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## **FIRM'S DEMAND FOR INSURANCE: AN EXPLORATIVE APPROACH**

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### **ABSTRACT**

This paper addresses the question, what influences the insurance demand of companies and examines the influence of managerial risk aversion in this decision process. An explorative research approach based on qualitative data analysis is applied to explore the factors influencing the insurance related decision behavior in organizations. Using interviews and observations of firm's insurance managers, the results identify interdependencies between factors of insurance demand, such as ownership structure, managerial discretion, volatility of earning, size, services of the insurer and business diversification which allows to propose a framework of contextual factors affecting company's insurance demand. Within this framework, the data imply managerial risk attitudes as decisive factor in the decision process about insurance demand in companies. This explorative study enriches the existing theories of firms' insurance demand and addresses feedback from practice into theory.

Keywords: firm's insurance demand framework, explorative study, practice-theory gap

JEL classification: D12, D21, D23, C93

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## 1. INTRODUCTION

Organizations have a broad continuum of methods and processes available to handle risk. One of the most important and relevant techniques in organization's risk management is the transfer of risk on insurance companies. Firms are the largest insurance holders world-wide; major parts of the total property and casualty/non-life insurance premiums are paid by companies (OECD, 2012). Insurance plays an integral part in a company's risk management and by transferring risk onto an insurance carrier, the company can release funds for an efficient allocation. Despite the importance of insurance for companies as well as the importance of commercial lines of business in the insurance and reinsurance industry, the demand of companies for insurance is yet not explained by a coherent theoretical fundament.

Individual insurance demand can sufficiently be explained by the concept of risk aversion. In contrast, the insurance demand of companies cannot be explained by a single coherent theory. However, since Mayers and Smith's (1982) seminal article, some theories have been developed, that aim to explain the fact, that firms purchase insurance contracts. The drivers of firms' risk management behavior can be categorized into agency conflicts, costs of diversification or financial distress, tax optimization strategies, the regulatory background of the industry, the insurers comparative advantage in risk and loss related services and the risk bearing of risk averse stakeholders.

From the early 1990s until today, several empirical studies have put these theories to test. The results of these studies show varying support for some of the hypotheses, depending on data availability, composition of the sample and the variables. Moreover, only very few feedback processes between empirical and theoretical research in the area of firm's insurance demand are observed. Rarely any insights from empirical research are informing the development or amendment of theory. The varying results and low replicability of empirical studies (see also Stulz, 1996; Tufano, 1996; Smith, 2004; Regan and Hur 2007) might point out that there are effects in a firms' practice influencing the risk management behavior and the demand for corporate insurance which are still to be considered..

In this article one of the most fundamental questions according to Dorfman and Tippins (2006, p. 66) in risk management and insurance education is addressed: "Why is the insurance transaction made?" Furthermore, they also observe that risk management and insurance

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research involves real-world issues which would benefit from being addressed by multiple approaches also beyond the quantitative science paradigm.

“Often we do not completely understand why insurance is purchased in many cases where it is not legally mandated. It is entirely possible that research based on marginal utility analysis can misdirect attention from more realistic answers, and retard more potentially profitable avenues of investigation” (Dorfman and Tippins, 2006, p. 66).

This paper also aims to address the theory-practice gap in finance research (see e.g. Graham and Harvey, 2001) and to overcome the separation of empirical and theoretical research with regard to firm’s insurance demand in order to broaden the understanding of what influences firm’s insurance demanding behavior. Therefore, an explorative approach to research factors affecting firm’s insurance demand is introduced.

This paper looks at the question, what influences the insurance demand of companies. My study addresses the mentioned deficiencies and aims at (1) exploring influencing factors on firms’ insurance demand, (2) examining the influence of managerial risk aversion in this decision process, and (3) integrating the factors into a framework of firms’ insurance demand. To explore the factors influencing this behavior, I follow an explorative qualitative research approach as this method is considered to be better suited to enhance existing theories by taking a fresh perspective. As this method provides a rigorous research process it is possible to overcome inconsistencies in theories by discovering phenomena in a real-world environment.

The remainder of this paper is organized as follows. The second section provides a short overview of previous literature and the theory on the corporate demand for insurance, before section three describes the research context and methods as well as the case studies. Based on this, section four discusses the results and takes a step toward building a framework of insurance demand in section five. The paper ends with a conclusion.

## **2. SUMMARY ON FIRMS INSURANCE DEMAND THEORY**

Within the finance and risk management literature, there is considerable research theoretically and empirically on factors influencing the insurance demand of companies. The theoretical

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research primarily aims to overcome constraints of the theory of the firm and corporate finance which does not leave room for risk management measures and insurance demand. Under the assumption of perfect markets, the owners of corporations are able to diversify their portfolio and therefore to eliminate the unsystematic, insurable risk (Fama and Jensen, 1983; Mayers and Smith, 1982). This means that enterprise risk management and the purchase of insurance contracts does not create value for the owner, moreover, insurance premiums reduce the owner's cash flows from dividends (e.g. Jensen and Meckling, 1976; Fama and Jensen, 1983; Mayers and Smith, 1982). But going beyond the assumption of perfect markets, the existence of risk incurs costs in a company, taking risk averse stakeholders, transaction costs, bankruptcy costs, agency conflicts between managers and owners as well as between equityholders and debtholders, regulation of labor markets and imperfect (capital-) markets into account.

Focusing on transaction costs, Eeckhoudt, Gollier and Schlesinger (2005) show that the insurer has a comparative advantage in risk taking. They discuss, that the risk transfer to an insurance company leads to an efficient risk allocation. Additionally, a potential risk fee of the stakeholders might be covered by the loading fees of the insurance contract. Mayers and Smith (1982) conclude, that the proportion of risk averse stakeholders is relevant for the amount of insurance demanded. Besides the pure risk transfer, the purchase of an insurance contract provides additional services connected with processing claims, loss prevention, risk assessment etc. They have a comparative advantage in dealing with risks. Therefore, these services may also provide motivation to buy insurance (Mayers and Smith, 1982; Doherty and Smith, 1993). Mayers and Smith (1982), Smith and Stulz (1985) as well as Froot, Scharfstein and Stein (1993) discuss that purchasing insurance is beneficial with respect to transaction costs of bankruptcy and show that hedging or insurance help reducing the volatility of revenues and therefore reduce the probability of bankruptcy. Another aspect discussed are corporation taxes. Mayers and Smith (1982) and MacMinn (1987) derive, that for particular tax regimes insurance contracts might have an alleviating effect on payable corporation taxes.

