

Research Article

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Natural Disasters vs Hotel Industry Resilience: An Exploratory Study among Hotel Managers from Europe

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Abstract: Hotels, like any other businesses in a given location, can be threatened by natural disasters, usually with significant and long-term consequences. The hotel industry is particularly vulnerable and exposed to the risk of property being physically damaged or completely destroyed. Apart from the physical damage, there is also an accompanying economic risk of the tourism sector suffering as tourists avoid areas affected by a disaster event. Therefore, hotels in the areas prone to natural disasters must ensure they are resilient enough to carry on through the turbulent period until regular business levels return. This study is based on survey responses of 63 hotel managers from the 12 European countries most frequently affected by natural disasters. The study relies on multi-capital predictor based approach and examines hotel resilience to natural disasters. It has been found that managers' previous experience of a natural disaster, duration of managerial experience, and organizational category and size have a positive effect on hotel resilience. Moreover, hotels must anticipate such situations and continuously drill how to respond efficiently and adapt quickly in order to ensure business sustainability. Practical implications, study limitations and future research recommendations are also discussed.

Keywords: Natural disasters, Hotels, Resilience, Managers, Capital predictors, Europe

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1 Introduction

The number of international arrivals has been growing increasingly over the past decades. For example there were 0.52 billion arrivals in 1995, 0.8 billion in 2005 and 1.1 billion in 2013 [1]. As presented in the United Nations World Tourism Organization's 2017 Annual Report, international tourism reached a milestone in the record year of 2017. Destinations worldwide welcomed over 1.3 billion international tourists, some 84 million more (or 7%) than in 2016. Europe was dominant in international travel in 2017 (671 million or 51% of all international tourist arrivals). This is an increase of 8% in comparison to 2016 and the forecast is also promising [2]. Since the global hotel industry comes under the umbrella of the tourism industry, it shares a similar numerical profile. Statistical research shows growth of the global hotel industry over the years with the revenue of 570.18 billion US\$ in 2017 [2] making it one of the world's fastest growing sectors with total retail value of around 500 billion US\$ and accounting for around 5% of the global GDP [4].

Although tourism continues to be one of the best positioned economic sectors to strongly support society and our environment, this sector is also facing several challenges. As stated in the same UNWTO Annual Report, some of those challenges are related to safety and security concerns. Considering this, one of the top priorities for tourism development defined by the UNWTO was the promotion of safe and seamless travel [2]. Safety and security have been recognized as very important in tourism and the hotel industry [5], and often the first aspect people consider while travelling [6, 7].

While growth of the international tourism and hotel industries is good for worldwide economies it also exposes these sectors to new and varying risks and uncertain vulnerabilities [8] at the global level [9]. Additionally, remote and attractive destinations are usually high risk destinations with greater possibility of putting tourists at risk [10, 11].

Many scholars examined how the image of tourist destinations in terms of safety and security affect a tourist's choices [6, 7, 11–16]. As tourists prefer a safe place away from any type of hazards or disasters [17], these events mostly negatively affect their choices in the short or long term. Unfortunately, those events (*e.g.* natural disasters) are inevitable in this world [18]. However, despite the fact that perception of risk plays an important role in destination choice and intention to visit risky destinations, tourists still have a strong desire to explore the world and have proven to remain resilient during hard times [19]. On the other hand, it is evident that the tourism industry is becoming more and more vulnerable to natural disasters. Thus, managers also need to think about the safety of tourists who are at a destination in the time of such unpredictable events. This is why managers need to cultivate certain strategies and procedures in order to make their organization more resilient in such occasions. When developing new tourist destinations in locations with a significant likelihood of natural disaster occurrence, awareness and appropriate caution are essential in order to minimize possible negative consequences.

Being an integral part of the tourism industry, the hotel industry is also vulnerable to various types of hazards [20–23] to the negative effect of disasters [24], and is highly vulnerable to crisis [20, 21]. As noted by Ritchie [10], those disaster effects cannot be avoided but just mitigated while property and, most importantly, human lives can be saved. Thus, the impact of natural disasters can be reduced if properly managed [22, 25]. Safety and security are essential for hotels in preventing death and injury for guests and employees, with multiple forms of hazards [26], while being safe from hazards is the priority for hotel guests [17].

Vulnerability of the hospitality and tourism sectors comes from the fact that employees and hotel guests are part of the tourist/hotel product itself [27], and therefore also at risk [22]. In other words, service delivery, its quality and overall customer experience are highly dependable on various external factors which can escalate quickly and without any warning.

Unfortunately, there are many forms of evidence of the negative effects of disasters, especially natural ones, on the hotel industry and hotels themselves [23, 28–33]. These negative events have forced managers to think more strategically. They recognized the importance of following the rules and regulations that will make their hotels more resilient, and creating internal procedures to increase the safety of tourists and their employees. However, not all hotel managers are aware of this, so hotel organizations also differ in their level of resilience to natural disasters.

