition outcomes (Harris and Shimizu, 2004), strategic decision-making (Carpenter and Westphal, 2001) or board committee memberships (Jiraporn et al., 2009). As many unobservable factors influence performance, the connection between supervisory board activities and the companies’ success is still controversial in research. Additionally, endogeneity problems inhibit a definitive statement about causal relationships between board interlocks and the companies’ success (Cashman et al., 2012). Hence, it is useful to investigate directly the relationship between board interlocks and monitoring outcomes. Table I provides an overview of such research. Most studies have used US samples. Excessive management compensation [increase (–), decrease (+)], pay-for-performance-sensitivity [increase (+), decrease (–)] and CEO turnover-performance-sensitivity [increase (+), decrease (–)] serve as proxies for less (–) or more (+) effective monitoring, while effectiveness either declines from distracted board members or benefits from qualified members.

3. Theoretical background and hypotheses

Supervisory boards have two main tasks: monitoring managers and providing advice and access to resources (e.g. information, know-how) (Forbes and Milliken, 1999; Oehmichen et al., 2014). We focus on the link of board interlocks to the monitoring task and use agency-theory and resource-dependence-theory (Hillman and Dalziel, 2003; Oehmichen et al., 2017b) as basis of our hypotheses.
<table>
<thead>
<tr>
<th>Authors (year)</th>
<th>Country of sample</th>
<th>Firms (firm-year observations)</th>
<th>Period</th>
<th>Board interlock measure</th>
<th>Excessive management compensation</th>
<th>Pay-for-performance-sensitivity</th>
<th>CEO turnover (performance-sensitivity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core <em>et al.</em> (1999)</td>
<td>USA</td>
<td>205 (495)</td>
<td>1982-1984</td>
<td><em>MM</em>₁ (with outside directors)</td>
<td>–</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Fich and White (2003)</td>
<td>USA</td>
<td>366</td>
<td>1984-1991</td>
<td>Number of mutual interlocks on the board</td>
<td>–</td>
<td>n/a</td>
<td>–</td>
</tr>
<tr>
<td>Fich and Shivdasani (2006)</td>
<td>USA</td>
<td>508 (3,366)</td>
<td>1989-1995</td>
<td><em>MM</em>₂</td>
<td>n/a</td>
<td>n/a</td>
<td>–</td>
</tr>
<tr>
<td>Möbert <em>et al.</em> (2008)</td>
<td>Germany</td>
<td>30 (180)</td>
<td>2001-2006</td>
<td>Network measures</td>
<td>+</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Barnea and Guedj (2009)</td>
<td>USA</td>
<td>1,914 (9,889)</td>
<td>1996-2004</td>
<td><em>MM</em>₂; Network measures</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Oehmichen (2011)</td>
<td>Germany</td>
<td>313 (1,391)</td>
<td>2003-2007</td>
<td><em>MM</em>₁; <em>MM</em>₂</td>
<td>–</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Andres <em>et al.</em> (2013)</td>
<td>Germany</td>
<td>133 (532)</td>
<td>2003-2006</td>
<td><em>MM</em>₁; <em>MM</em>₂</td>
<td>–</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Fernández Méndez <em>et al.</em>(2015)</td>
<td>Australia</td>
<td>684</td>
<td>2001-2011</td>
<td>Network measures</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Fernández Méndez <em>et al.</em>(2017)</td>
<td>Spain</td>
<td>122 (798)</td>
<td>2004-2011</td>
<td><em>MM</em>₁</td>
<td>+</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>This study</td>
<td>Germany</td>
<td>132 (396)</td>
<td>2015-2017</td>
<td><em>MM</em>₁*₅</td>
<td>–</td>
<td>+</td>
<td>–</td>
</tr>
</tbody>
</table>
Positive effects of board interlocks on monitoring effectiveness can be explained by agency-theory (Jensen and Meckling, 1976) which suggests that firms benefit from directors serving on multiple boards because they acquire information, gain experience, etc. Directors holding multiple seats are expected to be effective supervisors, as they grow in competence through experience (Field et al., 2013; Jiraporn et al., 2009). Thus, holding multiple seats augments the directors’ reputation, for only competent directors are offered several seats. High reputation implies that the director is attributed extensive supervisory and advisory abilities (Balsmeier et al., 2010). Hence, directors who already serve on several boards are also appointed by other firms (Ferris et al., 2003; Jiraporn et al., 2009). In an efficient market for directors (Fama and Jensen, 1983), qualified board members are appointed by several firms. If there are a limited number of qualified directors, those with the highest reputation will be appointed to the boards of multiple firms (Loderer and Peyer, 2002). This allocation mechanism provides an incentive to enhance their reputation (Arnegger and Hofmann, 2014) and to obtain multiple board seats (Jensen and Meckling, 1976). Firms benefit from this pressure on supervisors, as they are compelled to meet expectations to avoid a decline in their reputation (Herzalin and Weisbach, 1998).

According to resource-dependence-theory (Oehmichen et al., 2014), another driver for positive monitoring effects of directors serving on multiple boards is their ability to provide advice because they gain insights from positions in other firms which can be applied to other boards and used in a propitious way for the entire supervisory board. In contrast to directors serving only on one board, directors with numerous mandates possess the resources vital to successfully fulfill their monitoring tasks (Oehmichen et al., 2014; Heyden et al., 2015). Additionally, holding multiple seats enables directors to maintain an overview of the business landscape through their network (Carpenter and Westphal, 2001).