Other factors discussed in the literature to theoretically motivate corporate insurance demand are caused by information asymmetries. The agency conflict between owner and managers arises mainly due to different diversification opportunities of the two parties and the separation of ownership and control (Jensen and Meckling, 1976). It is also known as the "risk differential"

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between agents and principals (Beatty and Zajac, 1994). This, as well as the agency conflict between equityholders and debtholders which can lead to phenomena such as underinvestment and asset substitution, are discussed to be alleviated by insurance demand (Mayers and Smith, 1982; 1987; MacMinn, 1987; Myers, 1977; Froot, Scharfstein and Stein, 1993). Finally, the size of the company or its ownership structure are considered to be associated with corporate insurance purchasing behavior (Berle and Means, 1932; Mayers and Smith, 1982; Doherty and Smith, 1993), but these are also connected with transaction costs and information asymmetries.

Numerous empirical studies have aimed at testing these factors influencing if and how much insurance is demanded by corporations. Most of the studies focus on commercial property insurance (i.e. Yamori, 1999; Hoyt and Khang, 2000; Zou, Adams and Buckle, 2003; Regan and Hur, 2007; Krummaker and Schulenburg, 2008; Aunon-Nerin and Ehling, 2008), but there is also work on other lines of business such as directors and officers insurance (Core, 1997; Boyer and Delvaux-Derome, 2002), reinsurance (Mayers and Smith, 1990; Garven and Lamm-Tennant, 1997; Cole and McCullough, 2006; Reißaus, 2006), terrorism insurance (Thomann, Pascalau and Schulenburg, 2012; Michel-Kerjan, Raschky and Kunreuther, 2015), export credit insurance (Klasen, 2014) and business interruption insurance (Hoppe, Gatzert and Gruner, 2017). Besides focusing directly on insurance demand by firms, there are also various empirical studies and surveys in the wider area of risk management and the use of derivatives (e.g. Nance, Smith and Smithson, 1993; Fatemi and Glaum, 2000; Liebenberg and Hoyt, 2003; Bodnar et al., 2011; Bodnar et al., 2016)).

Some empirical findings have been consistently replicated. But there are still several areas with contradictory results and open questions. Firm size for example has been regularly empirically supported to negatively influence insurance demand, arguing larger firms demand less insurance,<sup>1</sup> but the underlying reasons for this are difficult to analyze. One key issue is that most of the empirical studies focus on publicly listed stock corporations. As corporations globally disclose only minimal data on risk exposures and management as well as insurance contracts and while information on the insurance demand of not privately held firms is difficult to access without survey methodologies, it is difficult for researchers to obtain comparable and

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<sup>1</sup> But Doherty and Smith's (1993) case study on British Petroleum's (BP) risk management strategy shows that BP has a comparative advantage relative to the insurer in bearing their large risks. This is due to the size of BP and its related risks, which exceed the capacity of insurance companies.

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consistent data. Public stock corporations are immanently larger companies as a minimum size is required to be eligible to list at a stock exchange. The results regarding firm size might also be caused by interdependencies with ownership structures as large stock corporations often have a more widespread ownership than firms with other legal forms (see also Hoppe, Gatzert and Gruner, 2017, p. 562). Additionally, a whole population of smaller companies as well as companies of different ownership structures is regularly excluded from empirical studies even though they represent the overwhelming majority of companies in many economies.

Furthermore, a number of studies propose managerial risk aversion as a decisive factor influencing the demand for insurance in firms (e.g. Tufano, 1996; Grace and Rebello, 1993, Amihud and Lev, 1981; Ehling, 1993), but this has not yet been consistently included in testing (Hoppe, Gatzert and Gruner, 2017). Concluding, Tufano (1996) stated that “(...), we cannot reliably test whether firms’ risk management practices conform with existing theories” (Tufano, 1996, p. 1097).

The objective of this paper therefore, is to address some of the remaining gaps and shortcomings mentioned above by employing an inductive, bottom-up, explorative approach, which has not yet been often used in risk management and insurance research. The aim of this approach is to take a different perspective on the question why firms demand insurance as proposed by Dorfman and Tippins (2006).

### **3. RESEARCH CONTEXT AND METHODS**

#### **RESEARCH STRATEGY**

While the predominant research paradigm in finance and insurance research is positivistic, thus, following a deductive, explanative spectrum of methodologies, there are a few approaches to incorporate the inductive more interpretive paradigm with qualitative-explorative research. One of the first well-known examples is the study of Lintner (1956) on dividends. Despite his research has generated findings which are still valid today, the method has not been proven very popular in finance as well as risk and insurance research (Dorfman and Tippins, 2006).

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The study reported here was designed to identify factors which play a role in the decision-making process of companies when deciding about the purchasing of insurance and to add to existing theories. Its goal is to identify the specific factors influencing the corporate insurance decision, the interdependencies between those factors and how these factors are integrated into a framework of corporate insurance demand. To to achieve this, an explorative-qualitative approach is applied. The strength of this methodology is, that it is taking a different, bottom-up perspective and grounds the insights of emerging concepts in the empirical reality of companies. By this, it might establish or contribute to middle-range theories (Siggelkow, 2007). While both research paradigms have their unique strengths and weaknesses, the quantitative is considered to be more suitable to address questions of prevalence, generalizability and calibration; whereas the qualitative approach fits well to address issues of description, interpretation and explanation (Lee, Mitchell and Sablinski, 1999). As in the area of corporate insurance demand the quantitative paradigm has been predominant, it might be beneficial to apply methods from the qualitative spectrum to shed light on the remaining gaps, questions and to further explore the underlying phenomena of the theories.