The aim of this research is to explore natural disaster resilience within the hotel industry in Europe. This research leans on the work of Brown *et al.* [29], and their study based on Disaster Resilience Framework from Hotels in the New Zealand hotel sector. Using the similar multi-capital based approach; the present study also covers a wide range of disaster resilience predictors, and therefore presents a follow up study with the evidence from a different continent. Given the small number of studies that have examined the relation between hotel's natural disaster resilience and manager profile, this study should further contribute to the hotel and tourism industries in general by drawing attention to the importance of natural disaster resilience among European hoteliers.

2 Literature review

2.1 Natural Disasters

Natural disasters are catastrophic events resulting from environmental factors that cannot be controlled [23]. Similar explanation was given by Mileti [34] who describes a disaster as a natural phenomenon, *i.e.* natural hazards interact with environment, causing societal disruption. These natural disasters strike when people least expect, often without warning or enough time to prepare. According to EM-DAT classification [35], the main natural disaster subgroups include geophysical, meteorological, hydrological, climatological, biological and extraterrestrial events. They occur in various forms: earthquakes, tsunamis, volcano eruptions, hurricanes, typhoons, floods, wildfires, etc. Contrary to the aforementioned, Mileti [34] states that those disasters are predictable and avoidable to some extent. Brown *et al.* [22] also see disaster as a sudden and externally triggered event which affects society, requiring response and recovery. Perry and Quarantelli [36] look at disaster as an extreme event with a natural, technological and social causes that has numerous consequences, including disruption. They basically happen every year in some part of the world and affect hotel and tourism industry all the time. Moreover, Faulkner [9] states that tourism destinations in every part of the world are exposed to disasters.

One of the most complex definitions of natural disasters is set by the World Health Organization (WHO) in 1971 in their Guide to Sanitation in Natural Disasters: "A natural disaster is an act of nature of such magnitude as to create a catastrophic situation in which the day-to-day patterns of life are suddenly disrupted and people are plunged into helplessness and suffering, and, as a result, need food,

clothing, shelter, medical and nursing care and other necessities of life, and protection against unfavorable environmental factors and conditions" [37, p.14].

Basically, all previous definitions of disaster contain disruption as a main element in their explanations. This is also noticed by Rodriguez *et al.* [38] who point out social disruption. As we intend to follow up the work done by Brown *et al.* [29], the current study is based on their definition of disaster and further discussions will refer to disaster as: "A sudden event where trigger is outside the current control of the affected area (community and/or business), the event disrupts the function of that area and requires additional resources (other than those available within the area) to respond to and recover from the event" [22, p.363].

The Munich Re NatCatSERVICE registered 850 events in 2018, and Europe was the third most affected continent (14%). The most frequent events were floods and landslides (46%), storms (42%), followed by extreme weather conditions and wildfires (7%) and earthquakes, tsunamis and volcanic eruptions (5%). Unfortunately, this distribution represents the long-term trend towards more frequent storms and floods [39].

2.2 Natural disaster resilience

Hotels continuously invest in disaster prone areas, where risks are high and disasters unpredictable, that leads to inappropriately addressed fundamental problems. Hotels can usually improve a destination's disaster preparedness with access to an emergency response system [40]. However, The UNISDR Global Assessment Report 2013 reveals that the hotel industry is able to manage small disasters but not the extreme ones due to lack of the capabilities to reduce those risks and to stay prepared [41]. Moreover, as summarized by Brown *et al.* [22], the ability of hotels to upgrade its disaster preparedness is very limited.

In academic literature related to disasters, the definition of resilience is usually described as the ability to survive and overcome a disaster with as small impact and damage as possible [42] or to recover with minimal social disruptions [43]. Furthermore, the research on hazard resilience also includes prevention and preparedness for the disasters [43–45]. Interestingly, Mileti [34] describes sustainability, in the context of natural disasters, in a much similar way resilience is described nowadays, emphasizing the ability to tolerate and overcome damage caused by a large scale event. This ability is highly influenced by social and economic networks [46].

Among numerous definitions, the International Organization for Standardization (ISO) defines resilience as the

adaptive capacity of an organization (or community) in a complex and changing environment [47]. An explanation of resilience given by UNISDR [48], has community and society in focus and their ability to resist and recover from disastrous events in a timely way, retaining all core functions. As an obvious overlapping point of the aforementioned definitions of resilience is the concept of community and its capacity to survive disruptions and disasters, to adapt and persist in its business activities.

With the aim of establishing this capacity, communities concentrated on creating capitals, primarily social and human. These capitals specifically aid a community in overcoming disastrous events [49]. Due to numerous suggested definitions, it is important to frame a definition as a foundation for the following discussion. Thus, in this study, the natural disaster resilience is referred to as the capacity or ability of a hotel to predict, prepare for it, act, and most importantly recover from its impacts.

Based on the extensive literature review regarding natural disaster resilience within the hotel industry it has been noted that previous experience in natural disasters represents one of the key elements that highly influence risk perception of such disastrous events [50]. Some studies [10, 41, 51–55] have found that previous experience positively affects disaster risk perception and generally enhances development of this segment of business practice. Therefore, two initial hypotheses can be proposed:

- H₁: Hotel managers who previously experienced natural disasters while being in managerial position have a better perception of natural disaster resilience.
- H₂: Hotel managers who previously experienced natural disasters in life generally have a better perception of natural disaster resilience.

