The Role of Insurance Industry in Managing the Financial Risks of Manufacturing Enterprises in Sudan

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Abstract: - To evaluate the insurance industry's role in managing the financial risks of manufacturing enterprises in Sudan. Methodology: The descriptive-analytic approach has been employed to assess the aims and objectives. The statistical records were surveyed during the year 2001 by the Ministry of Industry. Results: 76% of the respondents of all types of manufacturers believed that the finance manager dealt with risk management. 95% of the respondents believed that risk management is directly associated with financial aspects. Self-insurance would not become popular in Sudan, which has an insignificant association (p-value=0.460). Conclusion: The risk has been managed by the finance managers of firms; whereas, it requires an employee with a risk management background and experience in the insurance industries of Sudan. Therefore, the study has recommended the promotion of more strategies to enhance risk management concepts among employees, who were working in the insurance sector.

Key-Words: - Insurance, Risk Management, Finance, Managers, Manufacturing, Enterprises, Risk Awareness, Significant Role, Loss Mitigation.

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1 Introduction

The insurance industry is considered a risk management service provider. It has a wider and more profound impact on financial risks because of the ability to absorb, manage, and diversify the risks, [1]. The insurance industry efficiently contributes to resolving urgent global societal challenges and helps in the designing of innovative products. The industry plays a significant role in the promotion of financial stability by providing all services of social protection through social security systems.

This study particularly emphasizes on introducing an effective risk management system. It is apparent from the knowledge that there is room for enhancing the efficiency and effectiveness of the risk management process. Similarly, there are limited studies concerning the risk management process of the insurance industry in Sudan. The joint formulation of the policies will probably assist the enterprise to gain an overall risk reduction most reasonably. Although, this is the main challenge that risk managers might face in the successful implementation of the risk management process.

Firms, that target to achieve their aims, can successfully create an awareness of risk management, where the staff can behave as risk managers. The approach is used to surround risk with management strategies and embrace the notion of risk management to gain risk awareness. Risk management can be undeniably observed as the main competency of an insurance company. By using its market position, expertise, and capital structure, a financial institution can accomplish the associated risks by transferring and repackaging them to the market in a customized manner, [2].

The study has emphasized that the risk management process is essential to the overall solvency of the firm, and it also ensures its short and long-term obligations by managing and evaluating overall risks. Better risk elimination or reduction is focused on better risk awareness. The risk management system can be effective if carefully maintained and implemented, [3]. Competitive advantage can be extended, allowing business progress with greater confidence in the future together with improved shareholder confidence and

value. Financial controls must be imposed to control the financial risks.

Generally, the insurance industry possesses risk pooling and indemnification properties by mitigating losses and managing non-diversifiable risks. It also helps to overcome costly bankruptcies and extends protection against severe potential losses. The study assessed the role of the insurance industry in managing financial risks faced by the manufacturing sector in Sudan. The aggregate impact of the insurance industry contributes widely to financial and social stability. The industry allows efficient management of different risks and encourages the stability of different businesses. Therefore, this study has discussed and evaluated the role of the insurance industry in the management of financial risk faced by the manufacturing enterprises in Sudan.

2 Aim of the Study

It is necessary to perceive the insurance industry not only as a risk management and protection mechanism but as a partnership that allows businesses to flourish without fear of any financial risk. This study discussed the role of insurance companies in managing financial risks.

3 Theoretical Framework

The insurance industry usually offers easy access to credit, provides greater liquidity and transparency to the markets, and channels savings into long-term investments by acting complementary to the banking sector. It provides support and growth to the country's economy. The industry is also responsible for raising awareness regarding security by contributing to new product development and public safety. It eventually leads to improved safety requirements and fuels innovation in manufacturing enterprises, [1].