Qualitative data analysis focuses on data of any kind, qualitative and quantitative und thus requires a complex and systematic analysis (Kuckartz, 2016). To apply a rigorous method and to assure objectivity, reliability and validity in this approach, I follow a structured inductive approach, as suggested by e.g. Grounded Theory (Glaser and Strauss, 1967) or Qualitative Content Analysis (Mayring, 2000; Kuckartz, 2016). These approaches offer a set of several coordinated methods supporting the development of new or the enrichment of existing theories grounded in empirical data and are widely applied in social science. I therefore use multiple case studies for this explorative research based upon the qualitative data analysis and following the theoretical framework of Eisenhardt (1989).

#### CASE SELECTION AND SAMPLING

In order to discover broad and diverse insights in what influences the insurance focused decision-making process, I chose firms with a variety of specifications concerning legal form and ownership structure, size and industry. The companies in the sample represent industries as



automotive, energy, food, tourism, entertainment electronics, beauty, entertainment and media, airport, insurance (see table 1).

**TABLE 1**  
**Description of the Case Studies**

Industry	legal form/ownership description	founded	Turnover	Employees	Analysis
<b>Tourism</b>	public stock corporation (AG) largest tourism and travel company in the world, owns six european based airlines, several cruiseships, hotels, travel agencies and tour operators	1923	18 bn Euro	77,000	Interview, documents
<b>Media</b>	partnership limited by shares / familiy (foundation) dominated (SE & Co. KGaA) largest multinational mass media conglomerate, incl. TV, music, print, education, services	1835	16 m Euro	111,000	interview, documents
<b>Energy</b>	public stock corporation (AG) one of the world's largst electric utility providers, power generation and energy trading, active in 30 countries; founded via merger in 2000	2000	111 bn Euro	58,000	interview, documents
<b>Insurance</b>	corporation under public law life and non-life insurance, active mainly in south-east Lower-Saxony Germany with up 50% market share in some lines of business	1754	450 m Euro	1,300	2 day internship, 2 interviews, documents (public & internal)
<b>Airport</b>	limited corporation (GmbH) dominated by City and State ownership (35% each, one private corporate shareholder 30%) amongst the 10 largest German airports, base for four airlines, mainly European and leisure destinations	1952	130 m Euro	5,200	interview, documents
<b>Food</b>	limited partnership (GmbH & Co. KG) company in family control, produces range of biscuits and cakes in five European facilites and exports to 55 countries	1889	520 m Euro	2,500	interview, documents
<b>Beauty</b>	sole proprietor hairsalon	2004	n/a	3	interview
<b>Automotive</b>	public stock corporation (AG) since 2009 one controlling shareholder with 46% automotive manufacturing company with focus on tyres (the world's 4th largest manufacturer), brake systems, interior electronics, automotive safety, powertrain and chassis components, etc.	1871	30 bn Euro	205,000	3 interviews over 3 years (2008, 2010, 2011), documents
<b>Audio electronics</b>	limited partnership (GmbH & Co. KG) high-end audio electronics for consumer, professional, and business purposes such as microphones, headphones, telephony accessories and avionics headsets; manufacturing and R&D facilities in Europe and the USA	1945	630 m Euro	2,500	Interview, documents

Each case included at least one semi-structured interview with the top level insurance program manager or in absence of such a position with similar decision makers like the owner. Seven cases consisted of one interview and the document analysis. The case in the insurance company

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comprised two interviews, one with the asset and liability manager and one with the risk manager as well as two observation days in the asset risk management department in order to observe the risk management behavior.

Another case with an automobile supplier was a longitudinal study with three interviews over a period of two and a half years. This company experienced a significant change of the owner structure from widespread to a majority owner via a hostile takeover. Moreover, the financial situation developed from a very wealthy situation to highly indebted and back to a less critical status. The first interview was conducted in April 2008 before the takeover and before the financial wealth due to an acquisition and the financial crisis worsened. The second interview was done in April 2010 after several new arrangements of the board and management which were initiated by the new majority shareholder. Since the end of 2008, besides changes of the CEO, the position of the CFO changed four times until the end of 2010. A third interview was conducted in November 2010 in order to complete the analysis with influences after the situation with new owners, management and as well the financial situation had settled.

According to Pratt (2008, p. 856), “Qualitative research is great for addressing “how” questions – rather than “how many”; for understanding the world from the perspective of those studies (...).” Thus, qualitative studies do not seek generalizability, but each concept that emerges from the data stands in its own right, such as Sigglekow’s “talking pig” (Sigglekow, 2007; Kacynski, Salmona and Smith, 2014). Accordingly, the sampling strategy followed the concept of theoretical sampling and the process of data collection and analysis continued until theoretical saturation was reached (Corbin and Strauss, 2008). That means, cases were collected until the insight emerged that new cases would not add essentially to the discovering and understanding of relevant concepts and dimensions (Corbin and Strauss, 2008; Pratt, 2008). This was achieved already after 6 cases, but further interviews were conducted until 9 case studies were collected.

#### DATA COLLECTION AND ANALYSIS

This study was designed to identify the effects that influence the corporate decision to buy insurance and aims to develop propositions, “...in which a previously developed theory is used

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as a template with which to compare the empirical results of the case study” (Yin, 2003). Data was primarily collected by interviews and complemented with data from other sources, such as newspaper and journal articles, press releases, annual reports and observations. These documents were collected in order to analyze the context of the participant company and to identify significant changes, processes and key events with potential impact on the risk management philosophy and decision processes. By including interview and other data it is possible to conduct data triangulation to assure the validity of the study (Patton, 2002; Yin, 2003). The interviews were semi-structured open-ended interviews and lasted about 40 to 70 minutes. The interviews were opened by some guiding questions<sup>2</sup> but the conversation was open and aimed to let the interviewee speak. These were encouraged to describe the decision-making processes connected with risk management and insurance demand in their companies. Additional questions concerning the known phenomena of corporate insurance management were asked to every manager/owner. After each interview I transcribed the conversation verbatim. As the case studies and interviews were conducted in German I translated the interview excerpts to English.