Although both theories support a positive association between board interlocks and monitoring effectiveness, there might be a negative association. For example, limited temporal resources of busy board members may lead to an adverse impact of multiple directorships because of distraction and overload. Directors serving on several boards might be too busy to pursue their tasks diligently (Ferris et al., 2003). These directors face limits owing to excessive demands on their temporal and cognitive capacity (Harris and Shimizu, 2004; Perry and Peyer, 2005). Thus, directors who are mandated by many boards are not able to sufficiently fulfill their tasks (Andres et al., 2013). This might lead to a declining firm performance (Fich and Shivdasani, 2006; Cashman et al., 2012). Directors serving on multiple boards are hardly able to attend to the matters of all firms equally and to make sound decisions in all cases (Carpenter and Westphal, 2001). Core et al. (1999) and Fich and White (2003) show that busy supervisory boards warrant higher levels of management compensation. Uepping (2015) found such a relationship between busy supervisory boards and fixed management pay. Fernández Méndez et al. (2015) complemented this observation by suggesting that busy supervisory boards not only result in higher management compensation but also display lower CEO pay-performance-sensitivity. These findings imply that management is in a more powerful position relative to a busy supervisory board and is able to influence its compensation to its own liking. Fich and White (2003) have further shown that busy directors reduce the likelihood of CEO turnover.

There are reasons to assume a positive or negative association between board interlocks and monitoring effectiveness, depending on which opposing effect dominates. If a positive association in alignment with the agency and resource-dependence-theories outweighs, we propose this hypothesis:
H1a. A high degree of board interlock is positively associated with monitoring effectiveness.

However, considering that busy board members have limited temporal resources, we investigate this competing hypothesis:

H1b. A high degree of board interlock is negatively associated with monitoring effectiveness.

4. Research design
4.1 Sample selection
First, we compiled an initial sample of 160 German companies that were listed on the stock indexes DAX, MDAX, SDAX or TecDAX by December 31, 2015-2017. Second, we adjusted the sample to make it as homogenous as possible. Following Balsmeier et al. (2010) and Oehmichen (2011), we eliminated all firms from the financial industry and removed all firms that have a foreign International Securities Identification Number (ISIN) to avoid biased estimates. We retained a sample of 132 companies (396 firm year observations). The sample represents the largest companies in terms of stock market turnover and market capitalization, including 132 of the 314 German prime standard companies; these account for 99 per cent of the market capitalization of the prime standard. Third, we collected the data relevant to our study (Sections 4.2-4.4).

4.2 Dependent variables: monitoring effectiveness
We compile different figures to operationalize monitoring effectiveness: excessive management compensation, pay-for-performance-sensitivity and CEO turnover-performance-sensitivity. In Germany, the supervisory board is responsible for developing an efficient remuneration contract for the executive board whereby two factors determine an optimal remuneration. First, compensation should be fair, sustainable and not excessive. Second, there should be a link between firm performance and compensation.

We consider the appropriateness of the management compensation as proxy of monitoring effectiveness. According to Core et al. (1999), inappropriate pay can be measured as the proportion of the compensation deemed unexplainable. We estimated this figure by regression of economic determinants on the logarithmized total compensation of the management board ($BOARDCOMPENSATION_{LN}$). The total compensation is calculated as sum of fixed salary, fringe benefits, one-year and multi-year variable compensation, and pension expense. Excess pay is the residual of the compensation in the regression that cannot be explained by firm performance ($TOTALRETURN_{LN}$, ROA, $TobinsQ$), company size ($COMPANYSIZE_{LN}$), media presence ($MEDIA$), industry-related effects ($INDUSTRY$) and year effects ($YEAR$) (Core et al., 2008; Alissa, 2015).

\[
BOARDCOMPENSATION_{LN} = \beta_0 \times Constant + \beta_1 \times TotalReturn_{LN} + \beta_2 \times ROA \\
+ \beta_3 \times TobinsQ + \beta_4 \times CompanySize_{LN} + \beta_5 \times Media \\
+ \sum \beta_1 \times Year + \sum \beta_1 \times Industry + \mu
\]

The residual ($\mu$) of the regression is considered to be excess pay ($EXCPAY$) and serves as dependent variable in the subsequent regressions.
Furthermore, the supervisory board should implement incentive-based remuneration which is linked to the success of the company. In alignment with the approach established by Murphy (2000) and Grathwohl and Feicha (2014), we measure pay-for-performance-sensitivity as the ratio of the variable pay to earnings before interest and tax \( \frac{\text{VARCOMPENSATION}}{\text{EBIT}} \).

