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RISK ASSESSMENT AS A STAGE OF RISK MANAGEMENT IN ENTERPRISES IN TOURISM SECTOR

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Abstract

Risk management is a complex process that requires company managers to have very good knowledge of its organizational structure on the one hand and on the other hand, in order to achieve a good management, it is necessary for the respective manager to have sufficient long-term experience during which the manager has monitored the processes of company management and its susceptibility and change under the influence of various factors. The overall risk management process goes through three main stages: identification of risks, analysis and assessment of risks and risk monitoring. Each stage is a compilation of complex procedures through which the problems and risks for the respective enterprise are determined and overcome. For this reason, the strictness, importance and significance of each stage cannot be accurately determined. Due to the limited scope of the article, the research is focused only on one of the main problems in risk management, namely the study of the standard deviation of the risk in the process of assessing and analyzing the risks in tourism sector enterprises. The article has the following structure: Introduction, References review, Methodology, Results and Discussion. Two hypotheses are presented for testing and research. Proving these two hypotheses through the application of the mathematical toolkit for risk assessment gives the innovativeness of the article and its authorial identity, which distinguishes it from other publications in the field of tourism sector. The obtained results of this article can serve the managers of tourism companies to improve their work in the management of hotels. The process of identifying, testing, evaluating and analyzing risks is complex, requiring managers to have sound knowledge of finance, accounting, economics and management. This article can provide them with guidance for solving specific problems and making managerial decisions about risk management.

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Introduction

The management of large hotels is always a complex and very dynamic process that requires a great deal of professional competence on the part of managers. The conditions in which the modern tourism sector operates and develops confront hoteliers with different challenges, which are a prerequisite for the emergence, occurrence and development of many uncertain situations, generating various risks. The article makes a clear distinction between the concepts of "risk" and "uncertainty" (Fakfare, 2021). Risk is considered to be an uncertain and unknown event that can occur, causing a negative and unexpected effect. This event can be assessed in a reliable way, applying different methods and approaches, so that the severity and degree of influence of this event on the respective site are determined. The concept of "uncertainty" should be associated with vagueness, the impossibility of being determined at all, too much elusiveness and ambiguity in accepting that a given situation can exist or arise. For this reason, uncertainty cannot be estimated, it cannot be precisely measured. Medical researchers are increasingly focusing on the search for methods and approaches to measure and determine this "uncertainty" in medical processes, especially in processes that are related to the definition of new types of diseases. In economic processes and activities, uncertainty does not exist as a problem in testing and research, since economists have a certain toolkit of means and methods with which they carry out their activities. This is the difference between the respective sciences, and therefore the scientific areas complement each other and mutually develop.

In the satia, only the region of Varna, as a territorial unit of the Republic of Bulgaria, is studied, since in this region sea tourism is well developed and it has large hotels that perform very good management of resources and personnel. The research period is from 2018 to 2022, i.e. a critical period for the tourism sector. During this period, hoteliers were under the influence of various external factors that had an impact on the tourism sector. The sample was made for the large hotels of the Varna region of Bulgaria and the big 4 hotels of the region, which have a significant capacity to serve guests, were tested.

The risks in the hospitality enterprises have increased significantly, and in the last 2 years they have changed, especially after the impact of the COVID-19 pandemic. The tourism sector was most strongly impacted by the negative consequences of social isolation, as well as its ensuing results, including the impact of the subsequent economic crisis, which significantly reduced interest in the consumption of tourism services. The combination of internal and external factors is a prerequisite to place such an important and essential importance on the risk management processes, as well as to analyze and study the methods for assessing the risk deviation.

In order to achieve the goal thus set, the following tasks are to be carried out:

1) to introduce the purpose and meaning of risk deviation,
2) to investigate the risk deviation in the largest hotels in the Varna region (due to the limited scope of the study and the complexity of empirical research, the study of other hotels will be the subject of further research).

Based on the purpose and tasks, the following hypotheses are given for research and proof:

H_1: Is it possible for hotels to systematically assess their risks.

H_2: Is it possible to implement a single validated risk assessment methodology that is applicable to all hotels in the tourism sector.

Literature review

The issue of risk management has been the subject of much research. This is one proof of the importance and significance of this problem for the practice. Numerous studies in different areas have proven the importance of this issue, as well as the search for correct management approaches that are applicable to each business unit, organization and business model. According to a study by Aven (2016), the concept of risk and risk assessments as a scientific field is relatively new. It has been developing for the last 30-40 years and for this reason it cannot yet be perceived as an exact science. According to other researchers (Aven & Zio, 2014) risk as a scientific area is aimed at achieving two main tasks. The first task is aimed at the research activity, the study of various problems in the business environment and business models. The second task is aimed at research and study of risk to specific theories, studies, frameworks, approaches, principles, methods and models for understanding, evaluating, characterizing the overall management in organizations.

Standard deviation is a measure used in probability theory and statistics to determine the dispersion, variation, or spread of data. In the process of risk management, data is also derived from the assessment of individual risks and from the assessment of risk areas. In the natural regularities and rules on which all other dogmas, rules, principles, models, etc. are built nothing is the same and nothing has the same value represented by the corresponding values (Nedyalkova, 2020; Nedyalkova, 2018). Even if the objects are uniform, they always have their identical specifics that distinguish them from other objects, therefore, uniform objects can have the same average values, but

ject of the corresponding uniform group has some standard deviation from the corresponding average value characteristic of the common uniform objects. Many researchers have studied the issue of risk management in organizations of different natures and in different aspects (Lambovska, & Yordanov, 2020; Lambovska, 2018; Serafimova et al., 2022), but what they have in common is that it is not yet necessary in enterprises to organize proper internal control.

The risk management process is linked sequentially to the three main stages: identification; evaluation and analysis and the last stage is the monitoring; the determination and calculation of the standard deviation is carried out in the second stage. The calculation is carried out for each individual risk. In the tourism sector, the risk management process is not yet developed, in contrast to the public /budget/ sector organizations and the manufacturing enterprises, which have implemented quality management systems (Nedyalkova, 2020). According to the data that is available to us, 65% of tourism enterprises in Bulgaria have not yet implemented quality management systems, and the remaining 35% that have implemented management systems have not yet approved risk management procedures. In the study of the indicated 35% of tourism sector enterprises, the implemented systems are aimed at financial management, management of the offered tourist services, but unfortunately, risk management issues are not a priority. This further determines the need to seek a solution or borrow similar risk management practices from large Western European hotels.

