Risk Management Practices in the Insurance Industry by Considering Supply Chain Management

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***Abstract*— Risk management leads to more informed decision making, coherent planning and better use of resources; Risk management helps companies achieve their financial and strategic goals in the face of the risks posed by the permanent complexity of the global economy. Given the rapid pace of global developments and the resulting various uncertainties in supply chain operations have made that supply chain risk management is a very important issue today. Given that supply chain risk management has a great impact on the stability of the relationship between partners in the supply chain, therefore, a decision-making model for supply chain risk management helps to solve the supply chain issues considerably. In this paper decision-making model based on product lifecycle, operational cycle, and operational factors of the organization are presented for insurance risk management. The main purpose of this study is to identify the factors affecting supply chain risk and to measure its effects in the insurance industry of the country. This paper has been a descriptive-correlational research and has used multiple regression analysis techniques and path analysis to determine the factors affecting the supply chain risk**.

Keywords*—Risk, Supply Chain Management, Path Analysis, Insurance Industry*

1. Introduction

One of the most important issues that have recently been raised in the supply chain is the issue of risk management in the supply chain. Although awareness toward the issue of risk among experts is increasing, supply chain risk management is still in its infancy. Risk in the supply chain refers to uncertainties and unpredictable events that can occur anywhere in the supply chain and has negatively effect on its profitability.

The goal of supply chain risk management is to reduce the impact of these risks by developing methods and models for identifying, assessing and reducing supply chain risks. The increase in strategic outsourcing, markets globalization, product life-cycle failure, unpredictable demand, the advent of information technology, which makes possible the control and coordination of the supply chain, has caused this to be taken into consideration [2]. Organizations inside the country are paying less attention to risk, while advanced countries have come to the conclusion that they must deal with risk actively and systematically and must involve the entire organization.

There is good literature richness in the field of risk in the areas of finance, marketing and insurance, but in the area of supply chain risk, its scope is limited. Generally, the supply chain risks affect its outcomes, in other words, any disruption or risk in the chain has a direct effect on the continuation of the company's operations and the delivery of products or services to the market, and ultimate impact will be on the customer. In this conditions, the management of the risks available in the supply chain is necessary to create the right balance throughout it and ultimately to deliver products timely and services to customers.

Risk management has become a major activity for the organization and its main goal is to help all management activities to achieve their goals directly and effectively. Although the risk management cost may be considered as a major barrier to avoiding risk analysis, but the cost of not managing it is far greater. Therefore, in this paper, the identification and investigation of the effects of supply chain risk factors in the dairy industry is discussed.

Risk identification is presented as the first step in the risk management process that plays a

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prominent role for managing it. If risk managers do not succeed in identifying the losses or benefits that the organization faces, lake of identifying risks will be unmanageable and will not be considered and therefore no action will be taken for them, and its consequences will be unexpected[3].In fact the purpose of this article is to answer the following questions:

1.1. The main question

How we can offer a model for identifying and categorizing supply chain risks in the insurance industry?

1.2. Sub-questions

1. To what extent are the manufacturing industry insurance considered the risk factor of the supply chain?
2. Can one, based on perceptions of experts, provide a method for measuring the direct and indirect effects of various risks in the insurance industry?
3. What is the rating of the risks of the insurance industry's supply chain from the viewpoint of experts?

There are various definitions of risk in the subject literature. According to Merriam-Webster's culture, risk can be defined as the probability of loss or damage and or the chance of losing an investment value. According to the definition of the project managers association, the risk of an event or set of uncertain events, which, happens, has effect on one or more goals [7]. Waters believes that risk happens due to uncertainty about the future.

Identifying and managing the risks within the network providing and using coordinating approaches across all the supply chain members is defined to reduce the vulnerability of the entire supply chain as a supply chain risk management. In fact, the goal of risk management is identifying risks and developing strategies to reduce risky situations [9]

Namely, supply chain risk management, external risk management and supply chain risks through an integrated approach among supply chain members are considered to reduce the supply chain vulnerability as a whole. This definition implies that risks should not necessarily be risks between supply chain members, but can also be the management of supply chain risks within a company. Supply chain risk management deals with the identification of types of risks that can lead to supply chain bottlenecks and disturbances, and are aimed at preventing interruptions within or outside the supply chain, which could lead to undesirable effects on the entire supply chain [5]. In the current competitive world, supply chain management is one of the key issues facing economic agents that affect all activities of the organization to produce goods and provide customer service.