Although few scholars examined the relation between organizational age and crisis [56–58], none of those studies investigated the relation between managerial experience period and hotel resilience. Given that, for the purpose of this study another hypothesis is suggested:

- H₃: Hotel managers with longer managerial experience have a better perception of natural disaster resilience.

Additionally, very few studies [41, 55, 57, 59, 60] have noted evidence regarding the link between organization size or hotel category and crisis planning. Thus, the following hypotheses related to organization size and hotel category and natural disaster resilience of hotels are proposed in this study:

- H₄: Higher hotel category positively affects the perceived level of natural disaster resilience.

H₅: Larger organization size positively affects the perceived level of natural disaster resilience.

2.3 Capital predictors

This paper uses a multi-capital based approach [61] as a framework to assess natural disaster resilience within hotel industry. It focuses on five major and independent capitals: Economic (e.g. financial resources, diversity of income, savings, investments, credit availability, insurance coverage, etc.); Social (e.g. community and social networks and ties, external communication, norms, trust, capability to work as a group, etc.); Human (e.g. education field, education level, knowledge and skills, training, work and disaster experience, demographic characteristics, health, transportation options, etc.); Physical (e.g. local geography and environment characteristics, buildings, infrastructure – including roads, electricity, water supply, telephone coverage, emergency resources as police, hospitals, evacuation plans, etc.); and Natural (e.g. hotel location, environmental risks, natural resources, local eco systems, impact of hotel activities on destination sustainability, etc.). Some authors [22, 24, 29] additionally included in their research Cultural capital that primarily focuses on knowledge about local culture and cultural influence on social environment. According to some authors [62, 63], this cultural capital can be merged with social capital into Organizational capital. Following this practice and taking into account the feedback from field professionals during the instrument development, we also combined them in this study.

The main advantage of the multi-capital approach is the fact it includes the most important capitals necessary to understand and examine disaster resilience. Furthermore, each capital consists of different predictors that measure specific community resilience to natural disasters. These capitals, in the context of resilience, were a topic of many studies, summarized lately by Brown *et al.* [22] and Brown *et al.* [24], and used as a foundation for the research of the same authors [29].

Although practical and not very new, capital based approach is rarely used for research within the hotel industry. Moreover, the literature often presents this concept as closely related and linked to the concepts of sustainability and disaster resilience [34, 64]. Hence, it is interesting to note that literature on multi-capital approach in the hotel industry remains scarce.

3 Methodology

3.1 Study area

The hospitality sector is one of the main drivers of the European economy and tourism. This sector supports employment greatly and makes direct, indirect and induced contributions to the economies of European countries. Additionally, it supports 16.6 million jobs in Europe, 11.1 million jobs directly representing 7.8% of the European workforce or 80% of the total EU tourism workforce [65]. Newer studies showed a further industry growth - the industry alone provides 11.9 million jobs and created 1.6 million new jobs between 2013 and 2016. Together with tourism, it is the third largest socio-economic activity in Europe [66]. Moreover, the results from 2017 suggest favorable perspectives for European hoteliers - European hoteliers positioned on the economy segment posted the strongest growth [67]. This trend continued in 2018, as the European hotel industry was still growing healthily [68].

While the numbers representing industry growth have increased, the number and impacts of disasters have also increased in Europe in the last two decades, and in the period 1998-2009, disasters caused nearly 100.000 fatalities, affected more than 11 million people and led to economic losses of about EUR 150 billion. Major causes were extreme temperatures, floods, storms and earthquakes [69]. These natural disasters are unfortunately constant over the last years with wildfires being the fifth major natural disaster by occurrence [35].

Floods and storms in Europe accounted for 73% of the total economic damages for the period 1989-2008, being the major threat including heat waves [70], on the other hand, the deadliest disaster in Europe in 2018 was the wildfires in Greece [39].

From 1998 to 2017 climate-related and geophysical disasters killed over one million people and left more than 4 billion in need of emergency assistance. Although most of fatalities were due to geophysical disasters, mainly earthquakes and tsunamis, over 90% of all natural disasters were caused by floods, storms, droughts, heat waves and other extreme weather events. Furthermore, three European countries are among the top 10 countries in terms of absolute economic losses for the period 1998-2017, Germany (floods), Italy (earthquake), and France (storms), respectively. It is interesting that economic losses are significantly bigger in high income countries (65%), while fatalities are higher in countries with lower incomes (46%). For the mentioned period, Europe was significantly more af-

fectured by climate-related than geophysical disasters in any manner [71].

About 50% of global losses from natural disasters in 2018 were insured (Europe accounted for 8% of insured losses). Support by the insurance companies helped to increase natural disaster resilience, in other words, the ability to return to previous state as soon as possible. Moreover, developed countries account for the majority of insurance coverage regarding natural disasters. Thus, there has been a continuous growing interest in those countries to have an insurance against natural disasters [39].