Each risk is defined by the impact and probability of the occurrence of a given negative event. The processes of calculating the probability and the subsequent interpretation are two different processes, one being a consequence of the other. Also, the same researchers point out that the derivation of the individual risk assessment is subjective, as it is based on value interpretations and the use of subjective probabilities. The subjective probabilities affect the overall individual risk assessment, but the risks in question are determined according to the deviation from the established permissible norms. The risks in question are assessed separately from the individual risks, and it is the individual risks that are involved in the determination of the respective risk areas.

Proper identification of risks can be done if an adequate goal-setting process is in place. The goals have to be understood by all managers and employees in the tourism enterprise /hotel/ concerned to ensure their achievement through the performance of specific activities and tasks. Each goal that must be achieved over the year should meet the following listed criteria (called SMART): Specific, Measurable, Attainable, Realistic, Time-bound. The analysis of the progress towards the achievement of the goals is carried out on the basis of clearly defined indicators (criteria), according to which, by the deadline, it is determined whether the goal has been successfully achieved.

Once the goals have been defined for each organizational structural unit of the respective hotel, its management and the employees involved in the relevant activities are in a position to identify the critical risks that could hinder the achievement of the respective goals.

A uniform classification and definition of the risks identified is used in order to determine:

A) all common risks ie. such that could affect the achievement of the goals of more than one organizational unit and/or of the respective hotel as a whole;
B) the interconnected risks, i.e. the manifestation of one or more risks in one department or administrative unit could lead to the manifestation of a given risk in another structure;
C) risks that have occurred in the past, allowing to draw on previous experience, to track the development of a given risk, to synchronize efforts.

Methodology

The research covers the Varna region, and the largest hotels with established risk management systems are included in the scope of the study. This article does not indicate (mention) the exact names of the hotels, only the abbreviations, because the managers are concerned with the creation of a negative image among the public as a result of the final results of the research when testing the real situation, based on the real impact of the tested factors and problems on the respective hotels. For this reason, we maintain confidentiality and do not indicate the names of the hotels.

For this reason, we maintain confidentiality and do not disclose the names of the hotels. The general data for the investigated four hotels from Varna region in Bulgaria are as follows:

1) Hotel M with 370 beds, the location of the hotel is as follows: Right on the beach, bordering on a nature reserve. The number of appointed and working persons is 220,
2) Hotel A with 270 beds, the location of the hotel is as follows: 1.5 km from the beach. The number of appointed and working persons is 180,
3) Hotel B with 420 beds, the location of the hotel is as follows: The hotel is among the city's historical and cultural attractions, located less than 10 minutes' walk from the Opera House, the Art Gallery and the Archaeological Museum. The number of appointed and working persons is 280,
4) Hotel C, this hotel has a bed base of 180 places, the location of the hotel is as follows: 600 m. from the beach, and the number of employees working in it is 90 people.

The overall risk assessment will test the following formula:

$$V = P * S \quad (1)$$

Where:

P - probability of the occurrence of an event;

S - the impact (significance) of the occurrence of an event;

V - the assessment of individual risks.

For each singling out risk, it will test its standard deviation by degree of impact and influence. When testing and determining the standard deviation of the individual risk in relation to the impact factor, the following stages are carried out:

1) derivation of the individual assessment of the inherent risk, in relation to the impact factor,
2) determining the overall impact on the risk change. This assessment is carried out individually by all assessors /persons/ involved in risk management processes,
3) determination of the total standard deviation of the risk by the head of the team assigned to the risk management process, taking into account the results obtained from stage 1 and stage 2.

The process of risk management is never carried out by one person alone, usually several persons are involved in this process, in order to analyze the problems and risk situations from different perspectives and from different points of view. In this way, it is possible to assess to what extent a given situation is risky, and to what extent it is a momentary condition that does not affect the long-term management of the respective hotel. It is very difficult upon occurrence of a given situation to determine its intensity and the duration of the impact. As an example, the emerging COVID-19 pandemic situation in 2019, which continued also in 2020, and in 2021 and 2022 it still had an impact on business and on the development of the tourism sector, which was the most affected.

The commonality between the studied hotels is that the standard deviation of the individual inherent risks under the impact factor is calculated by the following formula:

$$SDRPF = \sqrt{\frac{(L_1 - TIF)^2 + (L_2 - TIF)^2 ... (L_n - TIF)^2}{N}} \quad (2)$$

Where:

SDRPF - standard deviation of the risk under the probability factor;

L - the individual assessment of a specific risk under the impact factor, derived by the relevant assessor;

N - number of assessments, i.e. the total number of assessment is equal to the number of assessors;

TIF - total probability - Arithmetic average value of all assessors' evaluations for a specific risk under the impact factor.

The total probability is calculated using the following formula:

$$TIF = \frac{(L_1 + L_2 + L_3 + ... L_n)}{N} \quad (3)$$

When testing and determining the standard deviation of the individual risk relative to the influence factor, the following stages are carried out:

1) derivation of the individual assessment of the inherent risk, in relation to the influence factor,
2) determining the overall impact on the risk change (this assessment is carried out individually by all assessors /persons/ involved in risk management processes by testing the influence factor on the change of the respective risk situation),
3) determination of the total standard deviation of the risk by the leader of the team assigned to the risk management process, taking into account the results obtained from stage 1 and stage 2.