Moreover, the supervisory board is responsible for the appointment and dismissal of the executive-board members. In this context, the difficulty lies in the fact that involuntary CEO-changes are rarely declared as these, thus making it infeasible to differentiate between voluntary and involuntary CEO turnover (Perry, 1999). However, following Fernández Méndez, et al. (2015), we measure CEO turnover with a dummy-variable \( \text{CEOTURNOVER} \) that equals 1 if a CEO change took place in the financial year. Beyond, we consider CEO turnover to be dependent on firm performance. If the supervisory board works efficiently, the likelihood of a CEO turnover should increase with poor firm performance, and vice versa. In accordance with Fernández Méndez, et al. (2015), we capture CEO turnover-performance-sensitivity by integrating a moderator variable in our regression that tracks the interaction effect of multiple mandates and firm performance on the likelihood of a CEO turnover.

4.3 Independent variables: board interlocks

Previous studies on the consequences of board interlocks have yielded inconsistent results, which can partially be attributed to different measures. The statistical impact of holding seats on multiple boards depends on the operationalization of board interlocks (Fich and Shivdasani, 2006). Therefore, we have developed measures to assess board interlocks. To approximate board interlocks, we determined the number of seats held for each member of a supervisory board and linked this figure to the total board size (Fich and Shivdasani, 2006). We have distinguished between mandates held by regular members and chairholders. Directorships on boards of corporate subsidiaries and labor representatives on supervisory boards were excluded from the sample. As labor representatives are employed by the respective company, they rarely hold mandates in other bodies and are irrelevant for the conducted analysis (Oehmichen, 2011). In total, the sample included 1,068 supervisory-board members holding 3,998 seats on other supervisory or executive boards. We used this data to calculate the measures derived below; these measures served as independent variables. By employing several measures, we ensure the robustness of our results and obtain a more comprehensive implication on board interlocks.

Core et al. (1999) introduced a measure distinguishing between busy and less busy directors that has become an established proxy for busyness (Ferris et al., 2003; Fich and Shivdasani, 2006; Cashman et al., 2012; Fernández Méndez et al., 2017). This measure derives from the share of busy directors on each supervisory board. A director is considered busy when serving on at least three other boards (Core et al., 1999). The threshold of three mandates has been established in previous studies (Harris and Shimizu, 2004; Fernández Méndez et al., 2017), and it is therefore reasonable to assume as median and mean values of the mandates of multiple mandate holders (Fich and Shivdasani, 2006). We calculate variable \( MM_1 \) (share of busy directors on supervisory boards) as follows:

\[
MM_1 = \frac{\sum \text{supervisory-board members serving on } \geq 3 \text{ other boards}}{\text{number of supervisory-board members}}
\]

\( N = \) number of firms observed.
Correspondingly, a binary variable is used to distinguish between supervisory boards that are busy and ones that are not; this measure is based on the share of members who serve on more than three other boards (Fich and Shivdasani, 2006). Following Fich and Shivdasani (2006), Barnea and Guedj (2009), Oehmichen (2011), Andres et al. (2013), we use a threshold of 50 per cent. In this case, the majority of the board members and consequently the entire board is classified as busy. For sensitivity analysis, we have also tested thresholds of 20, 30 and 40 per cent. Using a dummy variable has the advantage that outliers are less consequential than it would be the case when using the mean and its corresponding left-skewed distribution (Fich and Shivdasani, 2006). We defined the busyness dummy as $MM_2$.

$$MM_{2n} = 1 \text{ if } \geq 50\% \text{ of supervisory-board members hold } \geq 3 \text{ other seats, otherwise 0}$$

Some scholars have criticized that the number of memberships is not the only relevant factor. Rather, there should be a measure that also captures the demands of multiple appointments on the individual’s temporal and cognitive resources (Andres et al., 2013). Individual commitments are decisive for the demands associated with serving on a board (Cashman et al., 2012). Fernández Méndez et al. (2015) show that holding multiple seats has a greater impact if this involves serving in particularly demanding positions. The chair of the supervisory or management board thus plays a significant role (Balsmeier et al., 2010). The greater influence and demands associated with this position were taken into consideration in constructing the measure $MM_3$ by doubling the weight of holding a chair position. This also corresponds to the weight given by the German Stock Corporation Act (section 100 (2) no. 1 AktG). The measure $MM_3$ represents the weighted mean of multiple directorships per supervisory board.

$$MM_{3n} = \frac{\sum \text{weighted memberships}_k}{\text{number of members on supervisory-board}} \text{ K = number of supervisory board member.}$$

The disadvantage of the mean is that it classifies board busyness only for the entire board and not at the level of individual members. Instead of simply using the mean, we first identified busyness (sitting on at least three other boards) for each board member and then classified the entire board as busy or less busy (Fich and Shivdasani, 2006). An additional disadvantage associated with using the mean is that outliers bear even greater weight (Oehmichen, 2011). To address both issues, we employ the weighted busyness measure $MM_4$ (share of busy directors holding weighted seats) that avoids the limitations of the mean and also considers the heightened demands associated with the chair position.

$$MM_{4n} = \frac{\sum \text{supervisory-board members holding } \geq 3 \text{ other weighted seats}}{\text{number of members on supervisory-board}}$$

The fifth variable has not been employed in previous studies on board interlocks. This measure was derived from one developed by Ceschinski et al. (2018) to capture board committee overlap. This approach can be applied to our context and provides a means of calculating the extent of board interlocks. This measure represents the extent of multiple directorships and takes into account if several supervisory-board members hold an especially large number of seats. This measure was defined as $MM_5$ and was
calculated by multiplying the number of supervisory-board members holding \( \delta \) seats with the number of seats (\( \delta \)) and dividing this product by the number of members on the supervisory board.