3.2 Research instrument

This study is based on the survey conducted by Brown *et al.* [29] in order to determine disaster resilience in the hotel sector in New Zealand. Similar to the research concepts [29, 58], a few steps were undertaken to increase validity of the research. An extensive literature review and relevant studies were used to develop the survey instrument. The initial questionnaire was tested in a pilot study in December 2018 with ten hotel managers, and European professionals from relevant study area: tourism, insurance, marketing, psychology, security and geography. After receiving useful comments, the questionnaire adapted from [29] was modified; primarily, cultural capital was merged with social capital forming organizational capital. Similar was done by other authors [62, 63]. The question related to the number of years respondents have lived in a particular county was redesigned: I have lived in this country long enough to be familiar with its culture (cultural capital); and the socio-demographic part of the questionnaire was extended. The revised questionnaire was clearer, which improved completion process by reducing possible misunderstanding.

The final version of the questionnaire used in the study consists of two parts. The first part of the questionnaire focuses on 41 capital predictors representing economic (7), organizational (11), human (12), physical (7), and natural (4) capital resources. In this section of the questionnaire, respondents were asked to evaluate the level of agreement with capital predictors on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The second part includes questions which examine the socio-demographic profile of the respondents (*e.g.* gender, age, work experience, etc.), hotel profile (*e.g.* location, category, etc.), as well as respondents' experience with natural disasters.

3.3 Data collection and procedure

Using the EM-DAT database [35] the authors calculated the top 12 European countries in terms of number of natural disasters (those with over 20 recorded events), for the period 2000-2018 (Table 1). The most frequent recorded disasters include storms, floods, extreme weather conditions (cold or heat waves), ground movements and wildfires, respectively. Following that, two main pathways were used to reach hotel general managers in those countries: directly by the authors, and indirectly through National hotel associations. Both National hotel associations and hotel managers were contacted by email explaining the purpose of the study. National hotel associations were asked to forward the link to an online survey (Google Forms) to their members, or to complete the questionnaire in case of a direct contact with managers. The online survey was conducted from January to March 2019. National hotel associations were contacted in order to speed up the research process. Although this indirect contact was proven helpful, it was a limiting factor in calculating response rate, while the response rate from direct contact with hotels was 68%. A total of 63 surveys were completed and the collected data were processed with statistical software SPSS 23 using t-tests and ANOVA.

Table 1: European countries with over 20 recorded natural disasters for the period 2000-2018.

Rank	Country	Number of natural disasters
1	Russia	97
2	France	73
3	Italy	63
4	Romania	49
5	Germany	45
6	Great Britain	41
7	Greece	35
8	Bulgaria	32
9	Spain	27
10	Poland	27
11	Serbia	23
12	Belgium	21

Source: Authors' calculation based on [35].

3.4 Study sample

The sample consists of 63 hotel managers from 63 hotels located in 12 countries (Figure 1).