The commonality between the studied hotels is that the standard deviation of the individual inherent risks under the influence factor is calculated by the following formula:

$$SDRIF = \sqrt{\frac{(L_1 - TIA)^2 + (L_2 - TIA)^2 + ... (L_n - TIA)^2}{N}} \quad (4)$$

Where:

SDRIF - standard deviation of the risk under the impact factor

L - the individual assessment of a specific risk under the influence factor, derived by the relevant assessor;

N - number of assessments, i.e. the total number of assessment is equal to the number of assessors;

TIF - total probability - Arithmetic average value of all assessors' evaluations for a specific risk under the influence factor. The total probability is calculated using the following formula:

$$TIA = \frac{(L_1 + L_2 + L_3 + L_n)}{N} \quad (5)$$

Risks with a standard deviation of more than 1, regardless of whether they are within the permissible norms for the relevant risk area, are examined by the persons involved in the risk management process. These risks should again be tested and investigated in order to establish the reasons for these deviations and the factors that are a prerequisite for allowing the corresponding deviation from the norms.

Results

The period of the research is from 01.01.2018 to 31.12.2021, and the individual risks that have been established and tested by the researched tourist enterprises during the research period are the following (Table 1).

Table 1: Individual risks of the tested tourist enterprises for the period 2018 - 2021

Region	Hotel	Main Individual risks
Varna region	M	R_1 - staff quality and staff turnover R_2 - reduction in tourist numbers as a result of COVID-19 R_3 - financial risks, delayed payments R_4 - contractual risks arising between counterparties in the event of non-fulfillment of contractual commitments /such as changing the date of an already paid tourist package under an agreement between the interested parties/. R_5 - theft of towles by tourists R_6 - foreign competition of similar services offered
	A	R_1 - distance from the beach and looking for an alternative transport of tourists to the beach R_2 - staff quality and staff turnover R_3 - marketing activity R_4 - accommodating last minute tourists during the season R_5 - contractual risks arising between counterparties in the event of non-fulfillment of contractual commitments /such as changing the date of an already paid tourist package under an agreement between the interested parties/. R_6 - decrease in tourists due to COVID-19
	B	R_1 - the competition /there are other hotels in the area offering similar services/ R_2 - financial risks R_3 - staff quality and staff turnover R_4 - decrease in tourists due to COVID-19 R_5 - the lack of incentive measures by the state for the tourism sector to over-come the COVID-19 crisis
	C	R_1 - decreasing bookings and reduction in the number of tourists R_2 - large losses caused by the impact of COVID-19 R_3 - incorrect determination of the start date of the summer season by the Mini-stry of Tourism in Bulgaria and the creation of the so-called “green corridor for tourists” for tourists with a negative PCR test and those who have overcome COVID-19 R_4 - financial risks R_5 - staff quality and staff turnover R_6 - contractual risks arising between counterparties in the event of non-fulfillment of contractual commitments /such as changing the date of an already paid tourist package under an agreement between the interested parties/. R_7 - theft of towles by tourists R_8 - problems with the service provided for the hotel guests’ pets

Source: Author’s own elaboration.

We have observed that the 4 studied hotels which have an established risk management policy, have common inherent risks that are characteristic of the tourism sector for the period 2018 - 2021, i.e.:

1) financial risks, delayed payments;
2) large losses caused by the impact of COVID-19;
3) decrease in tourist numbers due to COVID-19;
4) staff quality and staff turnover;
5) contractual risks arising between counterparties;
6) stealing towels.

For each singling out risk, it will test its standard deviation by degree of impact and influence. When testing and determining the standard deviation of the individual risk in relation to the impact factor, the following stages are carried out:

1) derivation of the individual assessment of the inherent risk, in relation to the impact factor,
2) determining the overall impact on the risk change. This assessment is carried out individually by all assessors /persons/ involved in risk management processes,
3) determination of the total standard deviation of the risk by the head of the team assigned to the risk management process, taking into account the results obtained from stage 1 and stage 2.

In cases where we have risky activities and sites, the standard deviation can be considered acceptable. In these situations, the site itself and the situation should be analyzed. For example, in risky investment activities, especially in the private sector, when the

investor is risk averse and willing to invest in risky financial instruments, then a high standard deviation is acceptable. In the public sector, risky events and situations are also observed, such as in the implementation of public procurement, in participation in various operational programs, etc. For this reason, active monitoring of the standard deviation will allow those involved in the management of public sector organizations to adapt the organization to dynamic changes in the environment and adapt to new riskier conditions.

The standard deviation is a prerequisite for the occurrence of "risk translation". Risk translation is "a process in which risks from one sphere are transferred to other spheres. Since the risk is a probability, the translation should not be understood as current, as having happened, but as possible, and hence with a degree of probability. In this way, chains of risky conditions are formed. On the other hand, through "the translation of risks, the dimension of the interaction of risk factors and the interaction between risk spheres is introduced" (Bernstein, 1998).

In addition to the managers of the respective hotel, the internal auditors and the audit committee also participate in the risk management process. In cases where there is an established internal audit unit for the relevant tourism enterprise, the commitments of the internal auditors are as follows:

1) identifying and assessing the risks for the relevant tourism enterprise when performing specific audit engagements,
2) assessesing the adequacy and effectiveness of internal control systems in terms of:
a) the identification, evaluation and management of risk by the different management levels in the respective hotel;
b) compliance with legislation, internal acts and contracts;
c) the reliability and comprehensiveness of financial and operational information;
d) the effectiveness, efficiency and economy of the activities;
e) the protection of assets and information;
f) the performance of the tasks and the achievement of the goals;
3) making recommendations for improving activities in the organization.

The internal audit does not own the risks the organization faces and is not directly responsible for their management, except for the management of risks that threaten the achievement of the objectives of the internal audit function itself.

The responsibility of the internal audit leader in the risk management process is to provide a reasonable level of assurance to the management of the tourism enterprise, i.e. the respective hotel that the critical risks are limited to the permissible levels, including the permissible values of the standard deviation for the relevant risk area.

In management practice, there are no exact parameters, there are extremely effective or ineffective outcomes as a result of the decisions made and the control activities implemented. In the general confirmed cases and objects, the so-called standard values are observed. In this study, we aim to determine the tested total risks for the 4 researched hotels in the Varna region, and what their standard deviation from the common established standard value is. Tables 2, 3, 4 and 5 present the approved scales for assessing individual risks in the researched hotels.

