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ERLANGEN-NÜRNBERG

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Nadine Gatzert, Joan Schmit, Andreas Kolb

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Department of Insurance Economics and Risk Management

Friedrich-Alexander-University of Erlangen-Nürnberg

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Nadine Gatzert, Joan Schmit, Andreas Kolb*

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ABSTRACT

Reputation risk is becoming increasingly important, especially with the rapidly growing influence of social media, heightened scrutiny on reputation risk by banking and insurance regulators, and reputation's impact on organizational value. Insurers have responded to this development only recently by offering new reputation risk insurance solutions. The aim of this paper is to present the first detailed academic analysis of these new insurance policies, including examination of the risks insurers face in offering such coverage. We also offer a conceptualization of reputation risk in an insurance and risk management context with focus on exposures, perils, and hazards. Our analysis indicates that loss identification and measurement generate the greatest challenges to insurers in providing reputation risk coverage. Lack of experience as well as the complexity of the chain of reputation risk events related to reputation insurance coverage present insurers with significant challenges in making this a viable line of business.

Keywords: Reputation risk; insurance; operational risk; accumulation risk

JEL Classification: G20; G22; G32

1. INTRODUCTION

With notable recent events such as the $59 billion in firm value lost to BP shareholders from the reputational effects of the 2010 Gulf Coast oil spill (see Aon Oxford Metrica Reputation Review, 2011) and the direct recognition of reputation risk by banking and insurance regulators, new emphasis is being given to reputation-damaging events. An organization's reputation generally is taken to derive from fundamental organizational activities and is subject to a wide array of potentially damaging events. In this sense, reputation risk is at the crux of organizational value. Insurers are responding to the importance of managing organizational reputation through introduction of reputation-specific insurance policies.[1] The introduction of this new product deserves attention, both because of the essential nature of organizational

* Nadine Gatzert and Andreas Kolb are at the Friedrich-Alexander-University (FAU) of Erlangen-Nürnberg, Department of Insurance Economics and Risk Management, Lange Gasse 20, 90403 Nuremberg, Germany, Tel.: +49 911 5302 884, nadine.gatzert@fau.de, andreas.kolb@fau.de. Joan Schmit is at the University of Wisconsin-Madison, American Family Insurance Chair in Risk Management and Insurance, jschmit@bus.wisc.edu. The authors would like to thank an anonymous referee and Harris Schlesinger for valuable comments and suggestions on an earlier version of this paper.

[1] Note that in contrast to existing product recall coverage, the new reputation risk policies tend to have far broader coverage triggers instead of protection solely against loss associated with product recall.

reputation to ultimate success, as well as the difficulties of defining and measuring reputation and any resulting loss due to a reputation-damaging event. That is, insurance is both of great value and difficult to offer effectively. In this paper, therefore, we provide the first presentation and evaluation of the current insurance solutions, their coverage and provisions, and an analysis of the challenges and risks to insurers associated with selling reputation risk insurance. We also offer a conceptualization of reputation risk in an insurance and risk management context with focus on exposures, perils, and hazards.

The majority of the academic literature on reputation has focused on developing a consistent understanding of the meaning and manifestation of reputation as the "perceptions" held by external observers of an organization, including how an organization creates a reputation, and the effects (both positive and negative) of an organization's reputation (see, e.g., Rindova et al., 2010; Lange et al., 2011). We therefore begin with a discussion of the definition and conceptualization of reputation in Section 2, where we present components of reputation risk: exposures, perils, and hazards. We also briefly discuss the importance of reputational risk mitigation. In Section 3 we detail specifics of the few reputation risk policies currently available, taking into account the underlying elements of reputation risk. An analysis of the significant risks and major challenges to insurers in providing reputation risk coverage is presented in Section 4, including concerns over accumulation and spillover risk, loss estimation and pricing, and moral hazard. Conclusions and thoughts on future research comprise the final section of the paper.

2. COMPONENTS OF REPUTATION RISK

As depicted in Figure 1, the components of reputation risk are naturally comprised of exposures, perils, and hazards. The intent of reputation risk management is to (1) identify these components; (2) assess them in terms of likelihood and severity; and (3) identify and implement the most effective risk management means to achieve organizational objectives through risk control and risk financing techniques. To begin, then, we must identify and understand the underlying exposures, perils, and hazards.[2]

In general, reputation risk exposures derive from underlying organizational characteristics and representations. Perils are wide-ranging, often connected with other loss exposures as well. Hazards tend to generate from organizational culture, values, and governance. We discuss each below in far greater detail to understand the relevance of insurance to manage this particular source of risk.

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[2] Regan (2008) offers a valuable discussion of reputation risk management without consideration of the insurance coverages which we focus on in this paper (see also section on "reputation risk mitigation").

Figure 1: Elements of reputation risk

Reputation exposure
➢ Reputation conceptualization ➢ Reputation measurement ➢ Reputation loss / effects of damaged reputation
Reputation damaging perils
➢ Reputation risk ➢ Operational loss events
Reputation hazards
➢ Reputation antecedents/drivers ➢ Reputation loss control

2.1 Underlying reputation exposure

2.1.1 Reputation conceptualization

A large body of literature exists regarding reputation, primarily in the management and marketing fields, with recent growing interest in the financial domain as well, especially as an outgrowth of analysis of operational risk events (see Perry and deFontnouvelle, 2005; Cummins et al., 2006; Micocci et al., 2009; Gillet et al., 2010; Fiordelisi et al., 2013 and 2014; Sturm, 2013). Much of the existing literature on reputation can be categorized as a debate about reputation's meaning and measurement (see Clardy, 2012, and Rindova et al., 2005). In the following, we summarize key elements of the existing knowledge, focusing especially on aspects affecting risk management and the provision of insurance.

Charles Fombrun is at the center of most of the current literature on reputation. His 1996 book is referenced by nearly every researcher in the field, and his founding of the journal *Corporate Reputation Review (CRR)* provides an outlet for significant amounts of research. In the inaugural edition of the CRR, Fombrun and Van Riel (1997) offer six distinct interpretations of reputation from the perspective of six distinct academic disciplines, which are shown in Table 1.

Table 1: Discipline-based conceptualizations of reputation **(**see Fombrun and Van Riel, 1997)

Discipline	**Reputation**	**Source**
Economic	Either traits or signals	Perceptions of firms held by external observers
Strategic	Assets and mobility barriers	Derive from unique internal features of firms
Marketing	Cognitive and affective meaning given to cues received about an "object" which are usually products	Nature of information processing, resulting in "pictures in the heads" of external subjects
Organizational	Derives from an organization's culture and identify, which shape a firm's business practices and the kinds of relationships mangers establish with key stakeholders	Rooted in the sense-making experiences of employees
Sociological	Aggregated assessments of firms' institutional prestige and describe the stratification of the social system surrounding firms and industries	Social constructions that come into being through the relationships that a focal firm has with its stakeholders
Accounting	The value of intangible assets	Investments in branding, training, and research build important stocks of intangible assets

Although differences continue to exist in defining "reputation," agreement on some elements also has formed. In particular, general agreement exists that reputation refers to social cognitions, such as knowledge, impressions, perceptions, or beliefs (see Rindova et al., 2010) and that they reside in the minds of external observers or stakeholders (see Clardy, 2012, and Rindova et al., 2010). The distinction of "external observers" is relevant to distinguish reputation from identity. Identity typically is considered to be the impressions held by internal stakeholders, primarily the workforce (see Davies et al., 2001).

Reputation, in contrast with identity, arises out of external observers' impressions or awareness of the organization. Clardy (2012, p. 301) concludes that "Reputation involves both beliefs and judgments held by people in the general public or special niche groups outside the organization." Lange et al. (2011) go further to indicate that three elements are associated

with reputation: general awareness; awareness of something specific; and favorability of that awareness. Furthermore, distinguishing between the drivers or "antecedents" of reputation and measures of reputation itself is important in defining insurance coverage. As Rindova et al. (2010, p. 614) point out, for instance, it is important to "distinguish between the antecedents of reputation (i.e., internal and external investments, actions, and attributes through which reputation is developed) and the social cognitions—of a specific stakeholder group or across stakeholder groups—that constitute firm reputation." These considerations become quite important when considering means to measure reputation damage for insurance indemnification purposes, and we make such distinctions in the following discussion.

2.1.2 Reputation measurement

Given the definition of reputation as a "cognition," which is unobservable, its measurement is not inherently straight forward. Reputation measurement represents the underlying exposure for an insurance policy, and therefore requires an approach that is reasonably clear, will limit the existence of moral hazard, and will provide sufficient protection to the policyholder.

Clardy (2012) presents the literature as providing five possibilities. First is to consider reputation as general knowledge or beliefs about an organization. Measurement typically is made through surveys or questionnaires, and sometimes customer satisfaction. Second is to consider reputation as an evaluative judgment, with measurement typically generated by an external rating organization such as *Fortune*'s listing of "America's Most Admired Companies." In the academic domain, the corollary would be the MBA program rankings by *BloombergBusinessWeek* or *The Financial Times*. Reputation as brand knowledge and awareness is the third of Clardy's (2012) categories, with measurement again through surveys, interviews, or the Q Score (also called a Q rating, Q factor or just Q), which measures brand awareness by assessing the familiarity and appeal of some targeted referent. Surveys are further used in the fourth construct of reputation, personality, whereby this approach seems to be in disfavor. The final of Clardy's (2012) categories is to define reputation as an intangible asset. Among the available measures are Tobin's Q, accounting Goodwill, brand equity or similar measures that focus on the market value as representative of external perceptions. The finance literature offers several examples of employing Tobin's Q to measure reputation and also to evaluate risks associated with reputation in terms of reputational losses (see, e.g., Cummins et al., 2011). We discuss this literature below. Not included in Clardy's (2012) set is Bowd and Bowd's (2001) reputation capital measure, which combines Fombrun and Gardberg's (2000) "reputation quotient" based on a set of attributes measured through stakeholder surveys with a financial value of intangible assets similar to Tobin's Q.