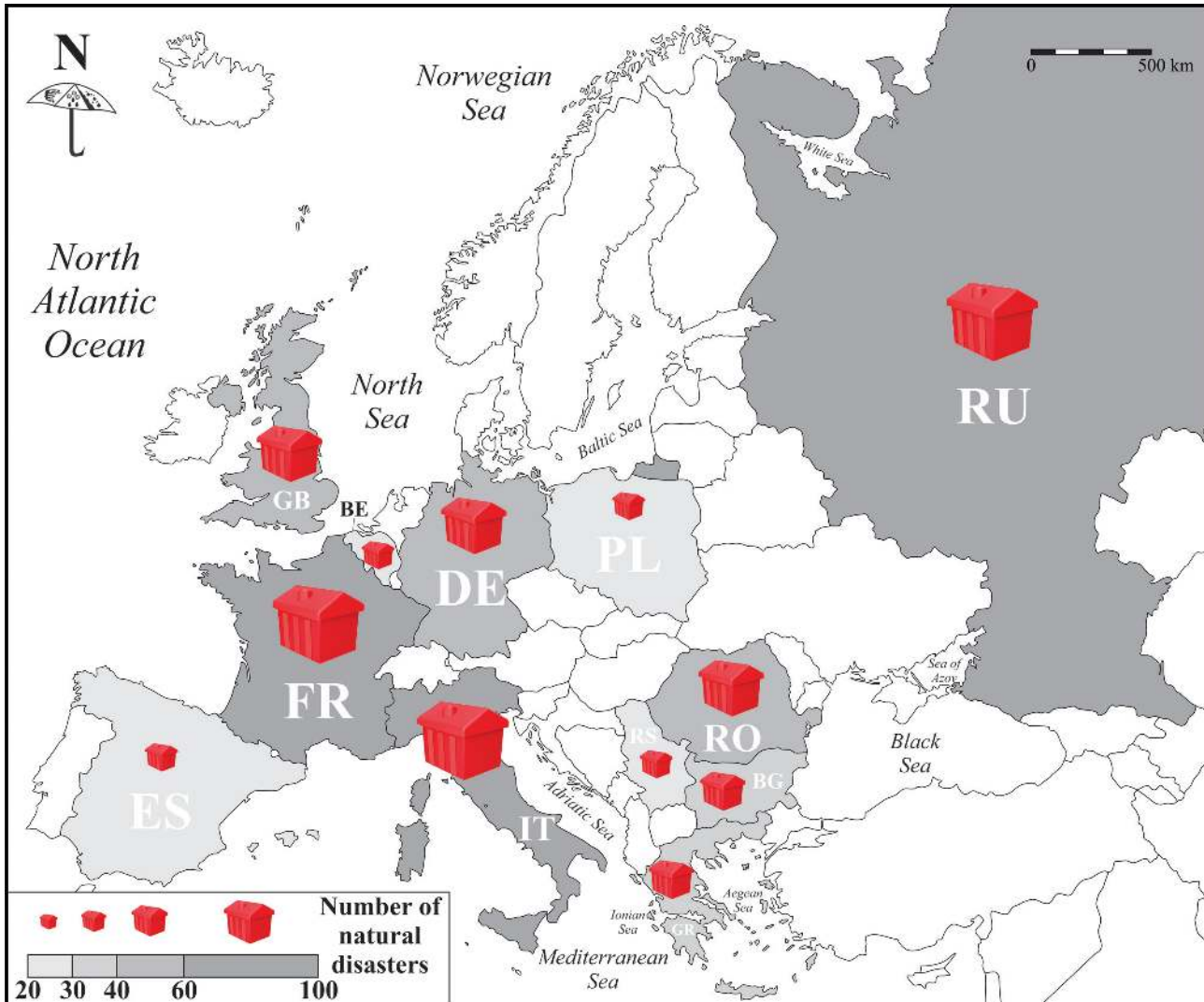


Figure 1: Spatial distribution of the study sample – the most affected European countries by natural disasters

Although hospitality industry is a sector being especially significant in the employment of women (up to 53.7% in comparison to the overall economy 46.1%) [72], surprisingly, in the present sample the share of female respondents was 60.3%. The most dominant age group was 36-50. Regarding work experience, those who have worked as a hotel manager from 10 to 15 years (38.1%) are the most numerous. Also, more than 45% of the respondents have more than 15 years of work experience in hospitality, and 76.2% of them have completed education in hospitality sector. Hotel managers from 4* hotels are predominant in the sample. The detailed characteristics of the sample are shown in Table 2.

4 Results and discussion

4.1 Descriptive statistics

Descriptive statistics and Cronbach's alpha coefficients for all analyzed constructs are presented in Table 3. The reliability analysis confirmed that all measures used in the study are reliable as Cronbach's alpha (α) ranged from 0.702 to 0.823 [73, 74].

The results reveal that respondents gave the highest marks to Physical capital predictors ($M=3.9365$; $SD=0.97863$) and Organizational capital predictors ($M=3.8268$; $SD=0.77530$). Similar findings were reported in the research conducted by Brown *et al.* [29] within the hotel sector in New Zealand. In that study, hotel managers

Table 2: Profile of the respondents and organizations (N=63)

Gender (%)		Hotel category (%)	
Female	60.3	***	34.9
Male	39.7	****	38.1
		*****	27.0
Age (%)		Work experience in hospitality sector (%)	
18-35	9.5	Up to 3	6.4
36-50	55.6	3-5	7.9
51-65	34.9	5-10	4.8
		10-15	33.3
		15-20	23.8
		More than 20	23.8
Education (%)		Work experience as hotel manager (%)	
Bachelor	42.9	Up to 5	17.5
Master	57.1	5-10	23.8
		10-15	38.1
		More than 15	20.6
Education in hospitality sector (%)		Previous experience with natural disasters in life generally (%)	
Yes	76.2	Yes	33.3
No	23.8	No	66.7
Organisation (hotel) size		Previous experience with natural disasters during career as hotel manager (%)	
Large	15.6	Yes 19.1	
Medium	57.2	No	80.9
Small	27.2		
Existence of law in respondent's country that defines specific requirements or procedures for hotels regarding natural disasters (%)			
Yes 27.4			
No 31.4			
I do not know 41.2			

highly ranked evacuation plans, local building codes and backup of all critical organizational data.

Also, many of the organizational capital predictors obtained a relatively high mark which implies that managers are dedicated to the organization they work for, especially to team approach to planning, leadership and problem solving. This is of a great importance for each organization because it is crucial to its success how they perform during crisis caused by external events [75].

Economic capital predictors ($M=3.2880$; $SD=0.72730$) received the lowest score among all examined predictors. The major effect on such outcome had a predictor Disaster management expense is significant part of the hotel budget ($M=2.6349$; $SD=1.22213$). Despite of having comprehensive multi-hazard insurance coverage ($M=4.1111$; $SD=1.01776$), many of the surveyed hotels do not invest significantly in disaster management, *i.e.* such expenses are just a small share of their budget. One of the primary

reasons for this is the financial situation of the organization [60].

These results are not in favor of hotel resilience knowing that the economic opportunities can greatly reduce the negative effect of disasters and make communities more resilient [61]. An additional unfavorable fact regarding hotel resilience is that more than 40% of hotel managers do not know whether any law in their country defines specific requirements or procedures for hotels regarding natural disasters, while one third of them state that such regulations do not exist.