The quality of risk management is a serious issue for the development and growth of the country along with the profitability and survival of the insurance industry. All types of risks must be controlled, and insurance companies should adopt quality measures and good practices in managing all types of risk. Risk management is supposed to have rising attention and focus in the corporate world and practical domains, [4]. Risk has been identified as the lifeblood of each firm', where functional managers deal with risks conclusively, [5]. Risk management is defined as a systematic procedure for the evaluation and identification of pure exposure of loss experienced by a firm or an individual. Risk management is also a performance activity that is structured to minimize the negative impact or risks of uncertainty, concerning possible losses. The objective of risk management refers to minimizing the foreign exchange losses, reducing the cash flow volatility, and protecting the earning fluctuations to ensure the firm's survival and profitability. Risk management is anticipated to assist an organization in meeting its target, which may be helpful in minimizing shareholder value in the case of registered insurers, [6].

The information environment of a firm has important implications for investment, liquidity, and risk, [7]. Figure 1 represents some roles of the insurance industry, which include providing greater liquidity and transparency, reducing investment risks, advancing the development of financial services, encouraging loss mitigation, providing growth to the country's economy, and promoting financial stability.

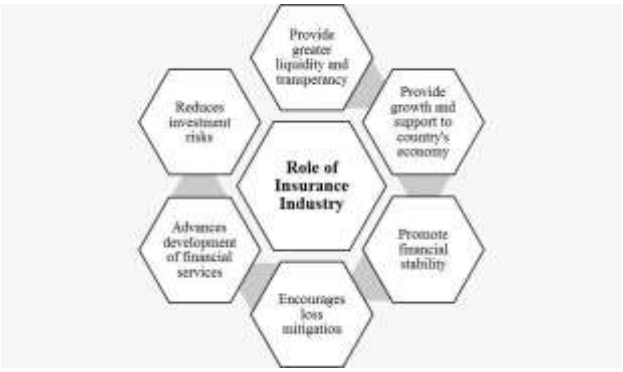

Fig. 1: Framework Representing Role of Insurance Industry

The manufacturing sector in the presence of insurance undertakes higher risks than it would do in the absence of backup from the insurance company. It provides higher productivity and growth to the manufacturing sector, [8]. Every day; many organizations, individuals, businesses, and governments buy insurance to transfer the risks of experiencing an uncertain loss in exchange for paying an assured premium. This approach has been used for centuries to reduce the ambiguity of financial loss by disseminating the risk across a large number of insured products. It has become an essential foundation not only concerning economic activity but also social policy. Many activities and processes are deemed too risky without insurance, and those influenced by loss might struggle to improve. Presently, insurance is accessible to cover any type of risk virtually, as long as there is a demand and supply for the transfer of risk, [9].

A systematic literature review highlighting emerging trends in ERM within the insurance sector. Their study underscores the necessity for insurers to adopt comprehensive risk management practices that address both traditional and evolving risks, thereby enhancing organizational resilience and performance, [10].

A 2022 study examined the relationship between financial risk management and the performance of insurance companies, focusing on the moderating role of hedge accounting. The findings suggest that effective financial risk management, complemented by appropriate accounting practices, can significantly enhance an insurer's financial stability and profitability, [11]. Advancements in technology have facilitated more sophisticated risk assessment models. A 2023 study introduced a novel discrete event simulation framework to explore the dynamics of the specialty insurance market, providing insights into market phenomena such as underwriting cycles and the impact of risk syndication, [12].

Risk management is a serious concern, not only for the profitability and survival of the insurance industry but also for the socio-economic development and growth of the whole economy. Insurance companies are required to adopt quality measures and good practices in financial risk management as major risk supporters, [13]. The main target of risk management has been used for regulatory compliance as opposed to enhancing financial performance. However, risk management leads to enhanced financial performance more often as regulatory compliance and risk controls lead the organization to save its costs. It has been further suggested that managers are capable of raising the worth of a firm by confirming continued profitability by managing risks. Poor liquidity management has been recognized as underserving and underpricing. A high level of tolerance for governance, management, and investment risk issues, complexities regarding rapid expansion, and growth into non-essential activities are the main reasons for financial failure and distress in insurance companies. Risk management has been related to the shareholder value maximization proposition, [14].