Clardy's (2012) list is generally consistent with Lange et al. (2011), who note that most of the literature focuses on "being known for something." They present the measures of reputation as including: archival third-party ratings; positive and negative feedback ratings for sellers; media rankings such as *Fortune's* "most admired" organizations; survey of buyers' perceptions; corporate social responsibility scores; media visibility; and accounting measures such as asset quality.

2.1.3 Reputation loss[3]

Most of the literature associated with the measurement of reputation loss (in the sense of financial consequences of a damaged reputation) focuses on the organizational effects of a damaged reputation. Perry and deFontnouvelle (2005), for instance, note the following potential consequences of reputation damaging events, although they do not test for them specifically:

- Loss of current or future customers leading to lost revenues or increased (marketing) costs, or both;
- Loss of employees or managers within the organization, increasing hiring costs and/or reducing revenues through a decline in productivity;
- Reduction in current or future business partners who would add to organizational value through improved efficiency or effectiveness (lower costs, higher revenues);
- Increased costs of financial funding via credit or equity markets;
- Increased costs due to government regulations, fines, or other penalties.

Perry and deFontnouvelle (2005) measure the effects of reputation damage caused by operational loss events through market value reactions (using cumulative abnormal returns) that exceed the announced operation loss. In this way Perry and deFontnouvelle (2005) follow the finance literature (see Section 4.3 for a more detailed discussion) and assume that the excess loss represents the value of a damaged reputation. They do not measure the considered firms' reputation before and after an event. As an alternative, Cummins et al. (2011), use Tobin's Q to measure firm reputation (see also previous subsection), and then study the market-value effects of operational risk events as loss due to damaged reputation. Market-value effects, therefore, are often used to reflect an organi-

[3] Reputation risk can be considered a speculative risk, given evidence from the academic literature that reputation can affect a firm's performance and that a positive reputation can support the persistence of above-average profits (see, e.g., Caruana, 1997; Roberts and Dowling, 2002; Schwaiger, 2004; Gardberg, 2006). Because we focus on insurance in this paper, however, we will discuss loss potential rather than the full range of loss and profit generating from an organization's reputation.

zation's reputation value as well as reputation losses. We do not, however, find covered insured loss defined these ways, as discussed below.

2.2 Reputation damaging perils

2.2.1 Reputation risk

Both Solvency II for insurers and Basel II for banks incorporate reputation risk into their regulatory framework and offer direction in understanding the underlying perils (or "triggers" of coverage in insurance contracts). Under Solvency II, the Comité Européen des Assurances (CEA) and the Groupe Consultatif Actuariel Europeen (2007) define reputation risk as the:

"Risk that adverse publicity regarding an insurer's business practices and associations, whether accurate or not, will cause a loss of confidence in the integrity of the institution. Reputational risk could arise from other risks inherent in an organization's activities. The risk of loss of confidence relates to stakeholders, which include, inter alia, existing and potential customers, investors, suppliers, and supervisors."

This definition suggests a triggering event causing "adverse publicity," and further allows for that publicity to be accurate or not. This definition is consistent with the notion that "prominence," or "being known" as a critical component of reputation. Most insurance policies connect closely with this definition. Basel II for banks is somewhat similar, employing the definition:

"The risk arising from negative perception on the part of customers, counterparties, shareholders, investors, debt-holders, market analysts, other relevant parties or regulators that can adversely affect a bank's ability to maintain existing, or establish new, business relationships and continued access to sources of funding" (see Basel Committee, 2009, p. 19f).

The Basel II definition was altered and expanded upon substantially following the 2007 financial market upheaval. Specific reference is now made to "A bank should identify potential sources of reputation a risk to which it is exposed. These include the bank's business lines, liabilities, affiliated operations, off-balance sheet vehicles and the markets in which it operates." The Basel II 2009 enhancements recognize the breadth of influence reputation events have on a bank's overall activities, potentially affecting earnings, liquidity, and the bank's capital position. Particular emphasis is given to the bank sponsorship of various types of activities, including securitization, or asset/fund management.

In both instances, the regulators allow for a broad array of events to cause damage. In this way, both regulatory bodies identify reputation risk as a "risk of risks."

2.2.2 Operational loss events

The majority of empirical studies of reputation risk have focused on operational loss events as the underlying cause for reputational losses. This may be due to regulatory requirements for banks (beginning with the introduction of Basel II) and insurers (as expected under Solvency II) to maintain capital sufficient to cover operational risks, encouraging entrepreneurial data collection efforts[4] of operational loss events. The resulting data sets in turn generate opportunities for researchers to test various theories regarding operational risks. As a result, most research on reputation-damaging events considers effects of operational loss events only. In general, the empirical analyses suggest that certain types of operational loss events yield market value reductions in excess of the loss itself. Researchers have taken the excess to represent reputation damage (see also Section 2.1.3). The types of operational events most likely to yield reputational losses are fraud, and events affecting clients and products (see, e.g., Gillet et al., 2010), which will be discussed in more detail in Section 4 regarding the risks and challenges of insuring reputation risk.

2.3 Reputation hazards

2.3.1 Reputation antecedents

Taking reputation to be defined as the social cognitions about an individual or organization that reside in the minds of external observers or stakeholders, one can identify factors or "antecedents" that generate an organization's reputation. These factors can add great value when managed well, and also can represent significant hazards when managed poorly. In general, reputation antecedents or drivers are the internal and external investments and actions through which reputation is developed (see Rindova et al., 2005; 2010).

Fombrun et al. (2000) list six primary corporate reputation determinants: emotional appeal, products and services, financial performance, vision and leadership, workplace environment, and social responsibility. The effects of each determinant depends on the (multiple) audience groups affected by the overall activities. For instance, an organization might sell high-quality products yet treat the environment poorly. The interaction of these elements will determine the overall organizational reputation (see Rhee and Valdez, 2009, p. 151, with reference to Fombrun et al., 2000). Furthermore, the relationship may be multi-faceted in that the driv-

[4] We note Algo FIRST through IBM and OpRisk Analytics through Fitch Risk Management.

er affects reputation and reputation affects the driver. Financial performance, for example, is taken as a signal of quality (that is, reputation), and perceived quality will affect financial performance. These relationships, therefore, are complex and can be mutually reinforcing.

Among the additional factors shown to affect reputation are strategy, such as advertising intensity and diversification (see Rhee and Valdez, 2009), corporate culture and identity (see Fombrun and van Riel, 1997), company age and longevity (see Sorensen and Stuart, 2000), and the media (see, e.g., Rindova et al., 2005; Scott and Walsham, 2005).

Some of this literature rests on the economic principle that reputation damage (and thus a potential (financial) reputation loss) occurs from failure to meet stakeholder expectations. This literature goes back to Klein and Leffler (1981) and extended by Shapiro (1983) with an economic model in which a firm chooses either to spend resources in the current period in order to meet contract performance promises and maintain its reputation for long-term profits or violate its promises and take the extra short-term profits that result due to lower resource expenditures. In this sense, risk drivers are those that make it more likely that firms fail to meet expectations. Scandizzo (2011) offers both internal and external risk drivers. Internal risk drivers, using ISO 26000 guidance on social responsibility (2010), include corporate governance, human rights, human resources, community involvement, environment, and business behavior. Because the firm has some control over these areas, they are considered internal drivers. The external drivers suggested by Scandizzo (2011) include project, counterparty, country, and sector risks.

Scandizzo's (2011) set of drivers is consistent with literature in the corporate social responsibility (CSR) domain, which sometimes equates reputation with CSR ratings or rankings (see Shiu and Yang, 2011). Scott and Walsham (2005) do not take a purely CSR approach, yet suggest that changing social norms affect the perceptions and expectations of external observers. Where previously reputation may have generated almost exclusively from financial performance, today's norms require organizations to consider a much broader set of expectations to consumers, employees, and the public at large.

Furthermore, as Scott and Walsham (2005) and others suggest, the rapid transmission of information through technological advances has altered the reputation landscape tremendously. In today's environment of twitter, tumblr, and other means to spread ideas widely and quickly, and without editorial barriers, the effect on an organization can be large and occur with lightning speed. As regularly noted, reputations may take years to build and hours or days to destroy. The actual loss from a damaged reputation, therefore, may ex-

tend over many periods, a condition generally atypical for most traditional commercial insurance protection.

Several empirical studies offer additional input towards identification of reputation risk drivers. The Chartered Institute of Management Accountants (2007) conducted a study with the Strategic Risk Magazine in 2006 and found the following factors as relevant causes of reputation damage, which are also of relevance for the risk identification process:

- Cultural: legal and ethical risk
- Managerial: executive and operational risk
- External: association and environment risk

They further concluded that reputation risk is rarely given systematic attention in large part because of the challenge in evaluating the cost of any damage. They offer a systematic process to measure and report both reputation and reputation risk.