4.2 The independent variables and hotel resilience

T-test for independent samples was applied with the aim to compare arithmetic means of two groups – independent variables (experience with a disaster as hotel manager and

Table 3: Descriptive statistics and reliability of the instruments

	Mean	Std. Deviation	α
Economic capital predictors	3.2880	0.72730	0.823
Hotel has comprehensive multi-hazard insurance coverage	4.1111	1.01776	
Disaster management expense is significant part of the hotel budget	2.6349	1.22213	
Hotel has diverse customer base/markets	3.9524	1.19715	
Hotel marketing is aimed at strengthening a diverse customer base	3.6984	1.04163	
New opportunities for profit streams are constantly being sought	4.0317	0.91525	
I am satisfied with profitability in the last year	3.6349	1.39471	
I believe that financial reserves held by organization are sufficient	3.5873	1.35164	
Organizational capital predictors	3.8268	0.77530	0.795
Hotel takes a team approach to planning	4.0476	1.18361	
Ideas and input are valued by hotel leadership	3.9841	1.03942	
Staff socializing is encouraged through company activities	3.5714	1.07335	
Having well informed employees through media and networks is encouraged in this organization	3.6984	1.10183	
In my capacity as manager I work to build relationships with other organizations that may be needed in disaster	3.3016	1.48796	
People in this organization are committed to problem solving	3.9365	0.99795	
Hotel uses knowledge creativity	3.9365	1.01398	
We believe that our plans will work in a disaster	3.9683	1.03942	
Hotel leaders take thoughtful actions to resolve problems	3.9843	1.10670	
I identify myself as local resident	3.8095	1.04507	
I have lived in this country long enough to be familiar with its culture	3.8571	1.02952	
Human capital predictors	3.5079	0.87037	0.714
If key organizational people are unavailable there are always others who can fill their roles	3.6825	1.20249	
All employees participate in planning for disaster response	2.9841	1.39691	
All employees participate regularly in disaster response exercises	3.6190	1.45279	
Employees are available to work immediately following a disaster	3.3016	1.37530	
Employees are located/live close enough to walk to hotel if necessary, following a disaster	2.7619	1.35259	
Employees are skilled to provide adequate care for guests in a disaster	3.7302	1.18057	
Guests are provided regularly with information about lifesaving emergency procedures	3.1270	1.51862	
Hotel has all manual procedures in place for critical systems	3.9683	1.24393	
I have control over my life and circumstances	3.8254	1.10044	
CPR training gives employees skills necessary to act promptly in a disaster	3.6825	0.94741	
Hotel managers proactively monitor the industry to have an early warning of emerging potential problems	3.5556	1.38864	
Hotel managers proactively monitor natural hazard related announcements/reports to have an early warning of emerging potential problems	3.8571	1.18943	
Physical capital predictors	3.9365	0.97863	0.815
Equipment and resources for natural disaster response are ready for immediate deployment	3.6349	1.26110	
Evacuation plans are clear, easy to follow and in place at the hotel	4.3810	1.06904	
Sufficient back-up power generation capabilities available at the hotel	3.6825	1.44608	
Sufficient water and food supplies for emergency use are available at the hotel	3.5079	1.49054	
Hotel is in compliance with local building codes	4.6032	0.95950	

Table 3: ... continued

	Mean	Std. Deviation	α
All critical organizational data is backed up and/or printed regularly	3.9365	1.06063	
Critical systems have sufficient redundancies to get us back to business fast	3.8095	1.37790	
Natural capital predictors	3.7857	1.04327	0.702
Hotel location is exposed to natural hazard risk*	3.7302	1.06569	
Staff and guests can quickly evacuate from the hotel to a safe location if needed	3.8730	1.23774	
This hotel participates in protection of eco-system regularly	3.6667	1.17775	
The impact of our business on the local (natural) environment is an important part of hotel policies	3.8730	1.23774	

*reverse scored predictor

general experience with a disaster) and dependent variables (economic, organizational, human, physical and natural capital predictors).

Based on the obtained results, it is concluded that there are statistically significant differences in relation to previous experience with a disaster as hotel manager (Figure 2), with three capital predictors: organizational ($p=0.045$, $t=2.052$), human ($p=0.006$; $t=2.842$) and physical ($p=0.040$; $t=2.094$) and therefore H_1 can be partially accepted. Hotel managers that have previous experience with a natural disaster give higher grades than the others. Similarly, those respondents who generally had experience with a disaster in the past (Figure 3), before they became hotel managers, give significantly higher scores to all five groups of capital predictors (economic capital predictors $p=0.013$; $t=2.557$; organizational capital predictors; $p=0.017$, $t=2.457$; human capital predictors $p=0.001$, $t=3.157$; physical capital predictors $p=0.001$, $t=3.157$; natural capital predictors $p=0.002$, $t=3.352$), which indicates that H_2 can be accepted. Having experienced manager at top position is very important especially for individual and small hotels knowing that such hotels mainly rely on their own experience in dealing with emergency situations [41]. Additionally, it is worth mentioning that statistically significant differences in responses between managers with different type of experience with natural disaster have not been found in this study.

