Study of the Effect of Risk Management Application on the Performance of Giad industrial Group

YASSIN ASSADIG ALI AHMED1

*Advanced Industrial Group-Transformative Industries Complex, Khartoum, Sudan
yassadig@gmail.com

Abstract

The risk management is particularly important at the present time and constitute a new approach in firms, has seen all industries acceleration and great changes in recent years, in order to benefit from risk management to provide protection for firms and continuity performance its activities should provide the critical success factors for risk management. The research problem is represented in the role of risk management on the performance of industrial firms in Sudan, the research aims to deepen the understanding of risk management and its application to firms and to know the reasons that led to the failure and faltering of the performance of these firms as well as finding appropriate solutions ,The researcher used the descriptive analytical method in conducting this study and designed a questionnaire as the main tool for data collection, This research develops through the assumption that there is a positive relationship between risk management and the performance of the firm where the study found that risk management practices are applied in moderate proportions by the leaders and employees of the Sudanese industrial firms and dominated by the reactive method rather than proactive, One of the most important recommendations of the study is that industrial organizations have to adopt effective systems for managing organizational risks and that they be monitored and reviewed for deviations in order to be in line with the strategy of the firm.

Key words-*Risk Management; Industrial Firms; Performance*

I. INTRODUCTION

Although chemical industries have produced lots of beneficial products to the mankind in order to sustain life, some of the chemical substances can cause serious pollution as well as hazardous to human. Besides that, the production of some chemical substances is highly flammable and can cause catastrophic incident [1]. This study makes business management practices important through the development of a framework that shows how to align business risk management with performance. Research project has assessed the influence of risk management methods on the performance of an industrial firms; the theory of risk management process has been compared to the actual methods in practice in order to investigate similarities and differences. In other words, the main idea is to see if the said firms are working with risk management approaches and if its use influences the performance of a firm and achieving company strategy.

The origin of the word risk can be found in the twelfth century and is thought to be from either the Arabic word *risq* or the Latin word *risicum* *Risq* might appear to relate to "chance outcomes in general and have neither positive nor negative implication". Therefore, taking a risk can also result in a positive outcome. *Risque* has mainly negative connotations but the circumstances can be positive. Therefore, in common English usage, the word risk commonly refers to a negative event [2].

A. Problem Statement

The problem of research is to identify the role of risk management on Sudanese Industrial Firms Performance, ap-

plication in the Giad Chemical Group; therefore, the research attempts to answer the following questions:

- 1) What is risk management? And what dimensions use to measure risk management?
- 2) What does firm performance mean in Giad chemical group?
- 3) What the relationship between Risk management which dimensions (strategic risk, operational risk, change risk and control risks) and Industrial Firms performance in Giad chemical group.

This study is going to cover the above mentioned knowledge gap, which is to investigate the role of risk management on firms performance, the effect of such alignment on the firm strategy and the likelihood of success, The findings of this research will help to develop firms risk management skills with organizational culture to firms success and achieving company strategy.

B. Research Objectives

The main objective of this study was to establish the relationship between firm management risk and firms performance of industrial sector in Sudan, (application on Giad Chemical Group).

C. Research Hypothesis

1) *Main Hypothesis*: H1: There is statistically significance relationship between risk management which dimensions (strategic risk, operational risk, change risk and control risks) and industrial firms performance which dimensions (customers

Fig. 1. Model for Risk Management.

satisfaction, employee satisfaction, job performance, and social performance).

2) *Sub Hypothesis*: H1. There is statistically significant relationship between risk management (multi-dimensional) and customer Satisfaction. H2. There is statistically significant relationship between risk management (multi-dimensional) and employees Satisfaction. H3. There is statistically significant relationship between risk management (multi-dimensional) and job result. H4. There is statistically significant relationship between risk management (multi-dimensional) and social result.

II. LITERATURE REVIEW

A. Chemical Industry Definition

Given its essential role in other sectors, it is not surprising that the chemical sector is a vast and complex industry. Businesses that produce chemicals are closely linked as suppliers and consumers, and depend on other industries, as well as global economic trends [2].

The major raw materials of the chemical industry are fossil fuels, water, air, salt, limestone, sulphur and other specialized raw materials. Industry converts these materials into products; a key feature of the industry is that its products almost always require additional treatment before reaching end users [3].

B. Risk Management

The Royal Society defined risk as the likelihood of a specific adverse event occurring over a given period of time. Mr. Akintoye stressed this definition because the likelihood of harm and the duration of exposure were included in his

study. The source of the risk cannot sometimes be identified, the source is limited knowledge of employees and managers, limited experience and the cause of the information causing the risk. The source of the risk may be changes in the parties included in construction process. Sometimes the risk come from financial markets, project failures, legal liabilities, credit risk, accidents, natural causes and disasters and from competitors [3].

C. Risk Management Definition

Risk management has a different definition which is based on both its origin and practice. The practice of risk management began in ancient times, in the earliest period of human existence, and during everyday life our human nature exploits our experiences and uses our instinct to survive. In 1998, a letter from Douglas Barlow, a risk manager of Canadas Massey Ferguson Company, to the author gave genetic expression to this, which reiterates this sentiment that risk management is innate [1]. The royal society had defined the risk as the probability that a particular adverse event occurs during a stated period of time [4].

Risk management is a systematic process of identifying, assessing and responding to project risk. The overall goal of the risk management process is to maximize the opportunities and minimize the consequences of a risk event [5].

In any industry risk management studies, risk identification is the foremost and indispensable stage in risk management. Without risks being identified appropriately, management strategies and measures may be ineffective in spite of the money and efforts expended. Risk identification stage,

Fig. 2. Structural Model Estimation for Risk Management and Firm Performance.

however, does not end simply by creating a lengthy list of risks and/or risk events, but requires a classification of those risks because the list has some drawbacks [6].

