

Risk Analysis for Performance Improvement in a Romanian Pharmaceutical Company

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Abstract – The paper presents risk management analysis carried out to investigate the operations of a Romanian company dealing with the distribution of pharmaceutical products. The main risks challenging the company were identified, described and classified, providing a scientific base for further analysis. Then, the identified inherent risks were evaluated using tools as the risk index method and the risk matrix in order to emphasize their tolerance level. According to the results of the evaluation, risk mitigation strategies and measures were advanced for the management of the analysed risks. Relevant conclusions were drawn from the experience.

Keywords – risk management, risk assessment, risk index, risk strategy.

1. Introduction

Risk is inherent in almost all operations of a company. It is generally perceived as the uncertainty affecting the objectives of the company, or as the hazard or possibility of loss that the company might face.

All organizations are in the business of placing capital at risk in pursuit of ventures which are uncertain. They all have goals, and they allocate resources to pursue them. Because all organizations

face uncertainty in achieving their goals, they all face risk [1]. Therefore, risk management is one of the most important competitive tools that any company can use to improve its activity.

Risk identification and assessment is a current significant problem for any organization, an important step toward its stable development by critically evaluating its environment, its development strategy, and choosing the best solutions to manage its resources, opportunities and threats [2].

The risk is not just an academic subject that has attracted increasing interest [3]; it has a direct economic impact. In this respect, authors have demonstrated a significant effect of risk management on companies' economic indicators [4, 5]. According to [6], there is a positive relation between firm value and the use of enterprise risk management (ERM) which is statistically and economically significant. Testing other economic indicators, [7] found that firms adopting ERM experience a reduction in stock price volatility and decreased earnings volatility. In a more recent study, [8] confirmed that companies are experiencing significant losses or even go bankrupt because they ignore or misjudge risks, calculate uncertainties incorrectly or put too much confidence in their ability to master risky situations.

According to ISO Standard 31000, risk can be defined as the effect of uncertainty on objectives; the effect may be positive, negative, or a deviation from the expected [9]. The Institute of Risk Management defines risk as combination of the probability of an event and its consequence. Consequences can range from positive to negative [10]. The Institute of Internal Auditors defines risk as the uncertainty of an event occurring that could have an impact on the achievement of the objectives [11]. The risk is measured in terms of consequences and likelihood.

2. Purpose of the study

The objective of the study was to conduct a thorough risk management analysis of the operations of a Romanian company working in the pharmaceutical sector, namely S.C. Farmexpert DCI S.R.L.

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The research question was what are the most significant risks the company faces and what are the most appropriate mitigation actions so their impact and/or probability of occurrence are reduced and even eliminated?

3. Risks identification and classification

S.C. Farmexpert DCI S.R.L. is a Romanian company founded in 1996. Its main field of activity is the distribution of pharmaceuticals and parapharmaceuticals, offering a complex range of products and services, working in partnership with over 200 producers and over 3200 pharmacies, hospitals, institutions and doctors, holding a market share of above 15% according to [12]. At present, S.C. Farmexpert DCI S.R.L. has approximately 1200 employees.

The risk analysis included identification of risks, the classification of risks according to their most likely consequences, the evaluation of the identified risks by calculating the risk index, and mapping of relevant risk events on the risk matrix.

The most common classification criterion for risk management is upon the risk consequences or impact [13]. According to this criterion, risks can be classified in hazard of pure risks, uncertainty or control risks and opportunity or speculative risks. The hazard risks mainly result in negative consequences, while the opportunity risks can have positive outcomes. The consequences of the control risks cannot be determined accurately, therefore they are considered uncertainty risks.