Altogether, more than 10 hours of interviews were recorded, resulting in 82 pages of transcribed interviews. Additionally, for all companies (except the sole proprietor) annual reports for at least the past two years were analyzed as well as uncounted webpages, press releases and press coverage and other public documents.

Similar to Zeier Roeschmann (2014), a bottom up approach was used to conceptualize the findings from the qualitative text analysis to the propositions, which build the fundament for the proposed framework of firm’s insurance demand.

The data analysis was conducted by coding the data in a three step-process. That means, every interview underwent several rounds of analysis. First, the data was analyzed by open coding, line-by-line and word-by-word, depending on the data (Wassermann et al., 2009; Strauss und Corbin, 1990). Every statement was read and evaluated, if it contained explicit or implicit meaning with respect to the area of research interest. Then a label was assigned to the meaning of the found information in the data (Miles and Huberman, 1994). Additionally, in-vivo coding

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<sup>2</sup> See appendix 1.

was applied, using a word or short phrase taken as it is from the data, for concepts emerging which were very distinct or concepts which were later assigned a new label. After this first round of coding, 210 codes were assigned to categories. In a second step, axial coding established connections between categories and concepts. And with the third and final step of selective coding the main categories are defined and the connections and interdependencies between the categories are mapped (Strauss and Corbin, 1990).<sup>3</sup> The description of the findings will be following these final categories, even though this is not how the analysis as a process went.

#### 4. FINDINGS: THE ROLE OF INSURANCE IN A FIRM'S CONTEXT

This section begins by describing the findings that emerged from the data about corporate insurance demand. To provide transparency about how I went from data to results I include an overview of selected statements from the case studies for each category. This allows to give an insight in the statements that emerged from the analysis and coding processes, how the statements and concepts are consolidated to categories.<sup>4</sup> The emerging theoretical constructs and relationships are summarized as propositions.

##### OWNERSHIP STRUCTURE

The statements shown in table 2 refer to risk aversion of a sole proprietor. They show a strong sense of unity of the private and the business person with aversion to the risk of bankruptcy which is mitigated by insurance.

**TABLE 2**  
**Selected Statements on Sole Proprietorship's Risk Taking**

<b>Selected Statements</b>	<b>Company</b>
But now I know that I will make it and I don't think too much about that. An entrepreneurial bankruptcy is definitively a private concern.	sole proprietor, beauty sector
I have insured everything. Actually, everything that is possible.	sole proprietor, beauty sector
(...), that I am an entity with this enterprise actually, (...).	sole proprietor, beauty sector

<sup>3</sup> The reliability of the coding was checked by using co-analysts. Three doctoral students were given samples of the data and were asked to check the coding framework by repeating the coding procedure. They were also encouraged to identify data where they had the impression that the suggested coding did not fit. Concluding on this co-analysis samples only minor discrepancies were discovered and adapted in the analysis.

<sup>4</sup> Firm or family names were removed by the author in order to guarantee anonymity and replaced by [...].

As owner and the manager are one person, who is subject to unlimited liability and unable to diversify, sole proprietorship's insurance demand can adequately be explained by the individual risk aversion of the owner. The insights from this example are also supported by the relevant literature (e.g. Arrow, 1974; Mayers and Smith, 1982). Therefore, it can be stated, that the insurance demand and risk management behavior of sole proprietorships can be explained by the individual risk aversion of their owners.

**Proposition 1:           The insurance demand of sole proprietorships is determined by the individual risk preference of the entrepreneur.**

One key point of interest is to explore the influence of the owners in non-owner managed firms. Therefore, questions on the role of the influence of the owner on risk management and insurance decision processes were asked.<sup>5</sup> The first three statements shown in table 3 exemplify that for public stock corporations the impact of the shareholders does not seem to be significant for insurance and risk management decisions.

**TABLE 3  
Selected Statements on Ownership Structure**

	<b>Selected Statements</b>	<b>Company</b>
4	[Influence of the owners plays] rarely a role. Shareholders are only interested in risks that play a role in the media.	public stock corporation, automotive
5	From the side of the owners I would not see any influence. We have a relative wide spread [ownership] in the market.	public stock corporation, energy
6	So the owners do not concentrate on this topic yet, but I know that the [...] Group has a different insurance philosophy.	public stock corporation, automotive
7	As the owners are also part of the executive management, they play an important role.	limited partnership, audio electronics
8	We concentrate on what we can, and the family [...] does not want to have external partners, so they do not like to go on the markets to get capital. Thus, you see, that ... with such a strategy risk potentials are limited.	limited partnership, audio electronics
9	The interest of the owner for me is synonymous for the interest of the entrepreneur.	partnership limited by shares, media
10	Nobody thinks about the risk, but you handle your own things with more care as when they are borrowed.	partnership limited by shares, media
11	By insurance coverage we protect the owner's equity. That was in the forefront and not the protection of the respective manager. And there you can see, that the owners take influence on how and what should be insured.	limited partnership, food
12	We always find, if a municipality is among the owners, at some of our subsidiaries municipalities hold shares, that point is important. We recognize a very high risk aversion. They would like to insure everything (...).	public stock corporation, energy
13	From there, especially when municipalities are shareholders, then they take an active part in influencing particular internal decisions.	limited liability company with large public body ownership, airport
14	And the family [...] is a little bit conservative. They do not want to have speculative things.	limited partnership, audio electronics

<sup>5</sup> See the guiding questions for the interviews in appendix 1.

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Further insights can also be drawn from the long-term case study with the automotive company. Traditionally, the company was held widespread internationally with no controlling ownership stake. After the company was targeted by an unfriendly takeover, a new majority shareholder took influence on the board compositions and management decisions. However, this did not go as far as to the insurance decisions. As statement 6 in table 3 exemplifies, the new majority owner did not look into the insurance strategy and management of the company despite them having a different insurance philosophy with their own company. It is interesting to mention, that the acquirer was a much smaller privately held company.

According to these insights, shareholders of publicly listed corporations do not interfere significantly in the insurance focused decision making and seem to worry mainly about risks which due to their publicity in the media would have the potential to impact on the share price. This was similarly stated by other insurance managers in public stock corporations (see statements see 4 to 6, table 3).