\[
MM_n = \frac{\text{number of supervisory-board members holding } \delta \text{ seats } \times \delta}{\text{number of members on supervisory-board}}
\]

4.4 Control variables
The basic regression model controls for variables which have been identified by previous studies as being associated with monitoring effectiveness. The influence of external investors was captured by calculating the leverage ratio (LEVERAGE), defined as the ratio of total liabilities to balance sheet total (Rapp and Wolff, 2010; Barnea and Guedj, 2009). The variables supervisory-board meetings (SBOARDMEETINGS), supervisory-board size (SBOARDSIZE) and supervisory-board changes (SBOARDCHANGE) represent the extent of supervisory-board activity (Oehmichen, 2011). To control for the impact of ownership structure, we included the variable free float (FREEFLOAT); that indicates the share of widely held stock (Core et al., 1999; Balsmeier et al., 2010). Rapp et al. (2010) have shown that corporate governance-decisions can be influenced by a company’s media presence. Therefore, we use media (MEDIA) as a control variable. In addition, the regressions with the dependent variables pay-for-performance and CEO turnover contain the control variables which were also used to determine excess pay: ROA, TOTALRETURNLN, TOBINSQ, and COMPANYSIZELN. We also integrated 15 binary industry variables (INDUSTRY) and used Financial Services as reference category. The classification corresponds to the industries of the German stock exchange. Finally, we included the interaction term \( MM_i \times TOTALRETURNLN \) to estimate the joint effect of multiple memberships and firm performance on pay-for-performance-sensitivity (Fernández Méndez et al., 2015). We manually compiled the data on the supervisory and management board from the companies’ annual reports. Data on the media presence were collected with the help of the search engine Google News. All financial figures were extracted from Thomson Reuters Datastream database. Table II describes all variables.

4.5 Methodology
We tested the following relationship to examine the connection between board interlocks and monitoring effectiveness:

\[
(excess \text{ pay } | CEO \text{ turnover } | pay-for-performance)_{n,t} = \left\lbrace \begin{array}{c}
\beta_0 \ast \text{Constant} + \beta_1 \ast MM_{i,n,t} + \beta_j \ast \text{Controls}_{n,t} + \\
\sum_{k=1}^{2015-17} \beta_k \ast \text{Year}_k + \left( \sum_{i=1}^{15} \beta_1 \ast \text{Industry}_i \right) + \mu_{nt}
\end{array} \right.
\]

where:
\( \beta \) = coefficient;
\( \mu \) = residuum;
\( n \) = individual company; and
\( t \) = time period.
First, we estimated the regression of excessive management compensation and pay-for-performance-sensitivity as a function of board interlocks along with various control measures and a logit regression with the binary CEO turnover. The regressions were based on the assumptions that there are no multicollinearity and no autocorrelation (the residuals should not be correlated with the population).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Explanation</th>
<th>Unit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXCPAY</td>
<td>Excess pay Residuum of the regression of BoardCompensationLN</td>
<td>€</td>
</tr>
<tr>
<td>CEOTURNOVER</td>
<td>CEO turnover dummy =1, CEO changed, =0, otherwise</td>
<td>1/0</td>
</tr>
<tr>
<td>VARCOMPENSATION/EBIT</td>
<td>Variable compensation to earnings before interest and tax (pay-for-performance)</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Ratio of VARCOMPENSATIONLN and EBIT</td>
<td></td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM1</td>
<td>Multiple memberships-variable 1</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Share of busy directors</td>
<td></td>
</tr>
<tr>
<td>MM2</td>
<td>Multiple memberships-dummy 2</td>
<td>1/0</td>
</tr>
<tr>
<td></td>
<td>=1, at least 50% of the supervisory-board members are busy =0, otherwise</td>
<td></td>
</tr>
<tr>
<td>MM3</td>
<td>Multiple membership-variable 3</td>
<td>number</td>
</tr>
<tr>
<td></td>
<td>Weighted mean of multiple directorships per supervisory board</td>
<td></td>
</tr>
<tr>
<td>MM4</td>
<td>Multiple membership-variable 4</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Share of busy directors holding weighted seats</td>
<td></td>
</tr>
<tr>
<td>MM5</td>
<td>Multiple membership-variable 5</td>
<td>number</td>
</tr>
<tr>
<td></td>
<td>Multiple membership-intensity</td>
<td></td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOARDCOMPENSATIONLN</td>
<td>Management compensation</td>
<td>ln(EUR)</td>
</tr>
<tr>
<td>COMPANYSIZELN</td>
<td>Logarithmized average total compensation received per board member</td>
<td>ln(number)</td>
</tr>
<tr>
<td>FREEFLOAT</td>
<td>Company size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logarithmized number of employees</td>
<td></td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>Free float</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Percentage of total shares in issue available to ordinary investors</td>
<td></td>
</tr>
<tr>
<td>MEDIA</td>
<td>Leverage ratio</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Ratio of total liabilities to balanced sheet total</td>
<td></td>
</tr>
<tr>
<td>MMi*TOTALRETURNLN</td>
<td>Media presence</td>
<td>number</td>
</tr>
<tr>
<td></td>
<td>Number of hits of the companies on Google News</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>Multiplication of MMi and TOTALRETURNln</td>
<td>interaction term</td>
</tr>
<tr>
<td></td>
<td>Pretax income divided by total assets</td>
<td></td>
</tr>
<tr>
<td>SBOARDCHANGE</td>
<td>Supervisory-board member change dummy =1, if a change of member took place in the supervisory board, = 0, otherwise</td>
<td>1/0</td>
</tr>
<tr>
<td>SBOARDMEETINGS</td>
<td>Supervisory-board meetings</td>
<td>number</td>
</tr>
<tr>
<td>SBOARDSIZE</td>
<td>Number of the meetings held in the financial year</td>
<td>number</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Supervisory-board size</td>
<td>number</td>
</tr>
<tr>
<td></td>
<td>Number of supervisory-board members</td>
<td></td>
</tr>
<tr>
<td>TOBINSQ</td>
<td>Industry dummies =1, if company is active in one of 15 industries, =0, otherwise</td>
<td>1/0</td>
</tr>
<tr>
<td></td>
<td>Tobin’s quotient</td>
<td>%</td>
</tr>
<tr>
<td>TOTALRETURNLN</td>
<td>Market value of equity plus book value of debt divided by book value of assets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logarithmized sum of currency gain and dividends</td>
<td>ln(EUR)</td>
</tr>
</tbody>
</table>