Rhee and Haunschild (2006) further test whether a good reputation itself is a hazard. They test the market responses to product recalls for the U.S. automobile industry between 1975 and 1999 and observe three outcomes. First, firms with good reputations suffer larger relative market reactions to product recalls than do firms with poor reputations. Rhee and Haunschild (2006) associate this outcome with a greater level of disappointment by the consumer. That is, highly regarded firms demonstrate a greater distance between truth and perception upon the announcement of a recall. Those negative effects, however, are buffered in instances when products are not easily substituted. Similarly, the effects are muted for firms that are specialists rather than generalists. Such industry and firm characteristics, therefore, will affect the degree of market reaction to reputation-damaging events.

Rhee and Haunschild (2006) did not test for “spillover,” the condition when the behavior of one or a few members of an industry affect other industry members that have not acted similarly; however, their results suggest that spillover could be relevant. In the insurance and banking domain, Cummins et al. (2011) found evidence of such spillover, which affects insurers in two ways. One is their own reputation risk and the other is the exposure for the insurance protection they offer to others (see also Section 4).

The determinants that potentially impact the extent of the reputational loss following an operational loss event are examined in Fiordelisi et al. (2013) based on an event study in the banking sector with different time periods before and after the operational loss event.

Testing for various determinants, their empirical analysis provides evidence 1) that the likelihood of a reputational damage increases for higher bank profits and larger size, and 2) that the likelihood of reputational damage is reduced for a higher level of invested capital and intangible assets. The authors further point out that the determinants are impacted by the selected time period.

2.3.2 Reputation risk mitigation[5]

Reputation hazards are also affected by reputation risk mitigation strategies. In particular, reputation risk management incorporates potential actions to prevent a reputation-damaging event as well as to moderate the influence of the event once it has occurred (see Rhee and Valdez, 2009). Regan (2008) divides the risk mitigation process into three categories: (1) manage the event (pre- and post-event), (2) manage the media, and (3) manage the stakeholders. Loss prevention activities focus on knowing the cognitions or expectations of external parties and taking action to meet those expectations. Among the prevention techniques, therefore, are efforts to market the organization truthfully rather than over-stating the quality of products and services. Strong internal processes and awareness of external influences offer additional opportunities to implement effective loss control. Such actions ought to reduce the likelihood of an event that could lead to negative publicity.

If such an event does occur, however, the organization still has an opportunity to prevent negative publicity, and further to limit the backlash once it is published (see, e.g., Conference Board, 2007; Regan, 2008). Development and successful implementation of an effective communication plan with the media and key stakeholders are considered critical components of a risk mitigation strategy (see Regan, 2008, p. 193).

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[5] Risk mitigation is a critical component of effective risk management, and certainly affects the incidence and effect of reputation-damaging events. Our intention with this section is to connect such actions with reputation drivers. For a full discussion of reputation risk management, please refer to the Chartered Institute of Management Accountants (2007) and Regan (2008).

3. INSURANCE AGAINST REPUTATION RISKS

3.1 Reputation risk insurance coverage market development[6]

Insurers began offering stand-alone reputation risk insurance in 2011. Zurich Financial Services was the pioneer with its „Brand Assurance" policy, offered in collaboration with insurance broker Aon and marketing firm WPP (see Davies, 2011).[7] Coverage extends to public relations (PR) consultancy and related communication expenditures related to reputation-damaging events. Similar coverages have been introduced by Chartis (October 2011), Kiln (May 2012),[8] and Allianz (October 2012). Munich Re introduced its "Reputation Risk Insurance" policy in April 2012 with a different coverage, providing protection against lost profits arising out of a reputation-damaging event.

Coverage for crisis management costs (and in some instances related lost profits) is not entirely new, being embedded in previous policies or offered as an extension to policies such as Cyber Liability, Kidnap and Ransom, Product Recall, and Directors' and Officers' liability (see Kannry, 2012). For instance, Allianz (AGCS) points out on their webpage that they continue to offer "supplemental coverage to existing policies that also cover the costs of crisis communications" such as Directors and Officers liability insurance, and Product Recall and Tampering insurance, although such coverage typically comes along with lower financial limits.[9] Chartis also offers coverage options related to reputational risk. One is a product recall policy that also covers costs for restoring trust and brand reputation in case of product contamination (with a limit up to €15 million for accidental contamination and €50 million if intentional). Another Chartis policy provides a fidelity guarantee that covers E-Crime and cyber criminality (with a limit up to CHF 3 million), and includes cover for public relations consulting costs for reducing or avoiding reputational losses. The latter policy is offered to firms with a turnover up to CHF 400 million as described in the respective product information sheet.

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6 As this paper illustrates, the reputation risk insurance market is developing quickly. A number of changes occurred after we concluded the paper. Most notable is recognition of a Kiln policy issued through Steel City Re, which uses a parametric loss measurement approach based on their proprietary algorithm. This approach appears to address a number of the issues identified in this article (see http://www.steelcityre.com/). Apparently 10 large organizations (it is intended only for quite large organizations) have purchased this coverage. We note as well that both Zurich and Munich Re have altered their practices substantially since first introducing coverage. Zurich has abandoned the market completely while Munich Re restructured its contacts in notable fashion. We offer information regarding the Munich Re policy as of December 1, 2013.

7 According to Zurich, the policy is no longer actively marketed (as of 11/2013).

8 According to the Willis "Product Newsletter" published in May 2012.

9 www.agcs.allianz.com/about-us/news/new-allianz-policy-helps-companies-protect-good-names-in-a-crisis.

Until recently, therefore, coverage of reputational risk has been an add-on to other coverages, usually tied to precise, specific event types. The newly introduced stand-alone reputational risk policies tend to be more comprehensive and extend and supplement previous insurance solutions, while differing considerably in their (generally highly individualized) coverage. In the following discussion, we provide a systematic categorization and analysis of the five major current stand-alone reputation risk insurance policies we are aware of being available at the moment: Allianz (2012), Chartis (2011), Munich Re (2012), Kiln (2012), and Zurich (2011), as shown in Table A.1. The emerging reputation risk insurance market involves significant commonality while also extensive individuality in coverage terms and conditions. We highlight these major areas in Table A.1 and discuss specifically the policy provisions for 1) types of covered loss and available limits; 2) insurance triggers; and 3) loss measurement and payout.

3.2 Reputation risk insurance policy provisions

3.2.1 Covered loss and limits of coverage

As indicated in the preceding section, reputation risk policies define covered loss as:

- Crisis management and related costs (Allianz, Chartis, Zurich)
- Lost profits (Munich Re)
- Combination of both (Kiln, specifically offered for hotels only)

As the first stand-alone reputation risk insurance policy, Zurich's "Brand Assurance" policy offers a substantial annual aggregate limit of $100 million and provides protection for public relations (PR) consultancy, advertising, and similar expenses (referred to as "brand restoration expenses") in case of "crisis events." The Chartis („Reputation Guard") and Allianz („Reputation Protect") policies also cover these types of crisis management costs, yet their limits are substantially lower at $25 million and $10 million respectively.

Munich Re has approached reputation risk insurance quite differently, focusing on the revenue effects of crisis events. Munich Re's policy indemnifies for lost profits that result from a decline in revenues following a "crisis event" that also is accompanied by a change in consumer brand perception. PR consultancy and advertising expenses in response to the crisis event are not covered specifically in this policy. According to Munich Re's marketing materials, the product is intended to provide short term liquidity for organizations whose product brands experience negative reputation events. As such, the insurance payments could be used to pay for a communication strategy. The intent, however, seems to be to offer resources that will allow an organization to continue to function effectively and provide quality prod-

ucts/services, thereby avoiding further reputation damage from liquidity constraints. Otherwise, a downward spiral would be likely. Limits range from €50 million to €150 million and possibly higher. Note that a similar insurance policy was planned by Mobius in 2011, named 'Reputational Risk Insurance,' but according to Mobius the product has not been introduced as a stand-alone product (only combined with cyber risks coverage).

Kiln, in coordination with Willis, launched a policy that provides coverage for both crisis management costs and lost revenues, thereby combining the two protections already discussed. The policy, however, is for hotels only. Called the "Hotel Protection 2.0," the coverage was introduced in 2012 with limits up to €25 million.

Marketing materials for Allianz indicate that they pay for an initial analysis of and consultation on the policyholder's media profile at the start of the policy. The other contracts do not appear to provide such coverage. An initial analysis and plan development offers the insured methods to prevent and reduce losses, thereby potentially reducing insurance prices while also offering a fuller range of risk management beyond risk transfer.

Importantly, most of the insurers specify particular PR firms available to the policyholder. Chartis requires use of one of their "panel PR firms," and Zurich also requires use of one of its listed "crisis management consultants." Allianz provides somewhat greater flexibility by naming three preferred PR firms, yet allowing the insured to choose outside this group. When using one of the designated firms, costs will not be questioned. When hiring a non-specified firm, Allianz might not cover all of the incurred costs. The Munich Re policy does not address PR firms as the covered loss represents lost profits rather than PR costs.

3.2.2 Insurance trigger

Most of the existing reputation risk insurance policies trigger coverage upon the occurrence of a crisis event, which has or is expected to lead to some form of "adverse publicity", thus approximating the loss or damage in reputation. The underlying causes of such adverse publicity (i.e., the defined crisis events), however, differ across the policies. In general, the triggers are quite complex, which is not surprising given the newness of coverage and the potential for significant losses. As insurers gain knowledge and experience, we anticipate increased levels of standardization and simplicity.

Only Chartis leaves open the triggering event, allowing the policyholder to define a situation in which loss is likely to (or has) occur(red). According to the policy wording, "coverage is provided solely with respect to *reputation threats* and *reputation attacks* in response to which the *named entity* has first retained a *panel PR firm* during the *policy period*, and that has been

reported to the *insurer* as required by the policy." A 'Reputation attack' is defined as "any publication by a third party that the named entity believes: (i) will be seen by any insured's stakeholders […] as a material breach in trust, and (ii) is likely to have an adverse impact on the public perception of an insured or a covered brand." A 'reputation threat' is defined similarly except that the act or event has not yet been disclosed in a publication. The insured simply believes that if it were disclosed the negative outcomes would occur.