But there are contrasting behaviors in family-owned or family dominated limited companies. Here we can observe, that the owners can be decisive for risk management and insurance demand. In particular, as sometimes owners are part of the management or board. The selected statements 7 to 11 and 14 in table 3 exemplify this. We can see that they do not only interfere in the decision making, but that the underlying preferences and motives are different from those owners of widely-held stock companies as risk diversification opportunities are limited.

Two of the observed companies have public authorities as part-shareholders. The insurance managers in these companies recognize that public shareholders behave differently from other owners concerning risk management and show a greater risk aversion, as shown in statements 12 and 13 (table 3).

The observations described above show that the influence of ownership on insurance and risk management decisions differs across company forms. The insight that emerges is that, across legal forms and ownership structures, the discretion of the manager differs especially in the allocation of control between owner and manager. In enterprises with widespread ownership, for example public stock corporations, managers have more freedom to pursue their own preferences or to make more independent decisions. But if the ownership structure is more closely held, owners are more able to control managers' behavior and managers have to take

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the owners' preferences into account. As shown, this was particularly observed in the companies with large proportions of family owners. In some of these companies owners are also managers.

Prior literature also hypothesizes that ownership plays a role in determining the demand of insurance, but there usually a direct relationship is modelled. The interviews with insurance managers of several firms in this study suggest, that ownership structures determine the freedom of action and decision making of the management which then further step impacts on the insurance purchasing behavior. Managers in stock corporations with widespread ownership reported that they have broad freedom to decide on their own. Contrarily insurance managers in limited corporations or limited partnerships argued that the influence of the owner on the insurance strategy is more concrete. Additionally, the data show that the discretion of the manager is more limited when owners also are on the board. Therefore, based on these findings, I propose an indirect relationship of ownership via managerial discretion.

**Proposition 2a:        The ownership structure determines the discretion of the manager.**

**Proposition 2b:        The influence of the owner on the insurance related decision process depends on the managers' discretion represented by the ownership structure.**

#### FIRM SIZE AND DIVERSIFICATION

The data show arguments indicating that the size of a company determines the professionalism of the insurance strategy. The statement of a limited corporation insurance manager acknowledges that there are differences depending on firm size (see statement 15 as well as statement 16, table 4). Larger firms mostly have organized insurance departments and standard processes dealing with all questions regarding insurance contracts, risk and claim assessments. This gives support to the assumption that those firms use more sophisticated methods in order to calculate their risk appetite, cost of risk and to manage the risk transfer. This might result in lower insurance demand.

**TABLE 4**  
**Selected Statements on Firm Size**

	<b>Selected Statements</b>	<b>Company</b>
15	But especially in small and midsize enterprises the insurance philosophy is very different from that in large corporations. A certain thinking has to be there.	limited partnership, food
16	If I had two power plants, my risk appetite is certainly different as if I were a 80 bn company. From that point, this is a developing process.	public stock corporation, energy
17	They play a relatively large role. We use insurers and other service providers to evaluate risks. One example are fire evaluations, where one tries to pull away blinders and also to benefit from the broad knowledge of the insurer resp. service providers.	public stock corporation, automotive
18	If you have grown bigger, that means risk in the corporation ..., risk diversification in the own corporation is possible, if you can take larger risks on the balance sheet and the company is not struggling, that has influence on the [insurance] policy, of course.	public stock corporation, automotive
19	It certainly plays a role how the company is organized, how the structures are, whether there are large units, small units.	public stock corporation, energy

Other managers argued similarly, but also pointed out, that the real services of the insurance company, linked to the risk transfer are an incentive to buy insurance (e.g statement 17, table 4).

Also other authors hypothesize firm size as an influencing factor on corporate insurance demand, that smaller firms benefit more from the insurers' services in risk evaluation, claims assessment and loss management (Doherty and Smith, 1993; Mayers and Smith, 1982, Mayers and Smith, 1990; Hoyt and Khang, 2000).

But the data of this study also suggest that size might mainly be a proxy to operationalize competencies in risk and claims evaluation and management. As the interviews suggest, it also seems to be influenced by the ownership structure. More ownership-controlled companies and family companies tend to be less professional in their risk and insurance management processes than stock corporations. But as companies with these legal forms in average are smaller than stock corporations, the connection of size and insurance management seems to be supported by the interview data.

**Proposition 3a: The size of a company influences the relevance of insurance services.**

**Proposition 3b: The relevance of insurance services influences the demand of insurance.**

The case studies provide additional findings on the influence of firms' size. The data show that the size of the firm is relevant as larger companies are able to realize in-house diversification



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(see statements 18 and 19, table 4). This seems to be true especially for firms with different sources of success, such as several manufacturing bases or different scopes of business. This allows geographical or technological risk diversification and therefore less insurance is needed.

Based on the mentioned arguments of the interviews in the study, I follow the latter. The data show that the size itself is not necessarily the factor which influences the insurance demand but that the possibilities to diversify the sources of business success are relevant. As the influence of size is different in this study than in the previous theory, I propose:

**Proposition 4a:       The size of a company influences the opportunity to diversify the risky sources of success.**

**Proposition 4b:       The amount of business diversification influences the demand for insurance.**

#### FINANCIAL STRENGTH AND VOLATILITY OF EARNINGS

Another item that shows in the case studies is the influence of the financial status of a company on the demand for insurance. But we find different perceptions with different companies. Some managers state, that they do not see a significant impact of their company's financial situation on the decisions to insure more or less or e.g. to increase or decrease deductibles (particularly statements 20 to 22, table 5). It is noticeable that these statements come mainly from private limited companies.