2. Methodology

Insurance Industry - Advancement in technology coupled with reduced barriers to trade in many countries has led to globalization of business. For this reason, with the increasing global market, a wide range of companies and organizations engage in trading in different countries, such as exporting and importing products, providing overseas services, traveling abroad or taking outside employees. The country is exposed to international losses and risks and faces dangers such as terrorism, kidnapping, currency risk, export and import restrictions, communication and technology problems, and financial market weakness.

On the other hand, risk management in a global company faces challenges such as the inability to assess risk accurately in some of the underdeveloped countries, the lack of advanced insurance industry in some countries, local laws of some countries in the purchase of certain types of insurance, the existence of differences in insurance tax of countries, the conventional limitation of insurance coverage, and the limitation of buying insurance due to the opposition of religious beliefs of some communities with interest payment.

Accordingly, global companies have sought to find a solution for the globalization of risk management and organizing international insurance and they have planned a variety of ways that the most popular type is that a global insurer through its clients works with partner insurers in each of the countries in which the insurer company operates to provide a coherent coverage globally.

The greatest benefit of risk management for a company is that it generally reduces the occurrence of avoidable incidents and related costs in the field

of asset coverage; thereby it contributes to the continuity of business activity.

Indeed, risk management leads to more informed decision making, coherent planning, and better use of resources; risk management will empower companies to achieve their financial and strategic goals in dealing with the risks arising from permanent complexity of global economy. The nature of insurance companies is such that in these companies, risk management is far more important. The reason for this issue is that, basically, the role of insurance is to accept the risk of customers; i.e, the insurer transfers its risk to the insurance company by purchasing an insurance policy. So it's natural that the insurance company has more control over risk management that it accepts.

However, the environmental complexity, the intensity of competition, the prevalence of new and advanced technologies, the development of information and communication technology, the new methods of supplying goods and environmental issues are among the major factors that led enterprises and economic firms in their life face with many risks and high and even unpredictable risks.

Perhaps the biggest driver of increasing international attention to insurance business is the globalization of companies that insure and purchase risk management services from the insurer. These global customers are increasingly demanding high-quality risk services that led many insurers to expand their international capabilities.

On the other hand, global companies have formed several associations in the field of optimizing planning, insurance risk management practices around the world, which annually publish many meetings and articles.

In developed economies, the importance and role of risk management is well-known in achieving the goals of the organization and properly utilizes its achievements. While in most developing countries, this recognition has not yet been achieved, and despite significant losses resulting from the lack of risk management systems on the property and assets, facilities and manpower of this community, significant efforts have not been done to compensate damages.

In all types of insurance, the role of insurers in reducing financial and personal damages should not be ignored. Insurers have a strong incentive to identify and eliminate risk conditions in the risk insurance process, and they play this role through various ways, such as early visits that do from risks or discounts for the amount of a premium of good and safe risks or discounts for lack of damage in some insurance fields, such as car insurance. And when an accident and damage occurs, the insurer attempts to know the cause of the incident in order to reduce the risk in the future.

2.1. Risk management in the insurance industry, strategies and structures

Insurance should first determine the tolerance level of their risk, for example, the amount of risk that is able and ready to cope with it according to the economic goals and resources available. What factors should be considered by an insurance company to manage the risks that create as a result of its activities, according to Risk News. An insurance company should have a clear strategy for managing the risks arising from its activities. Insurance should first determine the tolerance level of their risk, for example, the amount of risk that is able and ready to cope with it according to the economic goals and resources available. In order to have a risk management strategy, insurance companies should pay attention to the following:

Outstanding and dominant conditions on market and economy and their impact on current risks in their activities, ability to achieve economic goals in particular sectors of the market and its ability to identify, monitor and control the risks of these sectors.

The type of paper risks and the resulting risk concentration, which can lead to instability in the rate of return.

Insurance companies should sometimes review their risk management strategy according to their financial performance and market development.

2.2. Structure

Insurance companies should adopt a risk management structure that is appropriate to the size and conditions of their activities. The organizational structure of risk management should facilitate the optimal management of defects and the process of controlling and managing risk management.

Policy and process of doing tasks:

Risk policies should define the conditions and strategies for identifying, accepting, monitoring and managing risks. These policies should be well defined and consistent with the risk strategy of insurance company and to be appropriate to the nature and complexity of work scope of it.

Process of risk management:

Risk management is efficient to respond well to the risks associated with the main duties related to insurance, which include: service development, pricing, guarantee, investigating claims and claim for compensation and management of dividing risk, which should include the following cases:

Measuring and identifying risk:

An insurance company must have a good way to obtain relevant information in order to identify and measure the extent of exposure to risk in its main tasks. When a risk cannot be measured, for example, some operational risks, insurance should carry out a qualitative review that is appropriate with the risk and has adequate details to be used for risk management.