Table 2: The established scale of Hotel M for individual risks assessment

Assessment	Probability	Impact
1	Almost improbable	Insignificant impact
2	Not very probable	Lower than the average impact
3	Average probability (50 %)	Average impact
4	Over the average probability	Higher than the average impact
5	Definitely an event that has already occurred, or almost certain to occur	Disastrous Impact / Strongly negative impact

Source: Author's own elaboration.

Table 3: The established scale of Hotel A for individual risks assessment

Assessment	Probability	Impact
1	Not probable (up to 19 %)	Insignificant impact
2	Possible occurrence (from 20 % to 40%)	Significant impact
3	Average probability (from 41% to 50%)	Average impact
4	Strong probability (over 50%)	Strongly negative impact

Source: Author's own elaboration.

Table 4: The established scale of Hotel C for individual risks assessment

Assessment	Probability	Impact
1	No risk is likely to occur	Insignificant
2	Very slight probability	Small
3	The occurrence of risk is possible	Moderate
4	The occurrence of risk is probable	Significant
5	Almost certain	Extremely big

Source: Author's own elaboration.

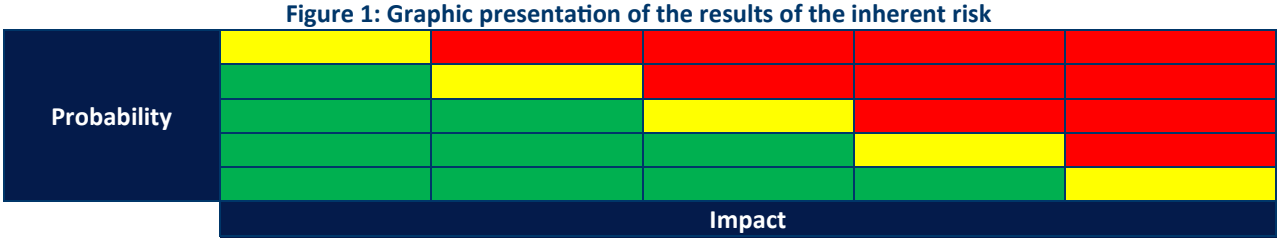
Table 5: The established scale of Hotel B for individual risks assessment

Assessment	Probability	Impact
1	Not probable, extremely rare	Insignificant
2	Possible	Moderate
3	Almost certain	Significant

Source: Author's own elaboration.

The common thing in the presented methodology for studying the standard deviation of individual risks in the tested hotels from the Varna region is that they graphically present in the same way the result of the assessment of the inherent individual risk according to the determined impact and probability indicators.

Figure 1: Graphic presentation of the results of the inherent risk



Source: Author's own elaboration.

In order to determine the standard deviation of the risk, it is necessary to refer the individual risk to the relevant risk area. In this way, the permissible value of the risk is determined in relation to the relevant area to which it refers.

In terms of risk – appetite/risk limit, the risk areas can be:
A) relevant risk areas;
B) systemic risk areas;
C) unforeseen risk areas;
D) critical risk areas;

A relevant risk area is one where the risks that have been assessed have a low degree of impact and influence. For this reason, these risks are not as much within the scope of monitoring and analysis by the persons in charge of the risk management process. The standard deviation of the risks in this risk area is 1 to 2 units. This deviation is considered to be acceptable and within the relevant risk area.

Systemics risk areas - comprises risks with a high probability of occurring and a low impact in case of occurrence of the risk. What is specific about the risks in this risk area is that they are affected by appropriate precautions and control activities. Control activities are sufficiently effective and do not allow these risks to have a high impact. The acceptable standard deviation of the risks in this risk area is in the range of 1 to 3 units.

Unforeseen risk areas - the scope of this risk area includes risks that have a significant impact, but the probability of their occurrence is small. In order to avoid these risks, the studied hotels take precautionary measures in advance, which ensure the safety of both employees and tourists. Such precautions are, for example, the implementation of a fire alarm system. Also implementation of the VAiOS system guarantees safety and proper management of the hotel, with the minimization of risks and costs of hotel service. The acceptable standard deviation of the risks in this risk area is in the range of 1 to 3 units.

Critical risk areas – in this area the risks that have the highest impact on occurrence and have a very large negative impact on the overall enterprise are identified. These risks are close to the maximum permissible limit /i.e. the risk limit/ for the respective enterprise. A lot of work must be done on this risk area by all persons with managerial functions, in order not to allow these risks to become dominant for the enterprise and to prevent the enterprise from falling into insolvency and high indebtedness. The allowable standard deviation of the risks in this risk area is in the range of 1 to 4 units.

Each risk area can be composed of separate sub-risk areas. The sub-risk areas consist of uniform risks that present a common risk problem and a situation that is tested with different but uniform individual risks. The sub-risk areas have one characteristic feature, namely that their evaluations based on individual risks determine them and classify them in the respective main risk area as relevant risk area, systemic risk area, unforeseen risk area and critical risk area.

Staff entrusted with the risk management process have the duty to determine which risk area the identified inherent risks refer to. In the analysis, the most complex problem is to determine the standard deviation of the corresponding risk and to determine whether the corresponding risk from one risk area is not transformed into another risk area in connection with the influence of the two factors - influence and impact. When the same risks are within the permissible norms of the corresponding standard deviation, these risks belong to the staff risk area. When the identified risks exceed the permissible norms, then the corresponding risk is referred to the higher risk group.

It was observed that the researched hotels use a uniform methodology for determining the average values of the identified risks and risk areas. This is also another main reason to focus on the respective hotels, as it makes it possible to make a comparative analysis between the data obtained and to determine which of the hotels face risks and what measures they apply to minimize the impact on such risks. The average values are obtained by taking into account the individual assessment made by each assessor involved in the risk management process. The methodology is as follows:

1) testing and determining the standard deviation of individual risk versus the impact factor,
2) testing and determining the standard deviation of the individual risk against the probability factor.

The standard deviation of the entire risk area is calculated by first subtracting the average value from each value and then equalizing, adding, and averaging the differences to obtain the variance. Although variance itself is a useful indicator of range and variability, flattening individual differences means that they are no longer reported in the same unit of measure as the original data set. The standard deviation is simply the square root of the variance, which brings it back to the original unit of measurement and makes it much simpler to use and interpret. The more unpredictable the impact of the situation and the wider the range, the greater the risk.