**TABLE 5**  
**Selected Statements on Financial Strength and Volatility of Earnings**

	Selected Statements	Company
20	First we check, how much premium we would save and then determine the deductible or excess. (...) [The impact of the financial strength] would only be feasible if we would really have a risk management philosophy.	limited partnership, food
21	No, not really, because we have basic risks, against which we have to protect, and we can vary the excess a little bit, but finally we have nearly the same excess for years, independently of the economic situation of the company.	limited liability company with large public body ownership, airport
22	But to insure more or less, that is not directly associated. And let me say that the insurance premium is only a small proportion of the entire expenses. ... Therefore, the business success is not directly associated.	limited partnership, audio electronics
23	(...) we manage risks a bit more carefully now [2010]. In 2008 we were a corporation that sat on a big moneybag.	public stock corporation, automotive
24	That depends on the size of the company but as well on the new financial strength.	public stock corporation, automotive
25	The [...] at group level that has other deductibles than a smaller company. I would like to say that it depends on the size, measured as turnover for example.	public stock corporation, tourism
26	So at the moment the creditors take a closer look on this.	public stock corporation, automotive
27	We are more rigorous in risk management right now and we take a look at all deductibles, whether these fit in this environment or if they have to be adjusted downwards. (...) The balance sheet cannot tolerate too much volatility (...).	public stock corporation, automotive
28	We try to protect the balance sheet.	partnership limited by shares, media
29	That is interconnected with volatility. Companies with a poor financial status have a stressed situation regarding the balance sheet and cannot afford high fluctuations from one year to another. Therefore, costs for more risk transfer are taken into account in order to achieve more security. Definitely.	public stock corporation, automotive
30	Important is only the financing of the larger risks, that might mess up the balance sheet. And for every company and every size it is different what might mess up the balance sheet.	limited partnership, food
31	Intelligent business policy is to avoid volatility.	public stock corporation, automotive

Other decision makers mention, that there is an influence of the financial situation of the company (see e.g. statements 23 to 25, table 5). The long-term case study with the automotive corporation sheds further light into this particular topic. The corporation was using their big financial cushion in early 2008 to acquire a company. This as well as the financial crisis that emerged later in 2008 put strain on the company's finances and the debt ratio went up significantly. Consequently, they became target of an unfriendly takeover introducing a new majority shareholder. Until the third interview in 2011 the automotive company had recovered financially with a positive outlook. As the company's finances fluctuated significantly, some adjustments to the insurance behavior have been made, such as a more careful risk management and a reduction of deductibles where appropriate (see statements 23, 24 and 27, table 5). Furthermore, there was also external pressure from creditors (statement 26, table 5).

Summarizing, we see two different streams of behavior dependent on the type of ownership of the company.

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For mid-size firms or owner-management firms we do not see a change of insurance purchasing behavior in the case studies. As some statements indicate this could be due to a less professional and sophisticated risk management in those enterprises.

For larger companies and stock corporations the statements imply a relationship between financial strength of a company and insurance demand, for example through the ability to take higher excesses, to avoid insurance for high frequency risks or to use other internal sources of risk financing.

I suggest including proposition 5, as this allows for a continuum of different strengths of behavior.

**Proposition 5:           The financial status of a company influences the demand for insurance.**

Another topic that arose when discussing finances with the insurance managers was balance sheet protection by reducing the volatility of earnings. According to the interviewed managers insurance is an important tool to achieve this (see statements 27 to 31, table 5).

However, it has to be remarked that evidence for the argument on reducing income volatility only emerged out of the case studies from large international corporations. Insurance managers in companies with other ownership structures or legal forms have not mentioned to pursue a strategy to avoid earnings volatility. For them the protection of the equity seems to be more important. Therefore, based on the data it may be assumed that it is not that important for companies with more concentrated ownership to avoid earnings volatility. This is consistent with the theory that stock corporations use earnings volatility as a signal to capital markets in order to provide information for potential investors about management quality and insolvency risk and to reduce the costs of external capital (Froot, Scharfstein and Stein, 1993; Grace and Rebello, 1993; Breeden and Viswanathan, 1998). And this is not that important for not publicly traded or more closely held companies. But both strategies take the preferences of their owners, due to their limited individual risk diversification opportunities, into account. For shareholders of stock corporations dividends (which are directly dependent on positive earnings) are more important whereas for closely-held firms the stake of equity is more in the focus. With insurance both aims are supported, and a lower earnings volatility also helps to maintain the firm's equity.

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**Proposition 6a:**        **Insurance is demanded in order to minimize the volatility of earnings.**

**Proposition 6b:**        **The management of the volatility of earnings depends on the ownership structure. The more widespread the more insurance is demanded for this reason.**

The results of the study provided no evidence that firms use insurance to decrease the tax burden. Taxes were not mentioned at all by the participants without being directly asked. When being asked, the managers stated, that taxes do not play a role in their insurance purchasing considerations.<sup>6</sup> But this result might be framed by the German context of corporation tax, with limited opportunities for loss carry forwards and backwards.<sup>7</sup> However, this notion is consistent with the findings of Graham and Rogers (2002), whose results did not find support that firms hedge to respond to tax convexity but to increase debt capacity. They assume that the incentive to hedge tax convexity is small relative to other hedging incentives. Similarly, Boyer and Delvaux-Derome (2002) also argue against taxes as decisive factor for insurance demand in both, progressive as well as non-progressive schemes.

**Proposition 7:**        **The insurance demand of companies is not influenced by tax related aspects.**

#### MANAGERIAL RISK AVERSION

The insights in the case studies put an emphasis on the influence of the individual risk attitude of the risk management related top-managers. Changes in the CFO position for example seem to have great impact on the corporate risk management and insurance purchasing behavior. The following statements exemplify the findings (see table 6):

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<sup>6</sup> This is exemplified by this statement: “For this the dimensions are too small,”(corporation under public law, insurance).

<sup>7</sup> German companies are taxed on federal level (corporations pay corporate income tax of currently (2017) 15.825% incl. solidarity surcharge, partnerships etc. are subject to the personal income tax) and on municipal level (trade tax for all business operations, which might differ between regions and cities).