"Publication" is defined broadly as "the dissemination via any medium (including but not limited to dissemination via print, video, audio, electronic, or digital or digitized form) of previously non-public information or opinion specifically concerning an Insured or a Covered Brand; provided, however, that 'Publication' does not mean the reporting or disclosure of any financial information, financial projections or estimates, any communication seeking or opposing the consummation of any transaction that requires a security holder, debt holder or other stakeholder or management vote or approval, or any internal communication directed only to an Insured's executives and/or employees."

The Chartis coverage contrasts with the other four policies, which explicitly define a triggering event, and as stated above often do so in complex, multi-level ways. Payout for the Allianz policy is triggered by a "crisis event," defined as "any established insurance trigger of any insurance policy of the client as listed in the schedule of the policy." The underlying coverage does not need to be purchased from Allianz although the policy itself must be shared with Allianz. This also reflects the fact that reputation risk is a risk of risks. The policyholder therefore decides the underlying events that will be covered both by other insurance and the reputation risk policy. This is intended to "ensure that the insurance triggers are clearly defined, established and tested" (see AGCS, 2012, p. 5) and thus, possibly reduces disagreement between the insured and insurer regarding ultimate coverage.

The Kiln policy specifies that an "adverse media event" must occur, which is defined as "the publication of a statement directly arising out of one or more *Peril(s)* and which causes, or is likely to cause, direct *Loss of revenue* to the *insured.*" The policy lists four perils quite specific to a given hotel insured: death or permanent disablement to a hotel guest at the hotel; foodborne illness at the covered location; an outbreak of norovirus; or an outbreak of Legionnaire's disease. Other perils are expected to be added per negotiation between the insured and Kiln. An important exclusion eliminates coverage for a "media event ... which touches or concerns the whole or part of the industry sector."

Zurich's "Brand Assurance" policy involves perhaps the most complex set of triggering conditions.[10] First a "crisis event" must occur, defined as one of 19 named perils or an "other event" to be proposed by the policyholder (and given appropriate underwriting/pricing attention). Further, the policy requires that the event "has led, or is reasonably likely to lead, to *adverse publicity* within 60 days after commencement of the crisis event." "Adverse publicity" is defined as the "reporting of a crisis event in *at least two high impact media outlets* [as listed in the policy] that specifically names the insured and is reasonably likely to cause a *financial loss*." Thus, the expectation of financial loss represents a third requirement before coverage is triggered. "Financial loss" is defined in one of four ways: 1) a drop in revenues by at least 20%; (2) a reduction in the price per share of at least 20%; (3) loss of customers who represent at least 20% of the insured's gross annual revenues; or (4) the loss of suppliers whose input is critical in the production/provision of at least 20% of the insured's gross revenues.

Munich Re's "Reputation Risk Insurance" coverage also involves a financial loss requirement, yet it is defined differently from that found in the Zurich policy. The financial loss is determined through a combination of a reduction in the insured's overall revenues combined with impaired consumer perceptions as measured through an independent loss adjuster[11] who carries out a loss assessment and determines which part of the revenue drop was due to the reputational "crisis event". While this is the standard setting offered, upon request of the policyholder, a survey among target clients can be conducted as an alternative to measure consumer perception following a crisis event and to derive the percentage of the lost revenues due to the event. The survey is under Munich Re's control and generally specified in the contract. The required crisis event itself is either an open perils ("all-risks") (Option 1) or a named perils (Option 2) approach. Option 2 lists six covered events,[12] with the opportunity for the insured to specify additional events to be covered. Even when one of these conditions has occurred, coverage does not apply unless the insured also experiences a significant (usually at least 10% but depending on the insured's industry) drop in the *actual turnover* as compared to the *estimated turnover*. Under Option 1's all-risk approach, the trigger is a "significant change for the worse in media reporting about a covered brand", which must be demonstrated on the basis of a constant analysis of "high impact media outlets," relating to issues of product or service, client, key persons, or ethical, social or environmental related issues. A significant change for the worse in media reporting about the brand is established if the policyholder

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[10] Note that the "coverage extensions" differ and allow more flexibility (see Table A.1).

[11] The independent loss adjuster (forensic accountant) will determine the percentage of the reduction in revenue that is attributable to the reputational event by excluding other factors (e.g., general economic factors, (new) competitors, substantial business changes, unavailability of the insured's products, or other factors that have influenced the business of the insured).

[12] The six events are: product recall, discrimination or harassment of clients or employees, breach of data privacy, loss of key persons, misconduct of key persons, and breach of UN Global Compact Principles.

documents and provides to the insurer more than a number (specified in the policy) of negative reports in a specified time period (e.g., one calendar week), in more than a certain (contractually defined) number of high impact media outlets as listed in the policy. The media analysis must thus be performed by the policyholder, who has "to notify the insurer without undue delay that he requests a loss assessment by a forensic accountant".[13]

Marketing materials from all of the insurers suggest that these referenced policy conditions can be adjusted to the individual risk situation of the customer, thus leading to individualized policies with respective pricing implications. The policies also in parts leave open a variety of important questions. Among them is determination of the exact date and time of the measurement, and whether or not the insured is paid more than once for continuing effects of the negative event. Some policies answer some of these questions by defining a limit per crisis event or per quarter (Munich Re, Zurich) and the duration of an event (e.g. Zurich). With the extensive variation in coverage currently offered, the opportunity to collect consistent data for pricing and underwriting also is hampered. To the extent that the coverage follows other underlying policies, data on these events likely will be used for such purposes.

3.2.3 Loss measurement and policy payout

In line with the insurance coverage described above, the policy payout for Allianz, Chartis, and Zurich includes crisis communication costs that generally comprise consultancy fees and media costs (purchasing advertising, cost of consumer hotlines, etc.). The exact payout components, however, differ. While Zurich and Munich Re do not seem to cover costs for prevention,[14] Allianz according to their marketing material pay the costs for an initial workshop and annual review to assess the current situation of the client and encouraging preventive measures as well as ensuring a quick response in case of crisis, which is in addition to the crisis communication costs (in case the defined underlying insurance trigger occurs). Allianz specifies three expert marketing firms with which it does business. When using these firms, the insured's costs are not questioned. The insured is able to employ its own PR firm, yet does so with the understanding that Allianz may deny coverage for some of the costs. Chartis further explicitly distinguishes between coverage for "Proactive Mitigation Coverage", i.e. *before* information gets published, and "Reputation Event Response Coverage", i.e. *after* information is published. Coverage is tied to the recommended action of their pre-selected panel PR firms without an option for the insured to use its own firm.

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[13] We note that in the previous policy version, the survey and the constant media analysis were initiated and paid by Munich Re.

[14] An available extension under the Zurich policy is to cover pre-crisis PR costs as well as "emergency crisis event expenses" that do not require a trigger event. They are, however, subject to a specific limit.

A different payout structure is integrated in the Munich Re policy. Once a crisis event has occurred (defined either as the reporting of a specific event or a "significant change for the worse in media reporting about a covered brand" related to a specified "issue"), and revenues have declined by at least the designated percentage relative to expected revenues, then an independent loss adjuster determines the percentage of the reduction in revenue that is attributable to the reputational event. In case of conducting a survey, the questionnaire comprises four questions on the target clients' awareness of the covered brand and the events discussed in the media. The covered loss is then defined by the percentage of the surveyed target clients who know about the event and are thus less likely to purchase products of the firm, multiplied by the drop in revenue (as compared to the estimated one) and the profit margin.

The Kiln policy also covers lost revenues, measured as the average daily room rate (ADR) multiplied by the shortfall during the indemnity period, i.e. the number of consecutive days (as agreed upon between insured and insurer at the start of the policy) commencing on the day of the adverse media event. In addition to lost revenues, the Kiln policy covers crisis management costs similar to those covered by the Allianz, Chartis, and Zurich policies „incurred ... to avoid the direct loss of [revenues]." The covered professional services must be obtained from a firm designated in the policy.

For each of these policies, a deductible applies and most also require coinsurance. Zurich's policy appears to be the most complex with escalating coinsurance (see Table A.1). Additionally, the policy provisions prohibit policyholders from using insurance mechanisms, other than through a wholly-owned subsidiary in some situations, to fill in the coverage gaps created by the retention provisions. We believe the purpose of maintaining strict retention is to limit moral hazard issues. Especially for the broad triggers (Chartis in particular), concern has been expressed that management will lose incentives to protect its brand, given the availability of insurance coverage.[15] Deductibles and coinsurance provisions are noted in Table A.1.

[15] See Kolakowski (2011). The article also points out that spending large amounts for crisis communication may not necessarily prevent losses in stock prices, mentioning BP as an example.

4. Challenges and Risks of Insuring Reputational Risks

Introduction of a new line of business is challenging, and also potentially rewarding. From evaluation of the several policies newly on the market providing reputation risk coverage, we identify the following main challenges:

1. identification and measurement of loss trigger and measurement;
2. loss prediction, both in terms of the likelihood of loss as well as its size – pricing and underwriting are both affected by the lack of appropriate data and models;
3. risk accumulation (spillover effects and risk concentrations);
4. basis risk;
5. moral hazard;
6. disagreement between policyholder and insurer leading to litigation risk (and possible damage to the insurer's reputation);
7. uncertain demand.