This study of risks in the tourism sector is a complex process. This study is based on a lot of scientific research, because this is a complex problem and its solution requires a thorough and comprehensive study. Studies of Gössling et al. (2020); Agha and Gafforova (2019); Andereck et al. (2005); Lambovska and Yordanov (2020); Popov et al. (2020); Serafimova et al. (2022); Shekhar (2022); Zhang et al. (2021); Zhang et al. (2020); Barkhatov and Benz (2019) are taken into consideration as they present the problems in the tourism sector from an economic perspective. There is another aspect from which the problem can be clarified, namely the influence of the political environment and ethics on the development of business and, in particular, the tourism sector, here the researches of V. Dosev are taken into account. (Dosev, 2017; Dosev, 2020).

Based on the methodology described above, in this part of the study we will present the overall research and establishment of the standard deviation of the respective individual risks in the researched hotels in the Varna region, namely, hotels A, M, B and C. These are 4 large hotels that belong to different holding companies and are subsidiaries for Bulgaria. This favors a comparative analysis between them. Although the relevant hotels function and operate in one area, they establish and test different individual inherent risks, as established from the data in Tables 1,2, 3 and 4. It is also found from the indicated data that the tested risks of the respective hotels can be divided into inherent risks for the respective area and the so-called specific risks for the respective hotel.

Specific risks will not be tested and researched, as the purpose of this study is to make a comparative analysis between the data and the results obtained with similar/identical risks for the respective hotels.

Specific risks include:

A) distance from the beach and looking for an alternative transport of tourists to the beach,
B) last minute accommodation of tourists during the season,
C) the theft of towels by tourists,
D) problems with the service provided for pets of the hotel guests.

The commonality between the tested researched hotels is that the sub-risk areas for the respective hotels are:

Ro1 - risk area related to the COVID-19 crisis.
Ro2 - financial risk area
Ro3 - personnel/staff quality risk area
Ro4 - risk area related to contractual/legal issues with counterparties

Table 6 shows what individual risks are included in the relevant sub-risk areas.

Table 6: Subrisk areas and individual risks

Ro - subrisk area	R – individual risks
Ro1 - risk area resulting from the COVID-19 crisis.	R_1 - decrease in tourists due to COVID-19 R_2 - the lack of incentive measures by the state for the tourism sector to overcome the COVID-19 crisis R_3 - large losses resulting from the impact of COVID-19 R_4 - incorrect determination of the start date of the summer season by the Ministry of Tourism in Bulgaria and the creation of the so-called “green corridor for tourists” for tourists with a negative PCR test and those who have overcome COVID-19
Ro2 - financial risk area	R_5 - financial losses R_6 - delayed payments
Ro3 - personnel/staff quality risk area	R_7 - insufficient professional training R_8 - staff turnover R_9 - continuous training of new recruits
Ro4 - risk area related to contractual/legal issues with counterparties Ro3 - personnel/staff quality risk area	R_{10} - failure to fulfil contractual duties R_{11} - incorrectly formulated contractual clauses R_{12} - incorrectly stipulated implementation deadlines

Source: Author’s own elaboration.

The indicated sub-risk areas have been researched, tested and evaluated for each of the studied hotels A, M, B and C from Varna region. For each sub-risk area, a general assessment obtained from the sum of the assessments of the individual risks that make up the relevant sub-risk area is derived. The individual assessment of the relevant risks is derived according to the formula described above, namely $V = P \cdot S$. Risks can be determined in the course of the long-term, medium-term and short-term planning of the activity. It does not matter what the method of determining the risks will be. What is important is that management takes into account the factors that may contribute to the emergence of a given risk or to the increase of the degree of importance of an already identified risk. The evaluations of the respective sub-risk areas for the respective tested and researched hotels are presented in Table 7.

Table 7: Evaluations of the sub-risk areas of the hotels studied

Sub-risk area	Assessment of sub-risk area for Hotel A	Assessment of sub-risk area for Hotel M	Assessment of sub-risk area for Hotel B	Assessment of sub-risk area for Hotel C
Ro1 - risk area from the COVID–19 crisis	125	89	290	450
Ro2 - financial risk area	189	120	320	560
Ro3 - personnel/ staff quality risk area	220	176	165	330

Sub-risk area	Assessment of sub-risk area for Hotel A	Assessment of sub-risk area for Hotel M	Assessment of sub-risk area for Hotel B	Assessment of sub-risk area for Hotel C
Ro4 - risk area related to contractual/ legal issues with counterparties Ro3 - personnel/ staff quality risk area	240	92	148	226

Source: Author's own elaboration.

Based on the data from Table 7, it is established that for hotel A the estimates of the sub-risk areas are as follows: for sub-risk area Ro1: 125 units; for sub-risk area Ro2: 189 units; for sub-risk area Ro3: 220 units; for sub-risk area Ro4: a total of 240 units for the whole period. Risk - the limit, i.e. the risk appetite limit that the respective hotel has determined for the tested period is 260 units, which means that the risk areas are below the respective risk limit, which limit is 290 units for the respective hotel.

Since the study is limited in scope, in this part we present results of the tested individual risks for standard deviation relative to the respective risk area. Every enterprise, i.e. in our case, each hotel, after referring the respective sub-risk area to one main risk area, moves on to testing the standard deviation of each individual risk and analyzing it, whether it belongs exactly to the relevant risk area or should be regrouped / referred to another risk area. With the help of Table 8, data from the testing of each individual risk for the relevant risk sub-area according to the impact factor are presented.