**TABLE 6**  
**Selected Statements on Managerial Risk Preferences**

	Selected Statements	Company
33	Therefore, it depends on the acting person. (...) And then certainly the individual attitude, (...), plays definitively a role.”	partnership limited by shares, media
34	When we talked last time, my boss was very risk seeking, so he always said, insurance is only the parachute. (...) I could imagine that Mr. [...] today has a different view	public stock corporation, automotive
35	So I have denoted that the Group has substantially changed its insurance policy or risk transfer policy and that has to do with the persons acting. I think there are certain people who are very risk averse and others are more willing to take risks on the balance sheet. And the change in the executive board had a dramatic impact.	public stock corporation, automotive
36	Therefore, the individual attitude plays despite all numbers a little role.	public stock corporation, energy
37	It [the insurance engineering] crumbles away a bit at the moment, as we will be having new decision makers.	limited partnership, food

In all interviews, it shines through, that the individual risk attitude of the respective managers plays the key role in the decision process of if, what and how should be insured or not. Although this study does not seek to find generalization by replication of a large number of findings, it has to be mentioned, that every of the interviewed managers indicated that the individual attitude of the decision maker regarding insurance demand is influencing the amount of insurance coverage and the extent of deductibles. Some interviewees mention that the internal processes rely on milestones, risk parameters etc. in order to professionalize the risk management and insurance processes in the company. This standardization helps to minimize the influence of the managerial risk attitude. But the interviewed insurance managers also stated that for example risk parameters or thresholds can more or less easily be changed by the decision makers. These insights apply to all different ownership types and legal forms of companies studied.

The findings regarding managerial risk attitudes and the interdependencies to insurance demand are quite strong. Hence it can be argued that the role of the manager and his or her risk attitude is more relevant than considered in the current theoretical framework. As outlined in section 2, previous literature regards the managers’ risk attitude mainly by focusing on agency conflicts to the owners as well as contract and compensation designs in order to alleviate this conflict. But emerging from the empirical study here, we can assign a more decisive role to the manager based on her/his individual risk aversion. Tufano (1996) already argued that managers care more about their own welfare than that of their enterprises’ owners and he further assumes that managers use their influence on risk management decisions in order to moderate the limitations of their personal risk diversification possibilities.

The results of the present study give strong emphasis on the role of the manager as decision-maker concerning insurance strategy and contract. Hence I suggest:

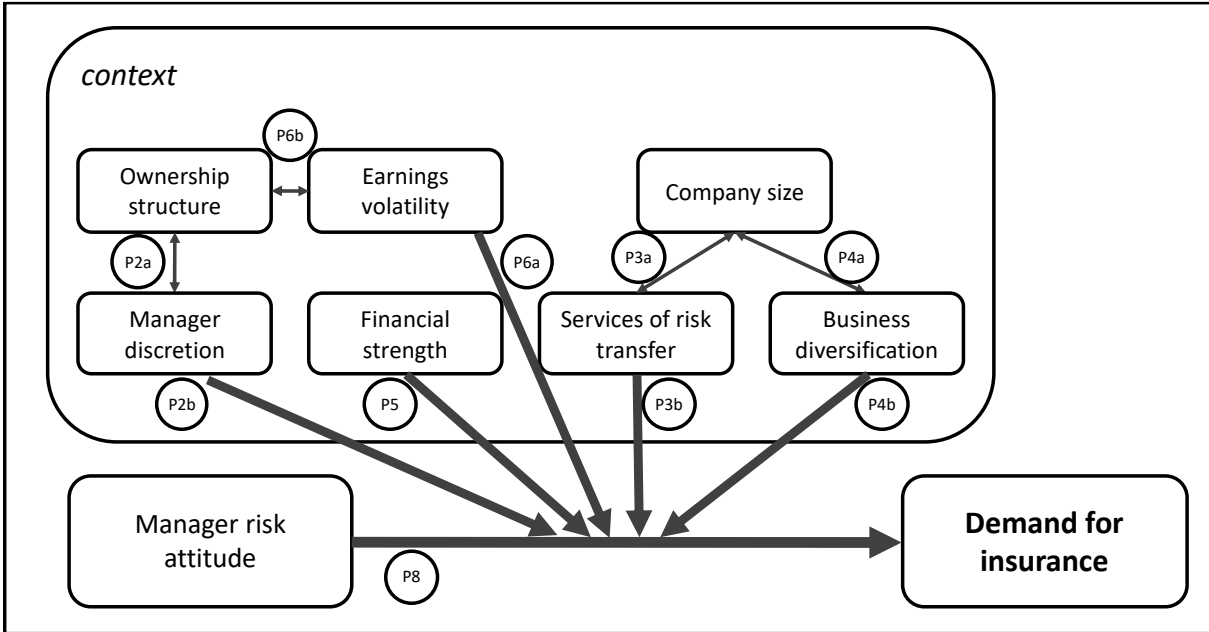
**Proposition 8:**        **The demand for insurance is influenced by the individual risk attitude of the decision-maker.**

In the following chapter, the findings for each section are summarized and discussed from a more integrated view.

**5. TOWARD A FRAMEWORK OF FIRM’S INSURANCE DEMAND**

The findings described before make apparent, that some factors are directly influencing the demand for insurance while others have an indirect influence. Furthermore, we observe factors which lie within the context of the company such as ownership structure, size or financing, whereas managerial risk preferences represents its own distinctive factor. Visualizing the findings and the interdependencies between the factors, the following figure summarizes the findings of this study exploring factors influencing firm’s demand for insurance.<sup>8</sup>

**FIGURE 1**  
Framework on firms’ insurance demand



<sup>8</sup> An overview of all propositions is provided in appendix 2. Proposition 1 does not appear in the framework as it assumes the entrepreneur and the private individual to be one entity which is driven by individual risk aversion. But this could also form an extreme form of propositions 2a and 2b. Proposition 7 is not included in the framework as no evidence emerged that companies consider taxes to play a role in the demand for insurance.

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The key contribution of this proposed framework is that it builds and integrates relationships between the factors that influence the demand for insurance. Prior literature and empirical studies have assumed direct influence of each of the factors on insurance demand.

Here it emerges, that ownership structure does not per se influence the firm's insurance demand, but it determines managerial discretion for decision making and the importance to reduce earnings volatility. Both of these factors then take effect on the amount of insurance purchased.