In the following sections, we discuss these various issues as well as current responses in the existing reputation risk policies.

4.1 Reputation-damaging event identification and loss measurement

The development and destruction of reputation is a complex process, and many of the challenges facing insurers in providing reputation risk coverage can be seen when considering the *chain of reputation risk events*. We offer an example illustration of the chain of reputation risk events in Figure 2 and refer to this chain of events in discussing the challenges of loss identification and measurement. Specifically, we observe that reputation loss requires the following:

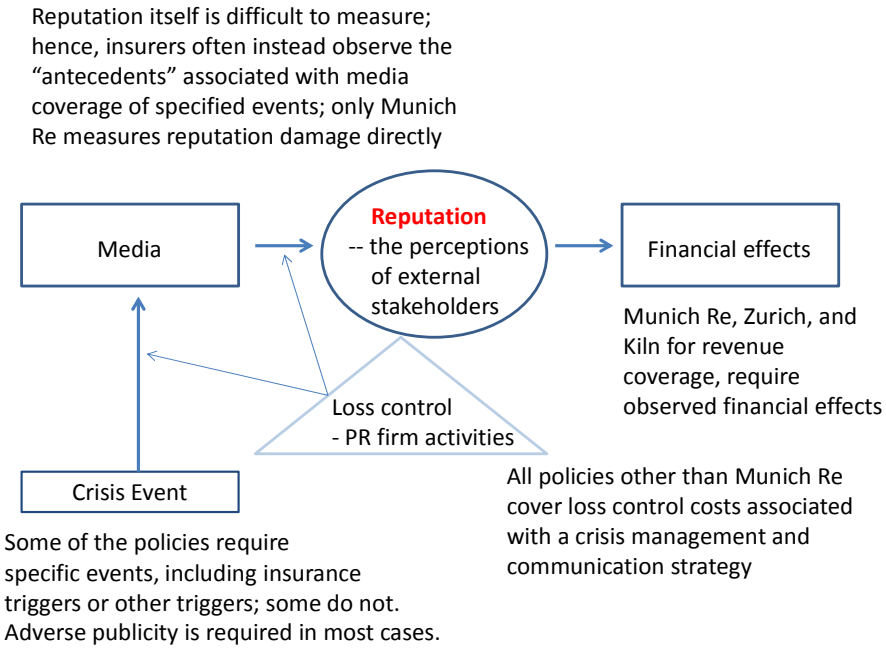
- a *crisis event*, which has the potential to damage reputation;
- any *resulting reputation damage* (see Section 2.1.2), measurement of which depends on the perception of the insured's external stakeholders, and which can be influenced by *loss control activities* such as crisis management and communication strategies 1) *before* the event become public in order to prevent negative reaction to the event, possibly even preventing any reporting at all,[16] and 2), *after* the event becomes public to reduce the negative consequences of the event being known; and

[16] In the case of assuming that adverse publicity in the media is the relevant factor or antecedent regarding the perception of the firm's stakeholders.

- financial consequences, if any, that may result from the actual damage/loss in reputation; that is, the actual *reputational loss* such as a reduction in profits, clients, or business partners.

As discussed earlier in this paper (see Section 2.1), academic researchers have debated extensively such questions as how to define and measure reputation (with only limited discussion of how to measure the financial loss that may arise from it), as well as how to identify the antecedents to reputation formation. Insurers have the added challenges of needing to identify events and to use measures that will limit moral hazard and adverse selection while also providing protection of value to policyholders. These challenges play out in the chain of reputational risk events.

Figure 2: Insurance solutions along the chain of reputation risk events



4.1.1 Triggering event

As far as we are aware, the literature has not yet agreed upon what events or conditions either create or destroy reputation.[17] Such understanding is not only relevant for general risk management purposes, but is especially crucial for insurers attempting to accept the risk of loss from a damaged reputation for their policyholders. For insurance to function effectively, insurers also need to control the incidence of moral hazard and adverse selection, which further requires sufficient specificity of loss to minimize asymmetric information.

[17] The marketing literature offers quite a bit of research on "brand value" which is related to but not the same as reputation.

Most insurers considered in this paper attempted to insert sufficient specificity into their reputation risk coverage by listing a set of named perils. Furthermore, the majority of policies cover reputation-damaging perils that also are covered perils in other standard policies. One notable exception is the Chartis policy, which considers a reputation damaging crisis event as one that, if known, would be seen by the insured's stakeholders as a "material breach in trust." This definition is consistent with the literature in which reputation is defined as the perceptions of external stakeholders about the organization of interest. The set of potential events that could lead to a crisis, therefore, is large and not explicitly defined, with the assessment left to the insured and the contractually defined PR firm without further specificity in the policy. Chartis has indicated that their interest is in encouraging policyholders to act quickly without concern for policy coverage, believing that quick response will reduce the overall effect of the event; therefore they trust the insured (and its PR firm) to use the coverage wisely. This open-ended nature of the policy, however, would seem to be difficult to underwrite and to price.

In all other policies, the covered crisis events are explicitly listed, mostly reflecting the fact that reputation risk is a "risk of risks" by providing an umbrella-type of coverage above other existing coverages. Furthermore, they all (except for Allianz) connect the covered event with designated "adverse publicity" or "publication" of the event, thus reverting to an antecedent of reputation instead of measuring reputation itself.

4.1.2 Definition of loss and coverage

In general, loss determination may be the most difficult aspect of providing reputation risk insurance, given the focus of reputation on individual cognitions or perceptions, which are not readily observable. Furthermore, any coverage that provides payment for profits must recognize the potential disincentives inherent in the protection, which implies that insurers seek to define and measure loss in a way that also addresses concerns over moral hazard.

As discussed in Section 2.1.2, most of the academic literature suggests that reputation is best measured through surveys or questionnaires. However, we know of only one policy that takes this position as only the Munich Re policy includes the option to assess a loss based on a survey following a listed event to determine whether or not the listed event has damaged the insured's reputation, thus indeed attempting to measure the true loss in reputation. The other policies seem to assume that a damage in reputation and thus a loss for the insurer (in the sense of covered costs or lost profits, for instance) results from the covered event without measuring a damage in reputation.

Hence, once a (potentially) reputation damaging event has been identified, the measurement of its consequences is not absolutely straight forward. The literature notes possible financial effects of a damaged reputation, including lost revenues (and possible higher costs generating from a loss of supplier, buyers, employees, and other partners). Connecting lost revenues directly to any particular event or underlying risk (such as in business interruption coverage) is inherently challenging, and perhaps even more so with regard to reputation damage, given the nebulous nature of reputation itself. This challenge may be why only two policies to date cover lost revenues (profits) in stand-alone reputation risk policies (Munich Re and Kiln).

All other policies take a path that makes measurement much easier. These policies (and the Kiln policy) cover crisis communication strategy (loss control) costs, and typically require that designated experts be employed to provide such services. By measuring reputation loss as the fees paid to experts, and further by designating which experts' fees are permissible, insurers are specifying losses that are relatively easy to measure, even though these do not represent true and entire "reputation losses" in the sense described in Section 2.1.3. Below we also discuss this issue with regard to demand.

Even for the Munich Re policy, however, additional questions remain. For instance, when is the survey conducted to determine reputation damage, and who is asked to complete the survey? The timing and scope of the survey will affect the results. In regard to the survey, the questions themselves are generally specified in the policy, limiting a potential difference of opinion between the insurer and insured once the policy is in force. In case of the loss adjuster, an initial talk with the client is offered to clarify the required information to ensure that the loss assessment is completed in a timely manner. The Kiln policy also poses various questions. Specifically, loss is measured as reduced revenues per hotel room available. This measure is quite broad, providing for declines in the number of hotel rooms rented following a designated media event. How will the insurer differentiate between reduced hotel room rentals simply because of changes in underlying demand and that associated with a reduction in reputation due to the occurrence of a crisis event? For instance, room rentals might be lower because the crisis event happens to coincide with a worsening economy or a shift away from the type of hotel services offered. We anticipate that losses could be substantially larger than the insurer anticipates and/or that the insured and insurer will disagree about the ultimate loss payment and become involved in protracted litigation to resolve their disagreements.

The coverage of loss control costs, in contrast, does not require estimation of a financial loss (or a loss in reputation). Coverage appears to be intended to reduce the likelihood and extent of reputation damage in the first place and thus aims to reduce *indirectly* the potential (financial) reputational loss. In addition, all policies except for Kiln and Munich Re not only cover expenses for loss control activities *after* the event is published, but also *prior* to the actual

reporting of the covered risk event, i.e. after the occurrence of the crisis event but before an actual loss in reputation occurs from adverse media reporting.[18] That is, in some instances, coverage is designed to try to prevent the negative effect on reputation altogether and then to lessen the effect once the event is reported. With this type of coverage, an explicit measurement of a loss in reputation is not needed because reputation has not been damaged.

We note, however, that the anticipation of whether an event has the potential to threaten the reputation of the insured or the brand may be subjective and therefore not straightforward to determine. Such ambiguity exposes the insurer to potential criticism and litigation due to disagreements between it and the policyholder. Perhaps in part for this reason, most insurers require that the insured works with designated public relations firms. By requiring the use of designated PR firms, the insurer may reduce the potential for unneeded expenses through prior agreements with those PR firms. That is, the insurer may be able to reduce moral hazard and thereby control costs. We presume the insurer seeks to exert some control over the costs incurred while also adding to its own reputation as an organization that assists its customers in averting reputation-damaging events by identifying and contracting with top experts in the field. Depending on the insurer's ability to harness this sort of talent, a major benefit of the coverage may be the availability of particular PR firms for the policyholder's purposes.