Table 8: Estimation of the standard deviation of the risks constituting the sub-risk area Ro1 The COVID-19

Individual risks	Hotel A				Hotel M			
	N	L	TIF	SDRPF	N	L	TIF	SDRPF
R_1 - decrease in tourist numbers due to COVID-19	5	L_1 - 8 L_2 - 5 L_3 - 4 L_4 - 3 L_5 - 2	4.4	2.059126	3	L_1 - 6 L_2 - 8 L_3 - 12	8.67	2.49465
R_2 - the lack of incentive measures by the state for the tourism sector to overcome the COVID-19 crisis	5	L_1 - 5 L_2 - 6 L_3 - 9 L_4 - 8 L_5 - 6	6.8	1.469693	3	L_1 - 6 L_2 - 6 L_3 - 10	7.33	2.49465
R_3 - big losses resulting from the impact of COVID -19	5	L_1 - 4 L_2 - 3 L_3 - 8 L_4 - 6 L_5 - 6	5.4	3.040000	3	L_1 - 4 L_2 - 8 L_3 - 12	8.00	3.265884
R_4 - incorrect determination of the start date of the summer season by the Ministry of Tourism in Bulgaria and the creation of the so-called "green corridor for tourists" for tourists with a negative PCR test and those who have overcome COVID-19	5	L_1 - 9 L_2 - 7 L_3 - 8 L_4 - 10 L_5 - 8	8.4	1.019803	3	L_1 - 4 L_2 - 8 L_3 - 5	5.67	0.941238
General estimate of individual risk area Ro_1	x	125	x	x	x	89	x	x

Source: Author's own elaboration.

It has been established from the data presented in Table 8 that individual risk R_3 - large losses caused by the impact of COVID-19 from the sub-risk area Ro2. The COVID-19 crisis is the greatest of all risks, characterised with a significant standard deviation. The tested risk R_3 is a reflection of all the others factors that are a prerequisite for the occurrence of large financial losses due to the impact of COVID-19. Testing the impact of such an external factor as COVID-19 on the activity of enterprises requires a much deeper analysis and study of entirely internal data for the relevant hotels that we as external analysts do not have access to. As the impact of this factor was short-term, the tourism sector quickly recovered its activity at the end of 2020, and at the end of 2021 many of the protective measures were lifted, which was conducive to the rapid recovery of the tourism sector. To refer this factor to another risk area, a long-term impact on the activity of the respective hotel is required. The measures taken by the two researched hotels A and M to minimize the negative impact of this factor are tailored to the conditions in which the respective hotel operated. For example, Hotel A provided the following services during the COVID-19 pandemic, namely:

A) provision of food to customers in the form of takeaway catering,
B) transforming the hotel into a recovery center for people with COVID-19 (prices were significantly inflated for the service of such people after their hospital treatment, and only 10 clients were accommodated in order to comply with the anti-epidemic measures).

Despite the actions taken, Hotel A recorded large losses for this period, as the costs associated with the operation of the hotel and maintaining the hotel as a functioning and active enterprise were much greater than the income for this period. The two studied hotels A and M report that the occurred situation has led to many changes in hotel accommodation rules to eliminate the risk of coronavirus infection, which in turn led to many cancelled bookings or their rescheduling for other periods .

For hotels B and C, the standard deviation of the individual risks constituting sub-risk area Ro2 The COVID-19 are presented in Table 9.

Table 9: Estimation of the standard deviation of the risks constituting sub-risk area Ro1 The COVID-19 for Hotel B and Hotel C

Individual risks	Hotel B				Hotel C			
	N	L	TIF	SDRPF	N	L	TIF	SDRPF
R_1 - decrease of tourists as a result of COVID-19	4	L_1 - 28 L_2 - 12 L_3 - 12 L_4 - 16	17.0	6.557438	3	L_1 - 38 L_2 - 34 L_3 - 32	34.66	1.901753
R_2 - lack of incentive measures by the state for the tourism sector to overcome the COVID-19 crisis	4	L_1 - 16 L_2 - 18 L_3 - 12 L_4 - 14	15.0	2.236067	3	L_1 - 32 L_2 - 34 L_3 - 36	34.00	2.000000
R_3 - large losses caused by the impact of COVID-19	4	L_1 - 14 L_2 - 26 L_3 - 22 L_4 - 16	19.5	4.769696	3	L_1 - 38 L_2 - 38 L_3 - 40	38.67	1.219356
R_4 - incorrect determination of the start date of the summer season by the Ministry of Tourism in Bulgaria and the imposition of the so-called "green corridor for tourists" for tourists with a negative PCR test and those who have already been cured of COVID-19	4	L_1 - 18 L_2 - 20 L_3 - 22 L_4 - 24	21.0	2.236067	3	L_1 - 42 L_2 - 40 L_3 - 42	42.67	1.635716
General estimate of the individual risk area Ro1	x	290	x	x	x	450	x	x

Source: Author's own elaboration.

It can be established from the data presented in table 11 that the condition of Hotel B is very critical - every single risk that makes up the sub-risk area Ro_1 The COVID-19 crisis has very high values. The individual risk R_1 - decrease of tourists as a result of COVID-19 has a deviation of 6.557438, and risk R_3 - large losses caused by the impact of COVID-19 has a deviation of 4.769696. This means that these 2 risks should be tested one more time, but this testing should have been done in the period with the respective risk situations. From the data presented, it is established that the lack of tourists has led to significant financial losses for the hotel. It can be assumed that the management team has not found the appropriate policy in dealing with the crisis situation. According to official data provided by the hotel, it is established that for the period from 01.03.2019 to 30.09.2021 the hotel did not operate, i.e. it was closed. The deviation from the permissible norms is normal, taking into account the unforeseen situation in which the respective hotel found itself.

According to Gössling et al. (2020) research, it is proven that the COVID-19 problem has had the biggest collapse on the economy since the Second World War. The travel ban, which affected international tourism as well as domestic tourism for the respective country, the tourism sector had to find another way to deal with the problems. Many of the hotels have had to move towards offering social services or enhance services with the provision of home meals to deal with the problems. Management problems in tourism in risk situations have been studied by various researchers, such as Buhalis and Law (2008); Andereck et al. (2005); Aven and Zio (2014); Buhalis and Law (2008); Crouch and Ritchie (1999); Dyankov et al. (2018); Wieczorek-Kosmala et al. (2014); Korzeb (2015); Kliber (2014); Podgórska et al. (2022); Skica et al. (2013); Skica et al. (2022); Misiąg et al. (2020); Nedyalkova (2019).