Table II. Operationalization of the variables
We performed the regression with fixed effects to control for unobservable company characteristics. Firm fixed effects capture the effect of all time-invariant variables such as industry affiliation on firms’ monitoring effectiveness. The fixed-effects-model controls for omitted variable bias, that is, the risk that omitted time-invariant variables are correlated with explanatory variables such as board interlocks and produce biased estimates of the coefficients. Additionally, the Hausman-test (Hausman, 1978) suggests for most of our models fixed effects.

A common challenge in empirical corporate governance-research is that endogeneity in the variables can distort estimates in ways that make it difficult to detect reverse causality (Andres et al., 2013). This occurs when the independent variable ($MM_2$) correlates with the residual ($E[\mu | X] = 0$) (Börsch-Supan and Köke, 2002). Consequently, we are unable to rule out that it is not multiple directorship that affects monitoring effectiveness, but rather that it is monitoring effectiveness that affects the degree of board interlocks. What we can rule out is reverse causality at the normative level between multiple directorships and excess management compensation, as existing law requires that the supervisory board is responsible for determining management compensation. The fixed-effects-models should also reduce these endogeneity problems (Fernández Méndez et al., 2017).

5. Results

5.1 Descriptive results

In 2017, 69 per cent (2016: 72 per cent/2015: 65 per cent) of all supervisory-board members hold additional seats in another supervisory or executive board. The average number of seats is 2.2 (2016: 2.3/2015: 2.2). Of the chairs, in 2017, 75 per cent (2016: 74 per cent/2015: 77 per cent) are active on another body; they hold an average of 2.3 (2016: 2.8/2015: 2.9) and a maximum of 14 (2016: 13/2015: 11) additional seats. Considering additional seats held only on German supervisory boards, the average is 1.0 (2016: 1.0/2015: 1.1) and the maximum is 8.0 (2016: 7/2015: 6), implying that the legal maximum of ten has not been exceeded (section 100 (2) no. 1 AktG). In addition, 12 per cent (2016: 15 per cent/2015: 9 per cent) of the directors also serve on an executive board of a German firm. Moreover, multiple directorship occurs at an above-average rate among DAX-firms, which amounts to 2.8 seats in 2017 (2016: 2.8/2015: 2.6 seats) and is less frequent TecDAX-firms with an average of 1.5 seats (2016: 1.5/2015: 1.6 seats). The descriptive results (2015-2017) are summarized in Table III.

5.2 Board interlocks and monitoring effectiveness

5.2.1 Excessive management compensation. Table IV illustrates the results of the regression analysis on ExCPay. The estimations show that the relationship between excess pay and board interlocks points to a disadvantageous impact of board interlocks, as such activity decreases the quality of management supervision. The relationship is positive, although only significant in the regression with $MM_2$ ($p < 0.05$).

The regression analysis with ExCPay shows a positive coefficient for all busyness measures but only significant for $MM_2$ ($p < 0.05$). Although our results do not provide any conclusive evidence for the statistically inverse relationship, they do indicate that multiple mandates have a detrimental effect on the excessive board compensation. This supports $H1b$. If the majority of the board members is distracted by additional mandates, a larger proportion of the executive pay cannot be explained by economic determinants. This unexplainable portion is greater if the board’s supervisory effectiveness is poor. The results show that the busyness of board members does not necessarily depend on the number of...
mandates or whether a few have particularly many mandates. Instead, relevant seems to be whether a majority of the members, and thus the committee itself, is distracted.

5.2.2 Pay-for-performance-sensitivity. Table V represents the results of the regression analysis on \( \text{VARCOMPENSATION.EBIT} \). We assume that the executive board’s remuneration, which is not linked to the performance of the company, reflects a weak monitoring effectiveness (Barnea and Guedj, 2009). We expect a higher pay-for-performance-sensitivity and therefore improved monitoring effectiveness if the ratio between variable pay and firm performance (EBIT) is higher. Our findings show that directors with multiple mandates have higher monitoring effectiveness.