4.2 Loss prediction, pricing, and underwriting

As just noted, loss identification and measurement seem to be the greatest challenges for insurers currently providing reputation risk coverage. Our focus has been on the ability to measure true reputation loss from a damaged reputation.

A second critical challenge to providing reputation risk insurance is the lack of experience and therefore data on providing coverage for damaged reputations. By linking loss-causing events to other insurance coverages or underlying risks, as most of the policies do, insurers are providing themselves with existing frequency data from those underlying coverages. True protection against reputation damage, however, is much broader than these occurrences, and data on the frequency, as well as on the size of ultimate losses, have not yet been collected. Insurers, therefore, currently are pricing mostly from theoretical perspectives.

In conversations with several of the key people involved in the development of reputation risk insurance, the need for data and models to predict losses has been emphasized. Such data and models are needed to set prices, reserves, and to undertake effective underwriting. Not only is

[18] The policies may further partly assist in preventive action to reduce the likelihood of the occurrence of a reputational crisis event in the first place and to establish a crisis management plan to better cope with occurring reputation events (Allianz).

the coverage mostly new and therefore mainly without a history for data analysis, but the world of social media and cultural expectations is changing so quickly that new models may be needed even for any existing data. Some of the insurers have tied their coverage to other insured (or insurable) conditions or crisis events, which may offer some history and existing models that can be modified for use in pricing reputation risk coverage. Tying those events to true reputation loss, however, is new and untested, particularly the connection with ultimate financial loss. These events to date are not well known, neither theoretically nor empirically. A partial exception is operational risk, which has been researched in the academic literature regarding the impact operational risk events on reputation, both in the sense of risk concentration and intra- and inter-sector spillover effects. The respective literature and empirical findings are discussed in the next subsection.

We anticipate that pricing and underwriting efforts will need to consider a variety of factors. Among them are issues discussed below with regard to accumulation risk, basis risk, and moral hazard. Other factors that need to be investigated and understood include the influence of industry, organizational size, ownership structure, governance, and similar characteristics. We further anticipate that activities such as corporate social responsibility (CSR) may affect the likelihood of reputation loss. CSR might actually function similarly to insurance in terms of providing risk protection (see Shiu and Yang, 2011). In addition, Rhee and Haunschild (2006) found that a good reputation can sometimes also be a hazard in that consumers are more disappointed by poor performance from an organization they have seen as being a "good" organization, for instance (further antecedents are discussed in Section 2.3.1).

Against this background, underwriting plays an important role and can be almost or even more extensive as in the case of D&O policies. In case of Chartis and Munich Re, for instance, the broad and complex nature of the coverage would suggest that extensive, comprehensive underwriting is being undertaken to ensure that the coverage can be offered in a sustainable manner. Underwriting standards are crucial for the success of any product, both for proper pricing, as well as for coping with the risks associated with insuring reputation risk.

In general, we also observe a similarity between the creation of reputation risk coverage and that of D&O insurance (and sometimes product recall coverage). With D&O now being a common, standard protection purchased by most organizations, we believe that these issues can be overcome, but still they are significant.

4.3 Risk accumulation: Spillover effects and risk concentrations

In addition to the basic insurance issues of defining and measuring loss, as well as developing loss estimates for pricing and reserving purposes, several issues may be specific to reputation risk. One is that of risk accumulation, including spillover effects and risk concentrations. *Spillover* occurs when an organization experiences reputation damage, not because it has experienced a reputation-damaging event directly, such as through negative publicity, but rather because an industry member has received adverse publicity, for instance. The public may perceive the adverse publicity as an indication that the entire industry is suspect, thereby harming firms not involved in the underlying crisis event. For example, when a large insurer is found to have defrauded consumers through inappropriate sales or claims practices, the reputation of the entire industry is likely to be affected adversely.[19] Factors that affect an organization's exposure to spillover include the organization's field (e.g., industry, activity, degree of substitution) and the similarity of the organization to the one who experiences the actual issue (see Desai, 2011).

Risk concentration can occur from a second scenario. This scenario is when an insurer provides reputation risk coverage and also offers insurance against events that may be the triggering events for reputation damage. In this situation, the insurer could be held responsible for multiple losses from the same event. Pricing and underwriting standards need to consider this multiplicative effect of the way most of the reputation policies currently are written, providing coverage for underlying events that also likely are insured against direct loss. An example is the liability exposure from a defective product that also leads to significant reputation damage when reports of litigation over the defective product alter the public's perception of the insured manufacturer. Toyota's exposure from the "sticky gas pedal" issues provide an illustration.[20]

We note, however, that an alternative perspective on risk concentration from this second source also exists. Rather than experiencing a doubling effect, insurers may actually be able to reduce their overall losses by implementing effective crisis communications following an event that is covered by other policies. For instance, the classic case of Johnson & Johnson's response to tampering of its' Tylenol product demonstrates that effective, quick communication can limit the organization's ultimate liabilities as well as its reputation losses.[21] Therefore, rather than adding to its exposure, the inclusion of a reputation risk policy that encour-

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[19] Spillover effects can also pose a problem if it only concerns one insured firm instead of several firms in the portfolio, i.e., even if it does not represent an accumulation risk for the insurer.

[20] For a discussion, see http://en.wikipedia.org/wiki/2009%E2%80%9311_Toyota_vehicle_recalls.

[21] For a discussion, see http://en.wikipedia.org/wiki/Chicago_Tylenol_murders.

ages effect communication following an event that could result in liability may actually reduce an insurer's overall exposure to loss.

As far as we are aware, the literature on spillover effects to date mainly focuses on the impact of operational loss events on reputation risk (see Table 2 for a description of the seven event types). To our knowledge, the only empirical work studying inter- and intra-sector spillover effects from operational loss events for insurers and banks is Cummins et al. (2011). Their results show that deceptive sales (in the category "clients, products and business practices") can cause significant inter-sector spillover effects and that intra-sector effects are generally stronger than inter-sector effects. For the other event types, no significant spillover effects were shown in the study, which may also be due to the low sample size and should be subject to further research.

Table 2: Definition of operational loss events[22]

Event type	Definition
Internal fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/ discrimination events, which involves at least one internal party
External fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party
Employment practices and workplace safety	Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity / discrimination events
Clients, products and business practices (deceptive sales in brackets)	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product.
Damage to physical assets	Losses arising from loss or damage to physical assets from natural disaster or other events.
Business disruption and system failures	Losses arising from disruption of business or system failures
Execution, delivery and process management	Losses from failed transaction processing or process management, from relations with trade counterparties and vendors

The focus of the empirical literature on reputational loss in financial services organizations is on operational risk events.[23] These events, in turn, often represent conditions covered under typical insurance policies; hence, the occurrence of an operational risk event may yield risk concentration in that an insurer may be responsible both for an underlying operational loss as well as for the reputational effects of that loss.

[22] See Basel Committee (2004, pp. 224-225).

[23] As noted above, this may well derive from the data requirements of Basel II that led to creation of rich data sets. We note that these studies use the same categorization of operational events as shown in Table 2.

Fiordelisi et al. (2014) study the impact of operational loss events on reputation risk in the banking sector. They investigated all event types except for "damages to physical assets" and "business disruption and system failure" with losses greater than $1 million. Also focusing on banks, Perry and deFontnouvelle (2005) differentiate primarily between "internal" and "external" events, and further specify "internal fraud" as a focus of study. Gillet et al. (2010) consider a more refined comparison of "internal fraud" relative to "clients, products, and business practices" events for all financial firms in the data set, while Sturm (2013) considers the European banking industry (with losses greater than $0.1 million with comparisons across all event types and for both event announcement and settlement announcement. In all four papers, reputational losses are calculated by the excess of the firm's market value decline and the announced operational loss amount (if positive).

Perry and deFontnouvelle (2005) and Gillet et al. (2010) find that "internal fraud" has a negative effect on reputation. In Fiordelisi et al. (2014) for the banking sector, "external fraud" causes slightly stronger effects than "internal fraud",[24] but "fraud" represents the highest reputational losses. Regarding the event type "clients, products and business practices", Fiordelisi et al. (2014) and Gillet et al. (2010) identify a significant impact on reputation losses. In addition, according to Fiordelisi et al. (2014) also the event types "employment practices and workplace safety" and "execution delivery and process management" cause reputational losses. Sturm, in contrast, finds that event type appears to have little effect in the long-term implications of operational losses on reputation, although "clients, products, and business practices" may have an influence when first reported.

Cummins et al. (2006) also study the reputational damage of operational events in the financial service sector, yet do so without differentiating across event type. They do, however, find that stock price reactions after operational risk events exceed the pure operational loss.

In addition, a few studies investigate reputational (financial) losses following operational events in the financial industry for only one or two specific companies (see, e.g., Smith, 1992; Walter, 2006) or very small samples (see, e.g., Cruz, 2002; Cannas et al., 2009; Consolandi et al., 2009), thereby also emphasizing that the stock market loss exceeds the observed losses, thus indicating reputational loss effects.

Besides the studies regarding the financial sector, there also exists a large literature on reputational effects for non-financial firms, showing a negative market impact of the announcement of *fraudulent earnings restatements* (Palmrose et al. (2004)), *allegations of illegal activities* (Murphy et al. (2009), Alexander (1999)) and *criminal fraud charges* (Karpoff and Lott

[24] Note that the study is based on a rather small sample size of 22 external fraud observations.