Hotel C has very good indicators of the studied individual risks and the standard deviation for all the tested risks is from 1.2 to 2, which is within the permissible norms. This may be due to the fact that Hotel C has the smallest capacity, accommodating up to 180 people. This favors faster adaptation to the new working environment, the number of personnel is small, and internal control for compliance with anti-epidemiological measures is also very easily carried out. For the research period, workers and employees were hired who were under 50 years of age and who did not suffer of any accompanying diseases. The telephone numbers of health authorities, medical centers, public and private hospitals and assistance centers were prominently displayed at the hotel reception in case a guest fell ill.

When testing the standard deviation of individual risks under the impact factor for sub-risk area Ro2 - financial risk area, the results for hotels A and M where shown in Table 10.

Table 10: Estimation of the standard deviation of the individual risks under the impact factor constituting sub-risk area Ro2 financial risk area for Hotel A and Hotel M

Individual risks	Hotel A				Hotel M			
	N	L	TIF	SDRPF	N	L	TIF	SDRPF
R_1 - financial losses	5	L_1 - 20 L_2 - 14 L_3 - 18 L_4 - 16 L_5 - 18	17.2	2.039607	3	L_1 - 14 L_2 - 16 L_3 - 18	16	1.630950
R_2 - delayed payments	5	L_1 - 14 L_2 - 12 L_3 - 10 L_4 - 8 L_5 - 8	10.4	2.332380	3	L_1 - 8 L_2 - 12 L_3 - 10	10	1.630650
R_3 - credit risks	5	L_1 -12 L_2 - 8 L_3 - 10 L_4 - 9 L_5 - 12	10.2	1.600000	3	L_1 - 14 L_2 - 12 L_3 - 16	14	1.630950
General estimate of individual risk area Ro2	x	189	x	x	x	120	x	x

Source: Author's own elaboration.

It is established from the data presented in table 12 that the individual risks for Hotel A and Hotel M, which make up the Ro2 risk sub-area, have standard deviations that are within the permissible norms. Therefore, it can be assumed that the first sub-risk area Ro1 The COVID-19 crisis did not have a significant negative impact on sub-risk area Ro2 Financial risk area for the tested hotels A and M. For hotel M, all three factors have the same standard deviation, which means that their impact is of the same intensity.

Testing of the standard deviation of the individual risks of hotel B and hotel C, which define the sub-risk area Ro2 - Financial risk area was done, and the summarized information is presented in Table 11.

Table 11: Estimation of the standard deviation of the individual risks under the impact factor constituting sub-risk area Ro2 financial risk area for Hotel B and Hotel C

Individual risks	Hotel B				Hotel C			
	N	L	TIF	SDRPF	N	L	TIF	SDRPF
R_1 - financial losses	4	L_1 - 20 L_2 - 26 L_3 - 28 L_4 - 30	26	3.7416573	3	L_1 - 80 L_2 - 82 L_3 - 74	78.67	3.400000
R_2 - delayed payments	4	L_1 - 28 L_2 - 26 L_3 - 32 L_4 - 34	30	3.1622776	3	L_1 - 56 L_2 - 52 L_3 - 54	54.00	1.634013
R_3 - credit risks	4	L_1 - 28 L_2 - 26 L_3 - 22 L_4 - 20	24	3.1622776	3	L_1 - 50 L_2 - 54 L_3 - 58	54.00	3.266496
General estimate of individual risk area Ro2	x	189	x	x	x	120	x	x

Source: Author's own elaboration.

In Table 11, the three main risk factors that make up sub-risk area Ro2 - Financial risk area are R_1 - financial losses, R_2 - late payments and R_3 - credit risks, are significantly high. According to data provided by hotel B the sub-risk area Ro2 - Financial risk area refers to the main risk area – Unforeseen risk area, relative to the risk appetite, i.e. against the permissible maximum risk limit for the entire hotel. The Unforeseen Risk Area is very dynamicly changing in relation to individual internal and external factors, and due to the fact that it is close to the risk appetite, it additionally requires systematic monitoring and analysis of the standard deviation of the individual risks constituting the corresponding sub-risk areas of the main Unforeseen Risk Area. The permissible standard deviation of the Unforeseen risk area is in the interval from 1 to 3. According to data from Table 10, it is established that for hotel B two of the risk factors have a deviation slightly above 3, and one risk factor has a significant standard deviation of 3.7416573.

When studying the standard deviation of the individual risk R_1 - financial losses, every business operation that is a prerequisite for their occurrence should be examined and tested. These can be unforeseen events and situations for the respective hotel, such as: losses from damage caused by natural disasters / broken windows; damaged roof structure; occurrence of a leak, etc. Also these financial losses can be due to non-fulfilment of various contractual commitments by suppliers, intermediaries, customers, etc. The other important point is to determine if this is a constant trend, i.e. whether this risk is generally high. This means that the relevant hotel should be monitored and tested over a long period of time to determine if this risk is not better placed in the critical risk area and to determine if it is not a prerequisite for the change in the state of the sub-risk areas that make up the critical risk area.

The results of testing sub-risk area Ro3 staff/ employee quality and establishing the standard deviation for each individual risk for the four hotels studied - B, C, A and M are presented in Tables 12 and 13.

Table 12: Estimation of the standard deviation of the individual risks under the impact factor constituting sub-risk area Ro3 personnel/staff quality

Individual risks	Hotel A				Hotel M			
	N	L	TIF	SDRPF	N	L	TIF	SDRPF
R_1 - insufficient professional training of workers/ employees	5	L_1 - 18 L_2 - 16 L_3 - 22 L_4 - 24 L_5 - 26	21.2	3.70944730	3	L_1 - 16 L_2 - 12 L_3 - 20	16.00	2.58197598
R_2 - staff turnover	5	L_1 - 24 L_2 - 12 L_3 - 8 L_4 - 10 L_5 - 14	13.6	5.57135531	3	L_1 - 20 L_2 - 18 L_3 - 26	21.33	1.96298242
R_3 - continuous training of new recruits	5	L_1 - 12 L_2 - 10 L_3 - 8 L_4 - 6 L_5 - 10	19.2	2.03960780	3	L_1 - 14 L_2 - 28 L_3 - 22	21.33	5.73352422
General estimate of individual risk area Ro3	x	220	x	x	x	176	x	x

Source: Author's own elaboration.