The results suggest a positive relationship between the variables and are significant for all interlock measures (\( p < 0.05 \)). These findings confirm that a higher degree of board interlock is associated with a stronger link between variable pay and firm performance. Therefore, a higher degree of board interlock leads to higher monitoring effectiveness, which supports \( H1a \). Compared to the excess pay results, this implies that board interlocks could also have an advantageous effect on the remuneration system. Given higher degrees of board interlocks, the remuneration is more frequently linked to the company’s performance.

5.2.3 CEO turnover-performance-sensitivity. Table VI shows the logit estimation for \( \text{CEOTURNOVER} \). For the purpose of testing the association between board interlocks (\( MM_i \)) and CEO turnover-performance-sensitivity, we focus on the interaction of firm performance (\( \text{TOTALRETURN}_LN \)) with the board interlock variables (\( MM_i*\text{TOTALRETURN}_LN \)). If board interlocks have a beneficial effect on monitoring effectiveness, we expect a negative coefficient of the interaction terms and vice versa.

With respect to the total return, the coefficients on the interaction terms (\( MM_i*\text{TOTALRETURN}_LN \)) are predominantly positive and significant (\( p < 0.05 \)). Furthermore, we find significant negative coefficients for free float (\( \text{FREEFLOAT} \)) for \( MM_{1,3} \).
In the literature, relatively low CEO turnover-performance-sensitivity serves as a proxy for ineffective monitoring by the supervisory board, whose effectiveness suffers from distracted board members (Barnea and Guedj, 2009; Oehmichen, 2011). Fich and White (2003) have shown that the presence of directors serving on multiple other supervisory boards reduces the likelihood of a CEO turnover. The positive coefficients of the interaction terms indicate that busy boards are less efficient monitors, which corresponds to previous studies (Fich and Shivdasani, 2006; Fernández Méndez et al., 2015). Thus, we obtain evidence suggesting that board interlocks are associated with less CEO performance-sensitive turnover; this in turn supports $H1b$, namely, that a high degree of board interlocks is negatively associated with monitoring effectiveness.

### 6. Conclusion

We examined the impact of board interlocks on the effectiveness of monitoring by supervisory boards. We therefore used five board interlocks measures as proxies for the monitoring quality; these measures facilitated the analysis of the relationship between board interlocks and excessive management compensation, pay-for-performance-sensitivity and CEO turnover. The theoretical relationships were discussed by referencing two competing hypotheses. Based on our findings, we reject neither of the hypotheses. We found a low significant relationship between multiple directorships and excessive management pay. This result supports previous research that has confirmed the detrimental effect of board interlocks (Core et al., 1999; Fernández Méndez et al., 2015). In contrast, the relationship between board interlocks and CEO turnover-performance-sensitivity turned out to be inverse and significant, which supports $H1b$ (less effective monitoring). On the other hand, our results show that board interlocks are correlated with a higher pay-for-performance-sensitivity, which supports $H1a$ (more effective monitoring). The results on the effect of pay-for-performance-sensitivity are in line with Fernández Méndez et al., 2015. Our analyses further show that the measures of board interlocks vary in suitability to capture the busyness of directors.

Beyond previous studies conducted on German samples (Möbert et al., 2008; Oehmichen, 2011; Andres et al., 2013), we provided comprehensive and more recent results for common proxies of monitoring effectiveness (excessive management compensation, pay-for-
### Table V. Relationship between board interlocks and VARCompensation.EBIT