Evaluating risk

Estimated risks should be compared to the range of the risk of the insurance company to decide for the priorities of investigating each one of the risks and appropriate responses.

Reducing and controlling the risk

Insurers should take measures to reduce and control identified risks. This issue requires the establishment of appropriate standards and limitations that are based on the documentation and saying the considered limitations to the relevant staff that have the experience and ability required.

Reviewing and monitoring risk

It should be an effective monitoring system for following risk indicators to ensure that the limits and risk standards are considered in a desirable manner and any deviation from it is recorded timely. Insurers should also provide arrangements to investigate deviations to prevent their recurrence.

Targeted risk management should also the test of pressure and scenario analysis in order to examine the impact of material incompatibility on the reputation, liquidity, and total financial strength of insurance. Also, investigating the effectiveness of risk-sharing programs and other mechanisms of transferring risk plays a significant role.

3. Results

The method of this paper is applied objectively, and based on the method of data collection is survey. This research is single-sectional temporally. The statistical population of this research is all experts in the supply chain in the organization of industries and mines, companies, institutions of higher education and universities, whose names were extracted from scientific articles published in the field of supply and risk chain and industry organization base and in the field of supply chain of insurer industry had experience and familiarity and there was the possibility of electronic and person access to them. The number of these people was estimated about 146 people, which a sample of 106 people was obtained using the Cochran sampling formula. 125 questionnaires were distributed in the considered population. Finally, 112 questionnaires were returned and analyzed. Also, in this paper, targeted and judgmental sampling method was used.

A questionnaire was used to collect the data, that the questions were designed based on the Likert scale and on a five-degree scale from very low to very high. The factors used to prepare the questionnaire (questionnaire questions) were taken from theoretical literature and the factors used to prepare the questionnaire were the most repeated ones or, according to some of the most important professors and experts, were identified. The total questionnaire's questions was thirty-seven questions, and the questions were divided into seven sections, each section measured the main factors of the supply chain risk, and the question was that "to what extent each of the factors stated are considered a risk for supply chain in the insurance industry. " Cronbach's alpha coefficient was used to measure the reliability of data collection tool. As it was indicated, the overall reliability coefficient is 91%. The coefficient of reliability of the identified factors is shown in Table (1).

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Table 1. reliability of identified factors

Factor	Number of questions	Cronbach's alpha
Political risk	5	0.746
Market risk	4	0.724
IT risk	5	0.736
Disruption risk	4	0.703
Supply risk	8	0.82
Production risk	6	0.74
Cooperation and communication risk	5	0.767

In this article, content validity method was used to determine the validity of the questionnaire. For this purpose, a questionnaire was first provided to 25 experts. The experts were from academic professors and researchers in the field of the supply chain. According to their views, the necessary corrections were applied in the questionnaire and the main questionnaire was designed.

Table 2. validity of identified factors

Factor	KMO	Sig
Political risk	0.627	0.000
Market risk	0.623	0.002
IT risk	0.644	0.000
Disruption risk	0.682	0.000
Supply risk	0.649	0.000
Production risk	0.645	0.000
Cooperation and communication risk	0.665	0.000

Table 3. Pearson correlation coefficient

	Risk	Political risk	Market risk	IT risk	Disruption risk	Supply risk	Production risk	Cooperation risk
Risk of Pearson correlation coefficient	1	0.785**	0.657**	0.701**	0.61**	0.768**	0.895**	0.782**
Significant level	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**<P0.01

The sampling adequacy index and Bartlett coverage level are reported in Table (2). The sampling adequacy index (KMO) for all classes is above 0.5 and the Bartlett coverage level (Sig) is less than 0.5, which these results indicate that the sub-factors identified for each factor (structure) measure that factor and the construct validity is approved. Pearson correlation coefficient was used to answer the research questions and to determine the relationship between research variables and supply chain risk variable. Based on the results, there is a relationship between the variables of political, market, technology, disruption, supply, production, and cooperation, with a 99% confidence that is shown in Table (3).

4. Conclusion

Supply chain management is a subject that is created by increasing competition in global markets with the aim of achieving customer satisfaction and survival in a competitive market in recent years. The existence of uncertainties, increasing factors affecting the supply chain and increasing the globalization of the supply chain network has faced managers with difficulty to achieve their goals.

Each organization faces a different level of risk, according to the type of activity and the sensitivity of its assets, which affects the quality of their goods and services, so it can be acted to manage these risks by identifying these risks and gaining their impact on the supply chain. The purpose of this paper was to present a suitable application model of supply chain risk in the insurance industry to take a step for professional management of supply chain risks.

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