The risks identified in S.C. Farmexpert DCI S.R.L. were classified as follows (Table 1.):

Table 1. Risks classification

No.	Risk	Hazard risk	Control risk	Oppor-tunity risk
R 1	Rejection of orders by the customers	X		
R 2	Storage of the chill medicines outside refrigerators	X		
R 3	Products damage	X		
R 4	Delivery without proper documents		X	
R 5	High rate of absenteeism among employees in the logistics area	X		
R 6	Launching a new business line			X
R 7	Natural hazards resulting from calamities	X		
R 8	Damage of products during the transfer from the vehicle to	X		

	the warehouse		
R 9	Reception of counterfeit products		X
R 10	Road accidents	X	
R 11	Competition	X	
R 12	Lack of candidates for vacancies	X	

4. Risks evaluation

For the evaluation of the identified risks, the risk index method was chosen [14]. The risk index provides a clear illustration of the severity of any risk based on its probability of materialization, and on its impact in case the risk materializes. The risk index is calculated as:

$$R_i = P \times I \tag{1}$$

where: R_i = Risk index

P = Probability that the risk materializes

I = Impact (consequence) if the risk materializes

with P, I taking integer values between [1...10].

In order to conduct this evaluation, four managers from the company were asked to assess the probability and impact of the previously identified risks. The results of their evaluation are presented in Table 2:

Table 2. Risks evaluation

No.	Risk	Probability (P)	Impact (I)	Risk Index (R _i)
R 1	Rejection of orders by the customers	7	6	42
R 2	Storage of the chill medicines outside refrigerators	6	8	48
R 3	Products damage	2	8	16
R 4	Delivery without proper documents	4	5	20
R 5	High rate of absenteeism among employees in the logistics area	6	5	30
R 6	Launching a new business line	6	9	54
R 7	Natural hazards resulting from calamities	2	8	16
R 8	Damage of products during the transfer from the vehicle to the warehouse	4	8	32
R 9	Reception of counterfeit products	2	9	18

R 10	R Road accidents	6	3	18
R 11	R Competition	7	4	28
R 12	R Lack of candidates for vacancies	5	6	30

In order to be able to assess more precisely the identified and previously quantified risks, they can be plotted on the risk matrix (Figure 1.):

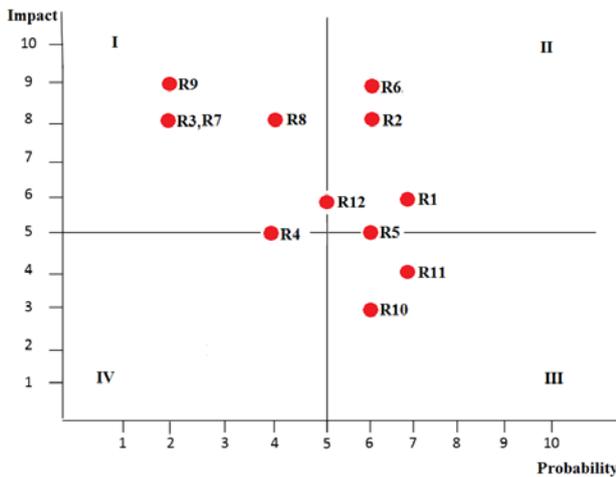


Figure 1. Risk matrix

It can be observed that the most threatening risks are the rejection of orders by the customers and the storage of the chill medicines outside refrigerators. These risks would severely affect the company’s operation and cannot be tolerated. The least significant risk is the risk of delivering the orders without proper documents.

It can be observed that the results of this risk analysis are consistent with the results of other studies conducted on distribution companies (e.g. [15]), which also show that the risks related to customers are among the prime risks that require urgent mitigation actions.

5. Risk mitigation strategies

The risk management literature recommends four risk mitigation strategies for the management of all types of risks [13], in close connection with their position on the risk matrix (Figure 1.): the transfer of risks to a third party (quadrant I), the termination of risks (quadrant II), the treatment of risks (quadrant III) and the toleration of risks (quadrant IV).