(1993)), for instance. Further studies focus on *corporate illegalities* and their negative impact on shareholder returns (Davidson and Worrell (1988), Reichert et al. (1996)), reputational losses due to *military (defense) procurement fraud* (Karpoff et al. (1999)) and *environmental violations* (Karpoff et al. (2005)), the market reaction of *financial misrepresentation* (Karpoff et al. (2008)) and the *public disclosure of allegations of price-fixing* (Skantz et al. (1990)), the impact of *legal disputes* on shareholder wealth (Bhagat et al. (1998)) as well as the effects of *unethical business behavior* (Long and Rao (1995)). In addition, reputational losses can also occur due to *technical and product failures*. In this context, Rubin et al. (1988) examine the costs of product recalls as reflected in the stock price of the affected firms, while Borenstein and Zimmerman (1988) as well as Mitchell and Maloney (1989) study the stock market reaction of airlines after suffering an airline disaster, thereby observing that especially crashes caused by pilot errors result in significantly negative stock returns.

Of the policies currently available, Kiln is the only one to exclude spillover effects explicitly from coverage. This is particularly notable given that the Kiln policy is designed for hotels only, which could have a significant spillover experience.[25] In contrast, the Munich Re policy explicitly provides the option to insure spillover in the "named perils" cover. In general, excellent underwriting will be needed to balance these two potentials as well as to account for accumulation risks in general, including spillover effects within one branch and risk concentrations arising from several policies sold to the same insured.

4.4 Basis risk

Closely related to spillover effects is basis risk, which may occur in case the policy payout depends on some kind of industry reputation index, which is not perfectly correlated with the actual insured company loss. Currently, none of the available policies' payouts depend on an index, which is why this particular issue is currently not a problem for insurers. However, basis risk can pose a serious problem from the policyholder's perspective in case the insured suffers a loss from reputation spillover effects (industry / branch scenario, e.g. Costa Concordia cruise), but the measure of loss does not detect this issue. For instance, the Allianz policy requires the occurrence of an event covered by a listed policy. It may well be that an event occurs to a competitor (i.e., not covered by an underlying policy) that adversely affects the insured through spillover. This insured experiences a very real damage in reputation as well as a reputation loss, but finds itself without coverage.

[25] Consider, for example, the consequences of reports of bed bug infestations at a hotel in a given city.

4.5 Moral hazard

Another relevant concern for insurers is moral hazard. As discussed earlier in the section on loss identification and measurement, moral hazard is of great concern. The opaque nature of what reputation represents and how it is created (and destroyed) make moral hazard perhaps even more pronounced than for many other types of coverage. Furthermore, any coverage specifically designed to protect against lost profits is inherently exposed to moral hazard. While not much literature exists on the exact causes of reputation damage, what does exist seems to support the notion of moral hazard. Specifically, Kamiya et al. (2012) demonstrate that operational loss events typically tied to reputation loss are more likely for firms that demonstrate characteristics consistent with moral hazard. Their theoretical argument is that firms develop a set of expectations among the public, expectations that are costly to maintain and that are created over time. Managers can decide to expend resources for reputation maintenance and long-term profits, or they can increase immediate profits by forgoing the expensive reputation maintenance efforts and expose the organization to long-term reputation damage. Damage ultimately occurs through operational risk events.

In the existing reputation risk insurance policies, moral hazard is addressed in several ways. One is to use the common mechanisms of deductibles and coinsurance, which provide insureds with incentives to prevent and/or reduce losses. Another is to exclude known and/or willful misconduct, and similar types of boundary-setting conditions. As presented earlier, all of the policies include some form of deductible, and several also incorporate coinsurance provisions as well as exclusions for willful misconduct into the coverage.

4.6 Litigation risk

Yet even with efforts by insurers to clarify coverage and address the various risks and challenges identified above, disputes with policyholders seem likely until a general consensus and perhaps standardization of coverage develops. For all of the policies, clearly defined insurance triggers and coverages are vital to reduce disagreement between the insured and the insurer regarding ultimate coverage, and at the same time may facilitate the pricing process to some extent (however, the lack of data generally remains). More important than the litigation risk itself, however, might be the loss in reputation to the insurer in the perception of the insured if the policy does not respond as expected. This may also arise from the high degree of complexity of the policies regarding their limitations. Overall, litigation risk thus also has the clear potential to cause reputational damage to the insurance company.

4.7 Demand and target customers

None of these efforts to manage the new risks and challenges of offering reputation risk coverage matter, however, if insurers cannot generate sufficient demand from the target insured population. Anytime an insurer offers loss protection, there is a trade-off between the need to offer a product with true value (that is, for which losses will be paid) and to control its own expenses and risk. In the case of a new product in previously unchartered territory, finding this balance may take some time. While industry press has noted the growing relevance of reputation risk, and expanded social media has made the issue of increasing concern, the ability of the insurance mechanism to address this potential is not yet entirely transparent. Demand will depend on the costs of insurance relative to the costs of self-insurance and prevention as well as the policy design and firm-specific needs. The respective coverage further determines the target customers, which ranges from hotels (Kiln) to specific customers[26] (Zurich) and various industries (Munich Re, ensures diversification). As a new policy, we perceive that insurers are working directly with clients to identify their exposures and define appropriate coverage. Doing so is certainly time consuming, costly, and leads to lack of standardization. All of these conditions add to coverage costs, which may make the insurance too expensive. Similar conditions existed at the start of recall policies in the 1980s and D&O coverage before that. Both of those coverages now are relatively standard and have been referenced in our conversations with industry members regarding reputation risk insurance.

For small and middle sized companies without their own large PR departments, insurance coverage that provides support in crisis management and communication may be of great value. For these potential insureds, a relatively low coverage limit may also suffice. Larger companies typically have their own PR departments, may prefer to maintain control over crisis responses, and may find available limits insufficient.[27] Zurich, however, with their limit of $100 million according to Davies (2011) and Veeder (2012) were initially focusing on the 30 largest companies in the world (Fortune 250 and FTSE 250) from various industries that already are clients of Aon and WPP. For larger companies, depending on the branch and business model, liquidity may further be of relevance as offered by the Munich Re policy, where coverage is meant for B2C-clients with a total annual revenue of €500 million to €10 billion, whose product brands are known to the customer.[28]

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[26] Target customers are those listed in the Fortune 250 or in the FTSE 250. In addition, targeted customers are from various industries and geographical locations (see Veeder, 2012).

[27] According to Litaker (2012), Chartis, for instance, focuses on the middle market business with $500,000-$2bn turnover.

[28] Target firms include food / beverages industry, restaurant chains incl. fastfood, apparel / fashion industry, sports goods industry, toy industry, cosmetics firms, consumer electronics, luxury goods industry, tourism, cruise companies, airlines, insurance companies, universities (if privately financed), and retail industry.

Demand, therefore, is as yet not entirely known. It may take time to develop and then become relatively standard, such as D&O coverage. Alternatively, reputation risk insurance may follow the path of recall coverage (which currently is a close sister to reputation risk insurance), which has found a solid niche market yet is not a coverage of universal demand.

5. Conclusion and Outlook

In this paper, we analyze the reputation risk insurance solutions that have only recently been introduced by insurers against the background of an increasing relevance of reputation risk, especially with the growing influence of social media and a higher level of expectations for corporate behavior held by the public. This work contributes to the literature in various ways. To our knowledge, we offer the first conceptualization of reputation risk that focuses on exposures, perils, and hazards as discussed within insurance and risk management contexts. We also provide the first presentation and evaluation of the existing reputation risk insurance coverages, including importantly the risks and challenges faced by the industry in offering this protection. We anticipate future research in both reputation risk management and reputation risk insurance.

Our comparative analysis reveals similarities among the policies but also substantial differences. In particular, most of the available policies cover the expenses for loss control activities such as crisis management and communication costs after the occurrence of a crisis event that has the potential to damage the insured's or the brand's reputation, both before and after the event is published in the media. These policies are thus intended to reduce the likelihood and extent of a loss in reputation and thus indirectly contribute to reduce the risk of an actual reputational loss (in the sense of a financial loss such as lost profits). The policy by Munich Re, in contrast, covers lost profits caused by a covered reputation crisis event, similar to the one by Kiln which applies for hotels only. The definitions and measurement approaches regarding a crisis event that potentially damages reputation, a loss in reputation, and the (possibly) resulting financial losses for the firm caused by a loss in reputation are thus complex and strongly vary across different policies.

Our analysis of the policies shows that considerable risks and major challenges are associated with insuring reputational risk from the insurer's perspective, including accumulation risks (spillover effects and risk concentrations), moral hazard and litigation risk, as well as an extensive underwriting process. The primary challenge, however, appears to be the complexity of the loss measurement and pricing due to the complex chain of reputation risk events. The challenges include identifying crisis events, measuring a change in external perception, and further measuring the financial effects of worsening external perceptions. These challenges are heightened by the fact that reputation risk is a "risk of risks" leading to concentration of

negative outcomes from a single source. They are further heightened by a lack in data for evaluation and pricing due to the very limited loss experiences regarding reputation risk to date. Moreover, public perception is affected by local conditions such as cultural expectations, use of social media, and industry activities, which results in the need for precise estimation techniques. Due to these challenges, most insurers currently do not provide coverage for the actual financial effects of reputation risk but mainly focus on loss control activities. What we anticipate in the future is to see these policies expand as more experience becomes available and the complexity of reputation risk can be better understood.