It has been suggested that a firm will only involve risk management if it only improves the value of shareholders, [15]. It is essential for each firm to actively manage and retain some risk levels; if it can increase the market value or if there is a possibility of the financial risks to be lowered. confirmed that risk management is an imperative function of insurance institutions in building value for the customers and shareholders. Generally, the operations are disposed to risk; and if the risks are not managed, the financial performance of the firm will be at stake. Firms with effective structures of risk management can overtake their peers as they are prepared well for the periods after the occurrence of the associated risk, [14], [16].

4 Methodology

The study has utilized a descriptive-analytical approach to assess the role of the insurance industry in mitigating financial loss, experienced by the manufacturing sector in Sudan. The study has collected data from the statistical records of an industrial survey conducted in 2001, which was executed by the Ministry of Industry in association with the United Nations Industrial Development Organization and Insurance Supervisory. The whole reporting system in the insurance companies of Sudan has been unified due to the introduction of the Islamic insurance system. A survey was also conducted in Khartoum state, where the respondents were instructed on the main features of risk management before filling out the questionnaire. The statistical package for social sciences (SPSS) has been used to analyze the collected data from statistical records. The Chi-square test has been applied to test the associations between the variables.

5 Results

SPSS and Excel spreadsheets have been used for the analysis of frequency distribution, descriptive statistics, and cross-tabulation. The chi-square test has also been employed to test the association between the variables. The respondents were asked about the job title of the employees, and managing risks in the companies. The questions about the risk management function have also been discussed. Table 1 (Appendix) shows that 76% of the respondents of all types of manufacturers believed that finance manager deals with risk management; 16% believed that the job title is insurance manager; 8% believed that it is insurance and risk manager; and only 2% believed that risk manager is the job title for the employee, who manages risk. It is apparent from the analysis that the job title of risk manager was found at the lowest percentage. Manufacturers of food and beverages responded positively to the risk managers. Considering the functions of risk management, as shown in Table 2 (Appendix), 95% of the respondents believed that it

is combined with the finance department; 3% responded that it is a separate function; and 2% believed that it is combined with the production department.

Table 1 (Appendix) highlights the distribution of job roles across various industries. Finance Managers are the most prevalent, representing 76% of the total sample, with high concentrations in Machinery and Equipment (94.6%) and Electrical Machinery (97.4%). Insurance Managers are notably present in the Food and Beverage sector (19.1%) but are underrepresented elsewhere. Certain industries, such as Papers and Paper Products and Petrochemicals, show no representation for roles like Risk Managers. Overall, strategic roles such as Risk Management and Company Strategy are sparsely represented across all sectors.

Table 2 (Appendix) provides an overview of financial and accounting structures across industries: Food and Beverage, Machinery and Equipment, Electrical Machinery, Paper Products, Petrochemicals, and Others. These functions are classified into Separate Functions, Combined with Finance, and Combined with Production. The Combined Finance structure dominates, used by 95% of organizations, reflecting its efficiency and cost-effectiveness. Separate Function structures are rare, accounting for 3%, while Combined Production is adopted by only 2%. This highlights a strong industry preference for integrating financial and accounting roles within finance.

As stated by respondents, the reasons for self-insurance in Sudan have been presented in Table 3 (Appendix). 71% believed that a scientific way of risk management has not been developed yet in Sudan; 3% attributed to the difficulty of loss-forecasting; 2% believed that management in Sudan is risk controlled; and 24% reacted towards the combination of the three factors. Therefore, the researcher agrees with those, who favored the first reason. As mentioned in Table 4 (Appendix), the respondents of this type have been insignificantly associated between reasons for feeling that self-insurance would not become popular in Sudan and application of self-insurance at 0.05% level of significance with 3 degrees of freedom. The results have presented insignificant results regarding self-insurance as responded by the food and beverages manufacturers. As suggested in Table 5 (Appendix), the Respondents of this type were not significantly associated with risk transfer through other mediums such as guarantees and application of self-insurance at a 0.05% level of significance with 1 degree of freedom. The results presented that there is a lack of scientific ways of risk management in Sudan, and there is a need to develop more effective procedures.