Recent studies investigated previous experience in natural disasters and concluded that it represents a factor that highly affects risk perception of such natural events [50]. In line with our findings, some scholars [10, 52, 53] have noted that previous experience positively correlates with disaster risk perception (e.g. people who had such experience are more prepared and can react better in case of new disastrous event), others conclude that people

who do not have direct experience of dealing with disasters, usually tend to underestimate them [51] and the seriousness of the situation they create. Similarly, organizations that experienced natural disasters in the past, and learnt the hard way their effects, are more likely to develop this segment of business activity. This includes emergency plans, communication, redistribution of available resources, marketing, etc. [10, 54, 55].

By applying the one-way analysis of variance ANOVA the existence of statistically significant connection between dependant variables (economic, organizational, human, physical and natural capital predictors) and independent variables (managerial experience period, hotel category and organization size) was examined. The relation between organizational age and crisis was explored by a few scholars [56–58]. However, none of them addressed the relation between managerial experience period and hotel resilience (Figure 4), as explored in this study. As the initial analysis pointed to statistically significant difference in answers regarding human capital predictors ($p=0.004$; $F=5.021$) and physical capital predictors ($p=0.024$; $F=3.381$) the hypothesis H_3 can be partially accepted. The performed LSD post hoc test clearly revealed that respondents with more than 10 years of managerial experience within hotel industry rewarded those predictors with higher scores, i.e. hotels they work for are more resilient to natural disasters. The significance of managerial experience is crucial in these situations as sometimes organizations rely only on that [41]. Moreover, those with higher resilience tend to be less affected [76] and more able to manage disruptive challenges [77]. This is somehow expected since education and experience positively influence technical, social and conceptual knowledge and skills of managers [78].

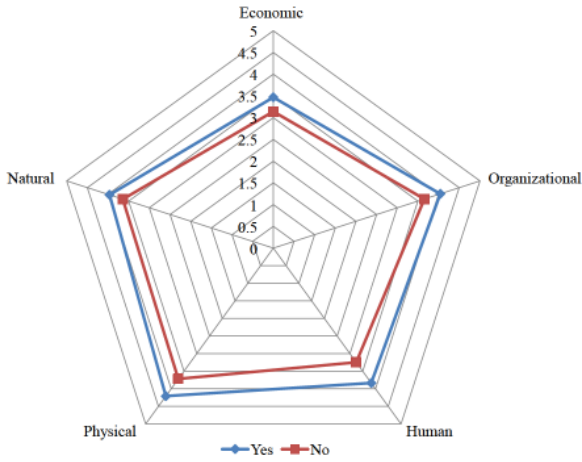


Figure 2: The relation between previous experience with natural disasters as hotel manager and hotel resilience

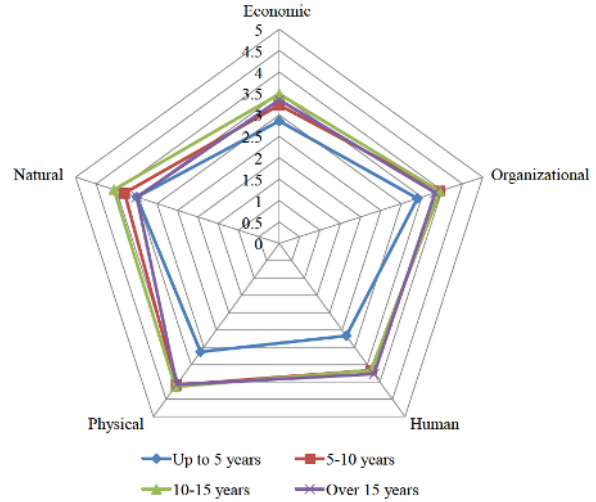


Figure 4: The relation between managerial experience period and hotel resilience

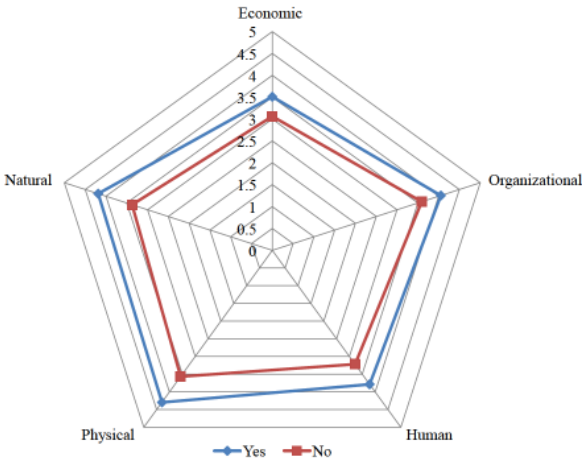


Figure 3: The relation between general experience with natural disasters and hotel resilience