Overall, we believe that reputation risk will gain increasing importance, especially against the background of an increasing transparency in organizational behavior and the growth of social media, where news is spread rapidly and without editorial filters. In this context, insurance against reputation risk can provide considerable benefits by providing loss control or financial loss coverage and thus liquidity, but cannot generally replace pre-event prevention and an adequate risk management plan that accounts for reputation. In general, we conclude that much more research is necessary regarding reputation risk in various dimensions, including a quantitative and empirical analysis concerning spillover effects and risk concentrations, as well as further qualitative analyses on how to adequately embed reputation risk management within a comprehensive enterprise risk management framework.

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Table A.1: Comparison of coverage of reputational risk insurance policies

Policy characteristics	**Allianz (AGCS) Reputation Protect** (since 10/2012)	**Chartis ReputationGuard** (since 10/2011)	**Kiln Hotel Reputation Protection 2.0** (since 5/2012)[29]	**Munich Re Reputation Risk Insurance** (since 5/2012)	**Zurich Brand Assurance** (Reputational Restoration Insurance) (5/2011-2013)
Covered loss	• Crisis management (consultancy) and communication costs, generally defined as fees for consultancy services plus expenses to implement recommendations • In response to a crisis event with the potential to adversely affect the insured's business reputation • May use own PR firm, although if use one of the three policy-designed firms, costs will not be questioned	• Crisis management (consultancy) and communication costs • In response to a "reputation threat" (before event gets published) or "reputation attack" (after event gets published) on insured or covered brand • Must use one of the panel PR firms	• Revenue loss (per available room "RevPAR") plus crisis management costs • In response to "adverse media event" • Must be a listed crisis management professional ➢ Specifically offered to hotels	• Lost profits due to reduction in revenue • In response to "covered risk event" ➢ Requires decline in consumer perception (and change in consumer behavior) as well as related reduction in revenues	• Crisis management consultancy fees plus extra expenses (to implement consultant's recommendations) • In response to a "crisis event" that has or is likely to lead to "adverse publicity" within 60 days after commencement of crisis event and expected to lead to "*financial loss*" • Must use one of the listed consultancy firms
• **Limit** • **Deductible** • **Coinsurance**	• Limit: €10m aggregate • Deductible: None on professional fees of agency; for media spend, a client contribution (minority share) is usually expected • Coinsurance: None	• Limit: variable aggregate, up to $25m • Deductible: self-insured retention applies • Coinsurance percentage after deductible applies	• Limit: €25m aggregate • Deductible: applies • Coinsurance: – nothing listed in policy	• Limit (per quarter and per year): €50m, in exceptional cases even up to €150m (possible to obtain protection against declines in turnover of significantly more than €1bn, i.e. against events that represent truly dramatic reputational crises) • Deductible (per event): to	• Limit: $100m aggregate with sublimits per crisis event and for PR costs; emergency crisis event expenses sublimit = 50% of the premium for any single crisis event or series of related crisis events • Deductible: to be defined[30] • Coinsurance percentage after deductible: escalating (0% / 25% / 35% / 40% for

[29] See Willis Product Newsletter May 2012.

[30] $1 Mio. anticipated for Fortune 500 or comparable (see Kannry, 2012 and, Veeder ,2012). According to Kannry (2012), $10,000 for middle market firms are anticipated.

				be defined, typically at least 5% of limit • Coinsurance percentage after deductible: to be defined, at least 10% after deductible	1st/2nd/3rd/last 25% of the per crisis event sublimit") • Deductible and coinsurance must be uninsured other than by subsidiary
Coverage trigger	• *Crisis event* defined as "any established insurance trigger of any insurance policy of the client as listed in the schedule of the policy", e.g. a liability claim, D&O claim, property loss, with the potential to adversely affect the insured's business reputation • Policies do not have to be with AGCS • Alternatively: individual specifications	• *No explicit "trigger"* Coverage starts when policyholder hires any of listed expert Panel PR firms in response to "reputation threats" or "reputation attack" ➢ "Reputation threat" is defined as an act or event that *if disclosed in a publication the insured believes* will be seen by stakeholders as a *material breach of trust* and is likely to have *an adverse impact on the public perception* of an insured or covered brand ➢ "Reputation attack" is defined as a *publication* of a third party that the insured believes will be seen by stakeholders as a *material breach of trust and* is likely to have an *adverse impact on the public perception* of an insured or covered brand	• *"Adverse media event" defined as* publication of a statement regarding one of listed perils that has or is likely to cause *direct* revenue loss to insured (any peril affecting the industry broadly is excluded) • Incidents covered: - Death or permanent physical disablement of a guest - Food-borne illness caused by malicious or accidental contamination - Outbreak of Norovirus - Outbreak of Legionnaires' disease - Other endorsed perils agreed upon by the parties	• *Covered risk event* *Option 1: all risks* ▪ *Constant media* analysis in target markets shows *significant increase in negative media* (outlets defined in the policy) reporting related to one of four types of issues (products; clients; key persons; or ethical, social, environmental) ▪ *Revenue declines* at least by stated percentage compared with estimated revenues for designated period *Option 2: named perils* Munich Re proposes six "basic events" reported in two "high impact outlets": - Product recall - Discrimination or harassment of clients or employees - Loss of client data / breach of data privacy - Loss of key persons,	• *Crisis event* defined as one of 19 named perils or "other events" (to be specified) that has or is likely to lead to "*adverse publicity*" within 60 days of the start of the event, and *expected to lead to "financial loss*": - Blackmail & Extortion - Breach of IT Security - Counterfeit Goods - Criminal Proceedings - Damage to Premises - Environmental or Climate Change Impairment - Financial Restatement - Food Borne Illness - Industrial Espionage - Loss of Key Executive - Major Litigation - Mass Tort - Personal Endorser - Product or Service Boycott - Product Recall - Terrorism - Whistle Blower - Workplace Violence - Wrongfully Detention or Kidnapping of Key Executive - Other

				- Misconduct of key persons - Breach of certain UN Global Compact Principles (labor and anti-corruption) Following the event, insured must experience a *reduction in revenues* as well as a *decline in public perception* (measured via loss assessment of the loss adjuster) of a given %	• *adverse publicity* is the reporting of a crisis event in at least *two high impact media outlets* that specifically names the insured and is reasonably likely to cause a *financial loss* • *financial loss* is a decline greater than 20% of one of the following: revenues, price per share, customers that represent 20% of revenues, suppliers that represent production of at least 20% revenues
Designated media outlets for "adverse publicity" or "publication"	• N/A	• Dissemination via any medium of previously non-public information	• N/A	• Print/internet sites for: e.g., Financial Times, Wall Street Journal, The (London) Times, The New York Times; TV: ABC, BBC, CBS, CNBC, Fox, MSNBC, NBC, Skynews; or any outlet, including specific industry outlets or internet sites, by endorsement	• Print/ internet sites for: Financial Times, Wall Street Journal, The (London) Times, The New York Times; TV: ABC, BBC, CBS, CNBC, Fox, MSNBC, NBC, Skynews; or any outlet, including specific industry outlets or internet sites, by endorsement
Insurance payout and measurement of insured losses resulting from a reputational crisis event	• Fees for professional crisis and reputation management and communications services: - Media spending and production costs (incl. print, digital and broadcast) - Legal fees incurred in reviewing crisis communications - Other crisis response and	Coverage includes costs of communication and monitoring (if recommended by panel experts as defined by Chartis) before and after information gets published: - Costs of crisis communication services provided by a Panel PR firm (must be selected from list) - Costs of communication - Social media response	• Loss of RevPAR which directly results from the incident, protecting the hotel's financial loss caused by the adverse media coverage, calculated as: Average Daily Room Rate (ADR) * (shortfall in daily room occupancy)	• Payout determined based on loss assessment result in combination with expected vs. actual revenue Covered loss = x**Drop***PM* *x* = loss assessment result in % *Drop* = estimated revenue – actual revenue (set to 0 if	• Crisis management consultancy fees and communication costs • Extra expenses • Extensions (limit applies): - Pre-crisis coverage (circumstances where insurer and consultant have agreed are reasonably likely to lead to a crisis event first commencing during the policy period)

	campaign costs such as research, events, social media, and directly associated activities	- Cost of brand monitoring - "Value added benefits" of the ReputationGuard Panel firms (preferred pricing, discounted crisis rates, access to events and seminars etc.)	ADR = (room revenue)/(# rooms sold) • Crisis management costs incurred by the insured to avoid the direct loss of RevPAR	negative) *PM* = profit margin (pre-agreed margin, which is assumed to represent the profit as a percentage of the turnover)	- Emergency crisis event expenses (coverage does not require written consent by insurer and is not conditioned upon financial loss)
Key Exclusions	• Known prior matters and notifications • Wilful managerial conduct	• Criticism or an insured's financial performance or any change in the financial rating of an insured • Direct and foreseeable consequence of an insured's decision to change or discontinue the use of any business strategy, manufacturing process, vendor, supplier or distributor	• Arising out of terrorism • Any loss which touches or concerns the whole or part of the industry sector or market and affects the revenue and reputation or goodwill of businesses other than the insured • Loss arising out of the insured's willful, deliberate, malicious, fraudulent, dishonest, or criminal act • Adverse media events arising from strikes or similar labor actions	• Any event that is a direct consequence of a business decision of the policyholder's top and second management level • Loss in revenue emanating from the non-availability of products due to physical damage at the premises of the policyholder or any supplier or sub-supplier	• Any dishonest, fraudulent, criminal, or malicious act, error, or omission; intentional / knowing violation of law; improper or illegal gaining of any profit or advantage by insured, director, officer, employee of insured • Product recall arising out of bioengineering, genetic engineering or genetic modification; hormone treatment; irradiation; TSE; or carcinogens • Related to the manufacture of any brand or product designed as the insured intended when the product does not contain any defects or does not have any unexpected or unintended results