Table 3 (Appendix) risk management practices in Sudan are largely underdeveloped, with 71% of responses across sectors indicating a lack of scientific approaches. The Machinery and Equipment sector faces unique challenges, such as difficulty in loss forecasting (6.3%), while the Electrical Machinery and Others sectors show relatively higher adoption of multifactorial strategies (53% and 57.9%, respectively). Confidence in risk-controlled management is minimal (2% overall). Key gaps include inadequate frameworks, training, and forecasting tools, highlighting the need for tailored interventions and cross-sector collaboration to improve risk management practices.

Table 4 (Appendix) presents the results of a Chi-Square test examining the relationship between self-insurance practices and the food and beverage manufacturing sector. The data shows that 7 instances (3.70%) apply self-insurance, while 184 instances (96.30%) rely on professional insurers. The Pearson Chi-Square value is 1.248, with 3 degrees of freedom, and a significance level of 0.741. Since the p-value exceeds 0.05, we conclude there is no significant association between the use of self-insurance and the food and beverage manufacturing industry. Thus, the null hypothesis is not rejected, indicating no significant relationship.

In Table 5 (Appendix) the results show that only 3.7% of respondents considered self-insurance, while 96.3% preferred professional insurers. The Chi-Square test yielded a value of 0.545 with a significance level of 0.46, indicating no significant association between the decision to apply self-insurance and the type of insurance preference at the 0.05 significance level. This suggests that the lack of developed risk management practices in Sudan may contribute to the low popularity of self-insurance in the sector.

6 Discussion

The results have reported that the respondents were not aware of the risk manager concepts. The study aimed to promote an effective risk management system in Sudan. There is also a need to improve the efficiency and effectiveness of risk management processes in Sudan, which may enhance the concepts among the employees working in insurance sectors in Sudan. Risk management studies are almost rare, and lack of data could be the reason for insufficient knowledge about risk management. The joint strategies would help the

firms to gain an overall risk reduction economically. The correct implementation of the system and associated monitoring is addressed by the risk managers as the responsibility to sustain its outcomes. These roles must be assigned to an efficient candidate, as the past experience and achievements would be effective in assessing the abilities to carry on the responsibilities.

It is vital to note that many variances exist among the institutions and countries. Concerning insurance, it is significant in some countries. For instance, there is no insurance system in Iraq, Syria, and Jordan. ; therefore, some types of insurance are mandatory for certain loans in Morocco and Tunisia. Whereas, insurance is mandatory for all borrowers in Sudan, [17]. Economic literature has identified the importance of the association between economic growth and financial development. There are supply-leading casualty patterns in developing countries as suggested in recent evidence, [18]. Property-liability insurance has adopted great importance like other financial services in developing countries. The emerging and developing countries have considered financial institutions locally assimilated as a fundamental element of their political and economic independence. Lack of sufficient experience and structural, financial, and technical constraints have restricted the retention capacity at the same time, [18], [19]. Dependence on foreign insurance and reinsurance has persisted as an essential issue. The study demonstrated the important aspects of an insurance industry in emerging and developing countries, like Sudan. The issue is the association between economic and insurance development, which has been previously assessed. Another issue is concerned with the tests of association between the retention capacity and market structure for some of the countries, [20].

7 Conclusion

The problem can be resolved in the manufacturing sector by employing four factors, which include machines, manpower, and materials and methods used. Therefore, a proper risk management process must be implemented and specific risk managers with appropriate backgrounds should manage the risk-associated factors of the insurance industry in Sudan. It is essential to consider the organizational structure in the case of new industrial projects. The communication abilities of the risk managers must also be enhanced, as they are likely to have different skills and responsibilities while working on certain projects. It is essential to understand that the risk associated with the properties, operations, and employees must be monitored effectively to survive the world of uncertainty.