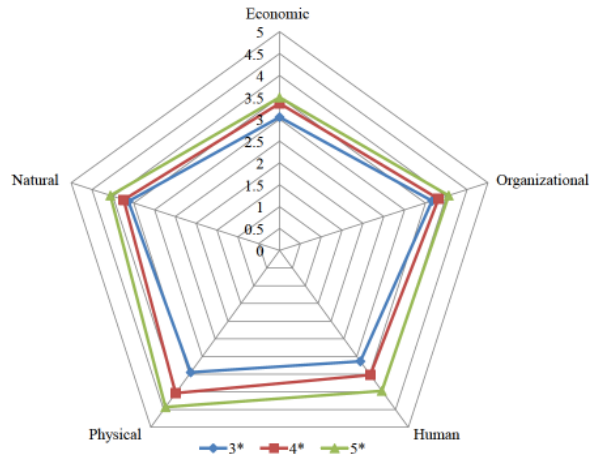


Figure 5: The relation between hotel category and hotel resilience

The results also greatly differ in relation to hotel category (Figure 5) and hotel (organization) size (Figure 6). Statistically significant difference was noted for the same capital predictors; human capital ($p=0.010$; $F=4.974$; $p=0.000$; $F=10.956$) and physical capital ($p=0.005$; $F=5.787$; $p=0.000$; $F=11.865$), which led to partial acceptances of hypotheses H_4 and H_5 . Managers of 5* hotels and those who work in large and medium hotels are more oriented towards human and physical capitals. Some studies have provided evidence that supports our findings concerning the link between organization size and hotel category, and crisis planning [56, 58–60]. Furthermore, Caponigro [60] states that large organizations are in a better position due to their financial profile and it is more probable for them to have an emergency plan in comparison to small organizations which believe that such crisis will not affect them. Although organization size is usually classified according

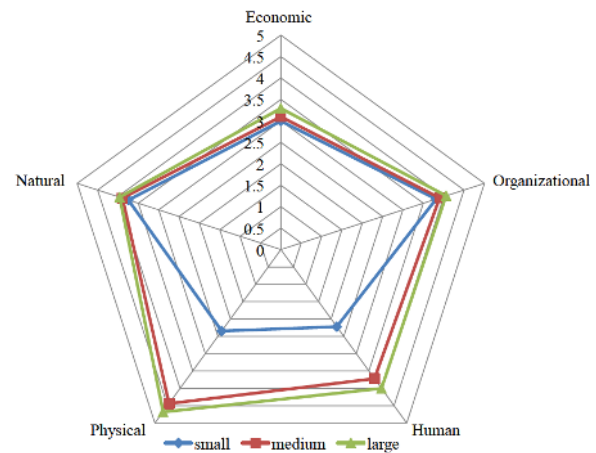


Figure 6: The relation between organization size and hotel resilience

to the number of employees [56], in this study we applied the hotel size classification suggested by Davidson [79] as follows: small (up to 10 rooms), medium (up to 50 rooms), and large (over 50 rooms).

5 Conclusion

Taking into account the fact that the number of tourists affected by natural disasters is high, the importance of providing information that can influence the mitigation of the consequences of natural disasters to the local community and hotels, is gaining in importance. Hotels have a very important role in raising awareness in the local community about the importance of planning activities to reduce the harmful effects of natural disasters. The ability of hotel managers to preserve the material and human resources in the emergency situations and re-establish the functioning of business processes in the hotel, improves organizational resilience. The use of a multi-capital based approach to investigate the resilience of the hotel sector in the event of natural disasters provides a comprehensive assessment of the factor aimed at raising the hotel's ability to respond to challenges posed by emergencies and to return to operational status.

The results of this paper show that hotels run by managers who have previous experience with natural disasters, or by managers with longer internship in the hotel industry, show a higher degree of resilience compared to the others. Such managers are much more aware of the importance of investing in the resilience of the hotel, and thus invest in the necessary procedures and allocate financial resources for these purposes. Statistically significant differences in answers of managers have been noted in relation to the category and size of the hotel. Larger hotels and those with higher category are more resilient. Hence, recommendations for managers of smaller and lower category hotels are to have a more comprehensive perception of natural disaster risks and to adjust the costs of managing such risks accordingly, within a long term strategy. Also, it is necessary to develop natural disaster risk management models and to establish internationally recognized standards that would increase the degree of compliance of hotels and therefore their resilience. In this case, hotel resilience would not depend so much on the profile of a manager.

These standards should be flexible enough to reflect the needs of the local community and focus on raising awareness through staff training to encourage effective adoption of the proposed measures. In addition, it is nec-

essary to define the leaders in the hotel industry at the local level which would be the starting point for the development and implementation of the standards. Creating partnerships between government organizations, the public and the private sector in order to promote cooperative and coordinated programs for recovery from the consequences of natural disasters, at the levels of both the hotel organization and at the local community, would contribute to the sustainable management of natural hazards.

This study has certain limitations that should be mentioned. First, the sample includes a smaller share of managers who have had experience with natural disasters during their hospitality career or generally in life. In this respect, the sample should be stratified, leading to an equal number of respondents in both groups. Secondly, as a lack of research, a cross-sectional approach to research can be indicated. Thus, the longitudinal approach should be considered in order to study hotel resilience over a certain period of time. This traceability would make it possible to draw conclusions about the causal relationships between different variables, or the causes that affect the resilience of hotels.

Future research into the resilience of hotels to natural disasters should include other independent variables that are not included in this research such as the type of hotel (e.g. business, resort, individual or within a chain, etc.) and the age of the organization. Also, comparing the organizational resilience with respect to the type and frequency of the occurrence of natural disasters would show interesting results. Lastly, similar study should be conducted in other European countries, even in those with less frequently reported natural disasters because such disastrous events can happen rarely but can leave long-lasting consequences on hotel industry and tourism sector in general.

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