<table>
<thead>
<tr>
<th>Variables</th>
<th>$MM_1$</th>
<th>$MM_2$</th>
<th>$MM_3$</th>
<th>$MM_4$</th>
<th>$MM_5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM_i</td>
<td>57.2500*** (−27.2800)</td>
<td>33.0900*** (13.3200)</td>
<td>15.1600*** (−7.4800)</td>
<td>52.0900*** (−26.2600)</td>
<td>1.7110** (−0.8810)</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>3.3860 (−2.8340)</td>
<td>3.9210 (−2.7400)</td>
<td>3.1030 (−2.8230)</td>
<td>3.2390 (−2.8710)</td>
<td>3.1770 (−2.8690)</td>
</tr>
<tr>
<td>FREEFLOAT</td>
<td>−0.5710 (−0.5410)</td>
<td>−0.5660 (0.5250)</td>
<td>−0.5350 (−0.5280)</td>
<td>−0.5130 (−0.5260)</td>
<td>−0.5280 (−0.5250)</td>
</tr>
<tr>
<td>SBOARDSIZE</td>
<td>−2.8620 (−2.6610)</td>
<td>−1.8630 (−2.7420)</td>
<td>−1.9010 (−2.7240)</td>
<td>−2.6770 (−2.6970)</td>
<td>−5.6200*** (−3.3830)</td>
</tr>
<tr>
<td>SBOARDCHANGE</td>
<td>−4.9250 (−9.6260)</td>
<td>−4.9990 (−9.4840)</td>
<td>−5.3470 (−9.7010)</td>
<td>−4.9190 (−9.6230)</td>
<td>−4.4350 (−9.6650)</td>
</tr>
<tr>
<td>SBOARDMEETINGS</td>
<td>0.3000 (−1.5930)</td>
<td>0.6070 (−1.5380)</td>
<td>0.1910 (−1.5850)</td>
<td>0.3560 (−1.5810)</td>
<td>0.3460 (−1.5850)</td>
</tr>
<tr>
<td>ROA</td>
<td>2.2510 (−3.3970)</td>
<td>2.0460 (−3.3480)</td>
<td>2.1570 (−3.3340)</td>
<td>2.1870 (−3.4000)</td>
<td>2.1400 (−3.3780)</td>
</tr>
<tr>
<td>TOTALRETURNLN</td>
<td>−26.1300 (−34.9400)</td>
<td>−25.9700 (34.390)</td>
<td>−28.1000 (−34.9500)</td>
<td>−25.4900 (−35.0500)</td>
<td>−28.4200 (−35.3300)</td>
</tr>
<tr>
<td>TOBINSQ</td>
<td>−208.8000 (−333.7000)</td>
<td>−229.9000 (317.2000)</td>
<td>−169.7000 (−336.8000)</td>
<td>−187.6000 (−340.6000)</td>
<td>−186.5000 (−341.0000)</td>
</tr>
<tr>
<td>COMPANYSIZELN</td>
<td>−2.6350 (−6.8110)</td>
<td>−0.5010 (−6.5220)</td>
<td>−0.3700 (−6.5740)</td>
<td>−2.6690 (−6.6250)</td>
<td>−0.3770 (−6.7070)</td>
</tr>
<tr>
<td>MEDIALLN</td>
<td>−2.2200 (−3.9030)</td>
<td>−4.2100 (−4.3840)</td>
<td>−3.5210 (−4.2600)</td>
<td>−2.4340 (−3.9570)</td>
<td>−3.9500 (−4.4330)</td>
</tr>
<tr>
<td>Constant</td>
<td>(202.5000 −322.3000)</td>
<td>191.3 (319.7000)</td>
<td>181.5000 (−309.9000)</td>
<td>202.1000 (−322.7000)</td>
<td>218.0000 (−321.9000)</td>
</tr>
<tr>
<td>Industry effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Period effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>368</td>
<td>368</td>
<td>368</td>
<td>368</td>
<td>368</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.0540</td>
<td>0.0630</td>
<td>0.0590</td>
<td>0.0520</td>
<td>0.0540</td>
</tr>
<tr>
<td>$F$ (13/126)</td>
<td>0.6000</td>
<td>0.7900</td>
<td>0.5700</td>
<td>0.5500</td>
<td>0.5600</td>
</tr>
</tbody>
</table>

**Notes:** The table presents the fixed-effects regression for estimating pay-for-performance-sensitivity ($VARCOMPENSATION.EBIT$). It shows the impact of board interlocks ($MM_i$) while controlling for leverage (Leverage), free float (FREEFLOAT), board activity (SBOARDSIZE, SBOARDCHANGE, SBOARDMEETINGS) and company characteristics (ROA, TotalReturnln, TobinsQ, CompanySizeln, MediaLN). The coefficients ($\beta$) are provided for all variables. Standard errors in parentheses: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$
Table VI. Relationship between board interlocks and CEO turnover (MM*TotalReturnln)