According to these recommendations, the management of the identified risks in S.C. Farmexpert DCI S.R.L. should encompass the following generic risk strategies (Table 3.):

Table 3. Risks management strategies

No.	Risk	Strategy
R 1	Rejection of orders by the customers	Termination
R 2	Storage of the chill medicines outside refrigerators	Termination
R 3	Products damage	Transfer
R 4	Delivery without proper documents	Toleration
R 5	High rate of absenteeism among employees in the logistics area	Termination
R 6	Launching a new business line	Termination
R 7	Natural hazards resulting from calamities	Transfer
R 8	Damage of products during the transfer from the vehicle to the warehouse	Transfer
R 9	Reception of counterfeit products	Transfer
R 10	Road accidents	Treatment
R 11	Competition	Treatment
R 12	Lack of candidates for vacancies	Termination

Most of the identified risks (R1, R2, R5, R6, R12) fall into the second quadrant of the risk matrix (termination strategy), while the other risks fall into the first quadrant (R3, R7, R8, R9) – transfer strategy, the third quadrant (R10, R11) – treatment strategy and the fourth quadrant (R4) – toleration strategy (Table 4):

Table 4. Risk management strategies

No.	Risk	Mitigating solutions	Responsible
R 1	Rejection of orders by the customers	Respecting the delivery times and speeding up priority orders. In the case of order rejection, recovering products and making the return invoice within 24 hours.	Distribution Manager, Head of the location
R 2	Storage of the chill medicines outside refrigerators	Selecting a limited number of employees to store these products; training them appropriately; monitoring all receipts of medications that require cold storage.	Head of the location
R 3	Products damage	Correct storage of products, taking into account general criteria (volume, weight, directly on the ground etc.) and training of logistics personnel.	Responsible for the quality of drugs (PRQ)

R 4	Delivery without proper documents	Appropriate scrutiny of products' accompanying documents, informing the Distribution Manager.	Distribution Manager, Head of the location	of counterfeit products	procedures (reception, delivery, return of products); employees training; immediately blocking of counterfeit products and informing the Security Manager and Chief Pharmacist.	location, Responsible with the quality of drugs (PRQ)	
R 5	High rate of absenteeism among employees in the logistics area	Regular meetings and discussions with the employees; identification of the reasons for absenteeism and focusing on solving them; written warnings and application of corrective actions.	Head of the department, Human Resources Manager	R 10	Road accidents	Periodic recall of the specific legislation; encouraging a preventive attitude both as a driver and as a pedestrian.	Work Security Inspector, Department Managers
R 6	Launching a new business line	The launch of the business line will be done regardless of the high risks that it incurs, because it is a speculative, opportunity risk, with a high perspective of gain.	CEO	R 11	Competition	Developing ideas for optimizing activities and retaining best employees; launching new specialized health services on the market.	Marketing Manager, HR Manager, Director of Innovation
R 7	Natural hazards resulting from calamities	Insurance contracts covering the goods and the values transported; emergency call 112; first aid by the responsible person; using the first aid kit; providing a means of transportation to the hospital if necessary.	Acquisitions and Utilities Manager, Fleet Manager	R 12	Lack of candidates for vacancies	Outsourcing for specialized recruiting companies.	Recruiter, Acquisitions and Utilities Manager
R 8	Damage of products during the transfer from the vehicle to the warehouse	Periodic training and testing of employees from the Reception area which are responsible for the transport of products to the warehouse; insurance contracts covering the value of the transported products.	Acquisitions and Utilities Manager, Head of the Location	<p>The results show that most of the risks that the company is facing have both a high probability and a high impact, making them difficult to tolerate and asking for urgent and efficient mitigation methods.</p> <p>6. Conclusions</p> <p>The paper presents the risk management analysis process for S.C. Farmexepert DCI S.R.L., a Romanian pharmaceutical SME. The risk management process included the identification of risks, their classification and evaluation according to their probability of occurrence and impact (consequences).</p> <p>The most threatening risks are the rejection of orders by the customers and the storage of the chill medicines outside refrigerators. These risks would severely affect the company's operation and cannot be tolerated. The least significant risk is the risk of delivering the orders to the customers without proper documents.</p> <p>One of the main conclusions is that most of the risks that the company is facing have both a high probability and a high impact, making them difficult to tolerate and asking for urgent and efficient</p>			
R 9	Reception	Strict adherence to	Head of the				

mitigation methods. Therefore, generic, as well as specific mitigation strategies were proposed for all identified risks in order to reduce both their probability and their impact. By implementing the recommended risk management solutions, the company can successfully reach a tolerable residual risk level.

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