Another insight from the interview analysis relates to the size of a company. Again, it emerges that the factor size exerts its effect on insurance demand through two other factors, which also have long been hypothesized by prior literature. The analysis here shows, that size firstly determines the importance of the services that are connected with the risk transfer when buying an insurance contract and this plays a role directly when making insurance choices. Secondly, the data depict that size also influences a company's opportunity for business diversification and this consequently impacts on the amount of insurance needed.

And lastly, this framework finally offers a place for the individual risk aversion of the decision maker. So far, the contributions of behavioral decision theory, especially of prospect theory are neither regarded in the literature nor formally linked (see also Wiseman and Gomez-Mejia, 1998). Some approaches have been made in order to take behavioral aspects into account (e.g. March and Shapira, 1987; Cyert and March, 1992; Wiseman and Gomez-Mejia, 1998), but a real consideration of managerial risk attitudes in the framework of corporate insurance demand has not been made. Through the interview study the managerial risk attitude clearly emerges as an important factor of firm's insurance demand, which could be integrated into the proposed framework.

In summary, the case study investigation has helped developing a framework of firm's insurance demand. This framework draws on prior literature (theoretical and empirical) as well as new aspects from the case study analysis. One strength of this approach is that it allows to gather insights from unique as well as typical cases. However, results from case study research are not generalizable in the sense of conventional quantitative research. Furthermore, as the sample is limited and idiosyncratic, more research is needed to establish if the findings are representative for firms globally in general.

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## 6. CONCLUSION

This study followed an exploratory approach to identify factors influencing firms' insurance demand and to find interdependencies between these factors in order to suggest a first framework of firm's insurance demand. As there are still areas in the theory on corporate insurance demand which are, although theoretically defined, not consistently validated, build the motivation for this study. Furthermore, this research was also motivated by a theory-practice gap and aimed to include insights from practice in an inductive bottom-up approach.

This study investigates the corporate insurance demand behavior in the corporate environment by conducting an inductive, qualitative study based on interviews with insurance decision makers and triangulation with additional data. It makes two main contributions:

First, this study contributes to theory and literature by focusing on factors influencing firms' insurance demand. While previous research has developed several determinants on the corporate insurance demand, relationships between these determinants and the influence of managerial risk attitudes are left unanalyzed. Therefore, this study is one of the first that develops propositions for the components of firms' insurance demand by a qualitative analysis of the research subjects. Support was found support for corporate insurance demand being affected by ownership structure and managerial discretion, financial strength and volatility of earnings, services of the insurer, size of the firm and business diversification. Moreover, the case studies identify interdependencies between these factors. This allows to move toward a framework of contextual factors affecting corporate insurance demand.

Second, this study contributes to link traditional theory of the firm with approaches of behavioral decision theory. The data indicate a prominent role of managerial risk attitudes in the decision process about insurance demand in companies. Previous literature on corporate insurance demand considers the managers individual risk attitude mainly in the focus of agency conflicts, the managers' risk attitudes influence in the decision process is mostly neglected. This study identifies managerial risk attitudes as decisive factor on the insurance demand of the company. The results also show that the individual risk attitude of the manager is influenced by the context factors and build a context specific risk attitude on the insurance demand decision. This context specific risk attitude can differ regarding different insurance decision problems. These results expand the conceptual basis of firms' insurance demand by putting the managerial risk attitude and the context dependent risk attitude in perspective.



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This study has several limitations. First, the sample of firms only consists of German companies. Therefore, some of the findings may reflect the national institutional background, e.g. the business tax scheme. Second, although supported by the literature, the findings were derived mainly from interviews, mostly at a single point of time. And third, the sample consisted only of a selection of nine companies.

Further research could address some of these limitations. Additional methods in a qualitative research setting, such as extended observation and participation in relevant company departments might generate additional insights and enlarge the data collection. Moreover, further research may focus on the nature of the interdependency of context and managerial risk attitude, as this could not be analysed by the present study. Additionally, testing and validating the proposed framework model using an explanatory, quantitative approach is necessary. This would also address the rather small selection of companies in this study and help generalizing the findings and the relationships in the proposed framework.

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## APPENDIX 1: GUIDING INTERVIEW QUESTIONS

(translated from German)

1. At [Company], how do you define risk?
2. Please describe how the Risk Management in your company is organized.
3. How do you describe your company's risk attitude in general? Are there factors, that influence this risk attitude?
4. Which role does the instrument of insurance play in the company's risk management? How does the insurance program look like?
5. Which are the decisive factors to decide what is insurance and how retention levels are set?
6. Which role does your [the decision makers] individual risk attitude play for these decisions?
7. Which role do the owners play for decisions regarding managing risks? How are top management decisions influenced??
8. Which characteristics of insurance are valued particularly by your company?
9. How did the dealing with risks at [Company] develop over time and how did the understanding of the decision makers change accordingly??
10. How can the value of risk management be determined? How can the value of insurance be determined? Which role play underwriting cycles? What impact does insurance have on the value of the company?
11. Which key challenges are companies facing in risk management now and in the future?

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## APPENDIX 2: OVERVIEW OF PROPOSITIONS

- Proposition 1: The insurance demand of sole proprietorships is determined by the individual risk preference of the entrepreneur.
- Proposition 2a: The ownership structure determines the discretion of the manager.
- Proposition 2b: The influence of the owner on the insurance related decision process depends on the managers' discretion represented by the ownership structure.
- Proposition 3a: The size of a company influences the relevance of insurance services.
- Proposition 3b: The relevance of insurance services influences the demand of insurance.
- Proposition 4a: The size of a company influences the opportunity to diversify the risky sources of success.
- Proposition 4b: The amount of business diversification influences the demand for insurance.
- Proposition 5: The financial status of a company influences the demand for insurance.
- Proposition 6a: Insurance is demanded in order to minimize the volatility of earnings.
- Proposition 6b: The management of the volatility of earnings depends on the ownership structure. The more widespread the more insurance is demanded for this reason.
- Proposition 7: The insurance demand of companies is not influenced by tax related aspects.
- Proposition 8: The demand for insurance is influenced by the individual risk attitude of the decision-maker.