8 Recommendations

Management in Sudan should be oriented towards the recognition of the significance of risk management. The existence of risk managers as a separate function must be promoted in any manufacturing enterprise. There should be consideration of operational risks facing manufacturing enterprises [1], [17]. Future studies must consider a broader sample size to evaluate more about the risk management system and associated awareness among the employees of the insurance and financial sectors of Sudan.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

The author contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

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Conflict of Interest

The author has no conflicts of interest to declare.

APPENDIX

Table 1. Respondents were asked about the job title of risk management

	Food and Beverage		Machinery and Equipment		Electrical Machinery		Petrochemicals		Papers and Paper Products		Others		Total %	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Insurance Manager	35	19.1	1	2.7	1	2.6	4	30.8	0	0	6	24	47	16
Insurance and Risk Manager	13	7.1	1	2.7	0	7.7	1	7.7	0	0	0	0	15	5
Risk Manager	7	3.8	0	0	0	0	0	0	0	0	0	0	7	2
Finance Manager	128	69.9	35	94.6	38	97.4	8	61.5	0	0	18	72	227	76
Company Strategy	-	-	0	0	0	0	0	0	0	0	1	4	1	1
Total	183	100	37	100	39	100	13	100	0	0	25	100	297	100

Table 2. Respondents were asked about the risk management function

	Food and Beverage		Machinery and Equipment		Electrical Machinery		Petrochemicals		Papers and Paper Products		Others		Total %	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Separate Function	6	3.3	1	2.7	1	2.6	2	15.4	0	0	0	0	17	3
Combined with Finance	176	96.2	36	94.3	38	97.4	11	84.6	0	0	22	88	283	95
Combined with Production	1	0.5	0	0	0	0	0	0	0	0	3	12	4	2
Total	183	100	37	100	39	100	13	100	0	0	25	100	297	100

Table 3. Respondents were asked about the reasons for feeling self-insurance would not become popular in Sudan

	Food and Beverage		Machinery and Equipment		Electrical Machinery		Petrochemicals		Papers and Paper Products		Others		Total %	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Scientific way Risk management yet to develop in Sudan.	163	85.3	30	65.2	31	47	10	71.4	11	57.9	13	48	258	71
Difficulty of loss forecasting	12	6.3	0	0	0	0	0	0	0	0	0	0	12	3
Management in Sudan is risk-controlled	7	3.7	0	0	0	0	0	0	0	0	0	0	7	**2**
A combination of three factors	9	4.7	16	34.8	35	53	4	42.1	8	42.1	13	57.9	86	24
Total	191		36	100	66	100	14	100	19	100	27	100	353	100

Table 4. Reasons for feeling that self-insurance would not become popular in Sudan

			Total
Applying self-insurance	Yes	Count	7
		% of total	3.70%
	No, only insure with professional insurers.	Count	184
		% of total	96.30%
Total		Count	191
		% of total	100.00%

Chi-Square Test

	Value	**df**	**Significance**
Pearson Chi-Square	1.248[a]	3	0.741

a. There was no significant association at 0.05 level of significance
b. Type of Manufacture= Food and Beverages

Table 5. Reasons for feeling that Self-insurance would not become popular in Sudan

			Reason for feeling self-insurance would not become popular in Sudan.	
			Scientific way of risk management yet to be developed in Sudan	A combination of different factors
Applying self-insurance	Yes	Count	7	0
		% of total	3.70%	0%
	No, only insure with professional insurers.	Count	184	16
		% of total	96.30%	34.80%
Total		Count	191	16
		% of total	100.00%	34.80%

Chi-Square Test

	Value	**df**	**Significance**
Pearson Chi-Square	0.545	1	0.46

a. There was no significant association at 0.05 level of significance
b. Type of Manufacture= Machinery and equipment