<table>
<thead>
<tr>
<th>Variables</th>
<th>MM1</th>
<th>MM2</th>
<th>MM3</th>
<th>MM4</th>
<th>MM5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMi</td>
<td>-20.6200** (-10.3100)</td>
<td>-7.1030* (-3.9280)</td>
<td>-2.8290** (-1.4690)</td>
<td>-15.0100* (-9.1970)</td>
<td>-0.5570* (-0.2970)</td>
</tr>
<tr>
<td>MMi*TotalReturnln</td>
<td>3.8440** (-1.6590)</td>
<td>1.1990** (0.6000)</td>
<td>0.5770** (-0.2480)</td>
<td>2.8390** (-1.4640)</td>
<td>0.0958** (-0.0436)</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.2030 (-0.1540)</td>
<td>0.0845 (0.1350)</td>
<td>0.1830 (-0.1480)</td>
<td>0.1010 (-0.1420)</td>
<td>0.1170 (-0.1300)</td>
</tr>
<tr>
<td>FREEFLOAT</td>
<td>-0.1060** (-0.0489)</td>
<td>-0.1470** (0.0571)</td>
<td>-0.0877* (-0.0492)</td>
<td>-0.1045** (0.0541)</td>
<td>-0.1119** (0.0543)</td>
</tr>
<tr>
<td>SBOARDSIZE</td>
<td>-0.3630 (-0.4670)</td>
<td>-0.2700 (0.4650)</td>
<td>-0.3550 (-0.4790)</td>
<td>-0.3330 (-0.5240)</td>
<td>-0.0242 (-0.6140)</td>
</tr>
<tr>
<td>SBOARDCHANGE</td>
<td>0.7480 (-0.6600)</td>
<td>0.4040 (0.6630)</td>
<td>0.3860 (-0.6350)</td>
<td>0.8480 (-0.6350)</td>
<td>0.4330 (-0.6310)</td>
</tr>
<tr>
<td>SBOARDMEETINGS</td>
<td>-0.0709 (-0.1970)</td>
<td>-0.0444 (0.1710)</td>
<td>-0.0831 (-0.1860)</td>
<td>0.0270 (-0.1750)</td>
<td>0.0467 (-0.1700)</td>
</tr>
<tr>
<td>ROA</td>
<td>0.3990 (-0.1460)</td>
<td>0.0580 (0.1280)</td>
<td>0.1100 (-0.1370)</td>
<td>-0.0198 (-0.1300)</td>
<td>-0.0262 (-0.1360)</td>
</tr>
<tr>
<td>TOTALRETURNln</td>
<td>-3.0650 (-2.0290)</td>
<td>-2.1710 (-1.5890)</td>
<td>-2.4560 (-1.7690)</td>
<td>-2.2890 (-1.9900)</td>
<td>-2.6720 (-1.9300)</td>
</tr>
<tr>
<td>TOBINSQ</td>
<td>-12.3300 (-16.1900)</td>
<td>2.1510 (14.7400)</td>
<td>-10.4000 (-15.8900)</td>
<td>-1.9880 (-16.4500)</td>
<td>-5.0230 (-17.3400)</td>
</tr>
<tr>
<td>COMPANYSIZELN</td>
<td>0.1210 (-1.7230)</td>
<td>-1.6180 (-1.5940)</td>
<td>-0.2230 (-1.8210)</td>
<td>-1.1620 (-2.6770)</td>
<td>-0.1290 (-2.7330)</td>
</tr>
<tr>
<td>MEDIA LN</td>
<td>-0.6370 (-0.5760)</td>
<td>-0.3870 (0.5670)</td>
<td>-0.4860 (-0.5590)</td>
<td>-0.6220 (-0.5740)</td>
<td>-0.5040 (-0.5300)</td>
</tr>
<tr>
<td>BOARDCOMPENSATIONln</td>
<td>-0.9120 (-0.8420)</td>
<td>0.6820 (0.5020)</td>
<td>-0.7110 (-0.8520)</td>
<td>-1.1340 (-0.8480)</td>
<td>-0.9420 (-0.8090)</td>
</tr>
</tbody>
</table>

Industry effects yes yes yes yes yes
Period effects yes yes yes yes yes
Observations 368 368 368 368 368
Chi² (15) 28.2600** 24.8900** 27.3000** 26.3600** 30.1400***

Notes: The table presents the fixed-effects-logit regression for estimating the probability of CEO-Turnover (CEOTurnover). It shows the impact of board interlocks (MMi) while controlling for leverage (Leverage), free float (FreeFloat), board activity (SBoardSize, SBoardChange, SBoardMeetings), company characteristics (ROA, TotalReturnln, TobinsQ, CompanySizeln, MediaLN), management compensation (BoardCompensation), and the interaction effect of interlocks and firm performance (MMi*TotalReturnln). The coefficients (βj) are provided for all variables. Standard errors in parentheses: *** p < 0.01; ** p < 0.05; * p < 0.1
performance-sensitivity and CEO turnover-performance-sensitivity). Our results, indicating that board interlocks lead to an increasing excessive compensation, are consistent with Oehmichen (2011) and Andres et al. (2013).

Regarding implications for the German legislation, our findings contradict a rigorous limitation of multiple directorships. The descriptive analyses disclose that only 0.1 per cent of the directors reach the legal limit of serving on ten boards. This suggests that board members are conscious of the increased demands associated with their supervisory tasks and therefore abstain from accumulating mandates.

Germany recently introduced a gender quota for supervisory boards (section 96 (3) AktG). Future research could examine how this quota affects the number of supervisory seats held by female directors. A study based on measures of board interlocks could reveal whether the law has increased multiple board appointments of females and thereby evaluate the impact of the quota.

Another route for future research could use measures of multiple directorships in connection with attendance of board meetings. This could elucidate the impact of overload associated with serving on multiple boards. There is, however, a reporting gap in this respect owing to a lack of legal reporting requirements why many firms provide limited information on supervisory-board attendance. This insufficient information basis renders (currently) such calculations impossible.

Additionally, future research may examine whether the different demands of sitting on both executive and supervisory boards are a significant factor in the relationship between multiple board appointments and the monitoring effectiveness. Closer scrutiny of this aspect should identify the different impacts that the type of appointment might have and to what extent a combination of sitting on both types of bodies might benefit the monitoring. Moreover, future research could consider certain characteristics of supervisory-board members, such as the experience that supervisory board members have acquired through previous positions and whether such experience moderates the impact of board interlocks. Previous board appointments serve as a controlling indicator, ensuring that possibly beneficial effects of multiple directorships are not causally linked.

In addition, future research could take a closer look at the connection with various positions on the supervisory board. For example, to investigate the influence of multiple directorships of independent board members. Nevertheless, there is no statutory provision in Germany that requires the naming of independent supervisory board members in the reporting. The German Corporate Governance Code has such a recommendation, but no legal status. Therefore, this may lead to further challenges regarding the integration of independent members in our research context.

References


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