Table 13: Estimation of the standard deviation of the individual risks under the impact factor constituting sub-risk area Ro3 personnel/staff quality

Individual risks	Hotel B				Hotel C			
	N	L	TIF	SDRPF	N	L	TIF	SDRPF
R_1 - insufficient professional training of workers/ employees	4	L_1 - 14 L_2 - 16 L_3 - 18 L_4 - 20	17.00	2.2360679	3	L_1 - 46 L_2 - 28 L_3 - 36	36.67	7.36410200
R_2 - staff turnover	4	L_1 - 16 L_2 - 14 L_3 - 7 L_4 - 12	12.25	3.3446786	3	L_1 - 30 L_2 - 32 L_3 - 42	34.67	5.24976100
R_3 - continuous training of new recruits	4	L_1 - 12 L_2 - 10 L_3 - 12 L_4 - 14	12.00	1.4141356	3	L_1 - 34 L_2 - 46 L_3 - 36	38.67	5.25071423
General estimate of individual risk area Ro3	x	165	x	x	x	330	x	x

Source: Author's own elaboration.

From the data presented in Tables 12 and 13 it is established that for the researched hotels B, C, A and M, the sub-risk area Ro_3 personnel/staff quality is the most critical one, since the individual risks that are comprised within it have a relatively high standard deviation from the permissible values. The higher the standard deviation of an individual risk, the greater its impact on the overall risk subarea. In the studied case, it is observed that all three individual risks, namely – the risk of insufficient professional training of workers/ employees; the risk of staff turnover and the risk of continuous training of newly hired personnel have a very intense impact and it is very difficult to determine which of the mentioned risk factors dominates the others. The high values of the standard deviation present another problem, namely that the final results of the operations of the respective hotels are not predictable. This means that possibly, a given hotel may not be able to fulfill its main commitments to its customers due to high staff turnover, or, accordingly, it is possible to significantly reduce the quality of service, which may lead to other subsequent problems, such as

deterioration of the rating of the hotel, reduction of tourist numbers, etc. (Nedyalkova et al., 2022) and (Serafimova et al., 2022). The tourism sector is also explored by Aiazbekov (2023).

With the thus presented data for the researched hotels B, C, A and M, another conclusion can be drawn, namely that the human resources management policy is not good, since this factor has a strong negative impact. The researched hotels should focus their efforts on improving the microclimate and the general working environment, so that the workers/employees are satisfied with the working conditions, the methodologies for taking into account the specific features should be implemented in the respective hotels, to ensure work safety conditions and to make the latter a tool for improving health and safety working conditions on the part of employers.

Based on everything presented so far, such as testing results and data, it can be assumed that we prove hypothesis 1 (H_1), namely that it is possible for hotels to systematically assess their risks, and not to do this periodically. In periodic testing, factors that affect the entire period are tested, these are complex factors and, accordingly, give rise to more and more complex problems that must be solved with greater resources.

Hypothesis 2 (H_2) also proves that it is possible to apply a single validated risk assessment methodology so that it is applied by all hotels. Although the methodology is uniform, the results will be different, as different problems and factors affecting the respective hotels will be tested. This once again proves that each hotel operates in a different environment and is managed differently.

Discussion

The researched problem is problematic for every organization and enterprise, since different factors, situations and events affect everyone. Our research is focused on the hotels from the Varna region of Bulgaria and this accordingly narrows the scope of the research. This accordingly predetermines the research methodology. Internationally, there are many researchers investigating the issue of testing and assessing risks that affect organizations. As each organization develops in a specific environment, the research is different and the methodology offered for testing and assessing risks is also very different. Therefore, there is much discussion among researchers whether it is possible to apply a single unified approach that is applicable to all organizations from all countries. We believe that this is possible, but with the joint work and cooperation of many organizations and institutions.

Conclusions

Based on the overall research, it can be assumed that the tested sub-risk areas that constitute the respective risk areas for the respective hotels B, C, A and M with the applied methodology for the standard deviation of individual risks is aimed at determining the intensity and impact of the respective risks on hotel operations. Since the study is based on the inferred personal assessment of the respective assessors, therefore, in the testing of individual risks in this study, the data is considered as a general aggregate of the assessments of the assessors themselves /N/. The tested hotels are in the Varna region, i.e. they are affected by the same external factors, but nevertheless, the manifestation of these factors on the activity of each hotel is observed in a different way, since they are a separate independent organizational unit, which unit has its own independent structure, managerial style of work and different long-term goals and objectives.

The studied hotels do not take high risks, since they consider this to be adventurous behavior and they strive to operate in a moderate risk environment by not participating in risky transactions. Upon establishing a strong negative impact from a specific individual risk through its significant standard deviation from the permissible norms, the four tested hotels apply different control mechanisms and activities to minimize the corresponding impact of the risks.

This research is not based on a sample, but on real data. This once again determines its importance and significance. The standard deviation is measured in the same units as the individual values, the standard deviation is a measure of dispersion in which the squared averaging of the deviations of the individual values from their arithmetic mean is performed.

The article presents four authorial risk areas for testing: financial risk area, impact of the COVID-19 crisis, quality of personnel/employees and testing of contractual/legal issues with counterparties. The testing of these risk areas precisely distinguishes the article and lends its contribution to practice. The article aims at financiers, accountants, economists and managers of enterprises from the tourism sector. The contributions of the publication are as follows:

1) a unified modified methodology is proposed for assessing risks and determining the risks that affect the achievement of the organization's goals,
2) testing the main risk areas for an organization/enterprise to determine the inherent risks,
3) in this paper, the testing of the hotels from tourism sector is innovative, as there are many studies to date on businesses from other sectors but not from tourism sector,
4) the author's contribution is about the proposed methodology for testing and determining the risk assessment of hotels in the tourism sector.

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