Risk analysis is the second stage in risk management process (RMP) where collected data about the potential risk are analyzed. Risk analysis can be described as short listing risks with the highest impact on the firm, out of all threats mentioned in the identification phase. Although some researchers distinguish between terms risk assessment and risk analysis and describe them as two separate processes [7].

D. Chemical Industrial Group

Giad industrial group was established in 1993 and was inaugurated in 2000, with the vision of being the largest industrial group in Africa, according to the mission of leading the industrial, agricultural and developmental renaissance and being one of the pioneers of industry in the region and one of the biggest pillars of the national economy. The Chemical Industries Group is branch of Giad Industrial Group, 50 km southeast of Khartoum.

E. Fields of work

Chemicals, alkali materials such as caustic soda, inputs for paints, inputs of mining operation, Urea fertilizer (project) and other industries.

III. METHODOLOGY

The unit of analysis is the firm; the research design followed the design process suggested by Saunders et al. [4] a deductive approach was chosen, testing hypotheses with data

collected through a questionnaire. The survey-based research was selected for investigating the importance of the key factors extracted from the literature reviews based on firm managers' lens; survey research fits the cases in which the researcher wishes to answer questions regarding the distribution of the variables or the relationships among characteristics of people or groups, allowing generalization for a broader population.

A. Target Respondents

As this research aims to find the role of risk management on Firm performance in Giad Chemical Group - Sudan, it is necessary to get a response from the person who is in a position to understand the overall process of risk management within a firm. The Chemical Industries Group contains three companies with a total of 425 employees. Accordingly, the researcher will distribute 200 questionnaires based on Sekaran tables page 421. [5].

B. Methods of Data Collection

- 1) Data was collected through Questionnaire, we used none probability sampling techniques , specify convenience sampling technique this help us to find employees in their places such as workshops production lines and others yard ,also this methodology low cost and gain time.
- 2) All the respondents were questioned about the main factors causing the risk of the firm at the various areas such as satisfaction and performance in Giad Chemical Group Sudan.

TABLE I
PSYCHOMETRIC PROPERTIES OF RISK MANAGEMENT.

Independent Variables	CR	AVE	MSV	Max R(H)		
Operational Risk	0.918	0.693	0.721	0.926	0.832	
Strategic Risk	0.821	0.697	0.667	0.832	0.817***	
Risk Control	0.798	0.663	0.721	0.800	0.849***	
Change Risk	0.777	0.636	0.661	0.795	0.807***	0.835

TABLE II
PSYCHOMETRIC PROPERTIES OF INDUSTRIAL FIRMS PERFORMANCE.

Independent Variables	CR	AVE	MSV	Max R(H)				
Customer Satisfaction	0.774	0.634	0.672	0.815	0.796			
Community Result	0.912	0.725	0.637	0.935	0.798	0.852		
Main Result	0.843	0.643	0.672	0.864	0.820	0.707	0.802	
Employee Satisfaction	0.753	0.612	0.530	0.854	0.674	0.678	0.728	0.783

TABLE III
MODEL FIT INDICES AND PATH COEFFICIENTS OF RISK MANAGEMENT AND FIRM .

	Estimate	S.E.	C.R.	P	Result
Community Result $\leftarrow$ Operational Risk	0.051	0.188	0.272	0.786	Not support
Community Result $\leftarrow$ Strategic Risk	0.326	0.167	1.953	0.051	Not support
Community Result $\leftarrow$ Risk Control	0.192	0.205	0.935	0.350	Not support
Community Result $\leftarrow$ Change Risk	0.44	0.214	2.058	0.040	Support
Main Result $\leftarrow$ Operational Risk	0.178	0.123	1.453	0.146	Not support
Main Result $\leftarrow$ Strategic Risk	0.066	0.106	0.618	0.537	Not support
Main Result $\leftarrow$ Risk Control	0.292	0.138	2.12	0.034	Support
Main Result $\leftarrow$ Change Risk	0.389	0.145	2.679	0.007	Support
Customer Satisfaction $\leftarrow$ Operational Risk	0.23	0.14	1.64	0.101	Not support
Customer Satisfaction $\leftarrow$ Strategic Risk	0.262	0.125	2.099	0.036	Support
Customer Satisfaction $\leftarrow$ Risk Control	0.148	0.152	0.973	0.330	Not support
Customer Satisfaction $\leftarrow$ Change Risk	0.062	0.151	0.411	0.681	Not support
Employee Satisfaction $\leftarrow$ Operational Risk	0.022	0.23	0.095	0.924	Not support
Employee Satisfaction $\leftarrow$ Strategic Risk	0.277	0.19	1.455	0.146	Not support
Employee Satisfaction $\leftarrow$ Risk Control	1.313	0.304	4.315	***	Support
Employee Satisfaction $\leftarrow$ Change Risk	0.017	0.235	0.072	0.942	Not support

C. The Questionnaire

A well-structured questionnaire consists of 3 sections: 1st section is the personnel informations which contain (5) questions; 2nd section is the risk management and it contains (20) questions; 3rd section is the firm performance and it contains (20) questions. The statements assessed by using a Likert scale of five-point scale ranging from 1 "strongly agree" to 5 "strongly dis agree".

D. Management and Analysis of Data

Data collected was analysed using the AMOS (Analysis of Moment Structures). Furthermore, the analysis and interpretation of data was done in diagrammatic form, tables, and graphs using frequencies and percentage analysis.

IV. RESULTS

A. Descriptive Statistics

Assessment of descriptive statistics (Table 1: Psychometric Properties of Risk Management) reveals that all the variables fall within the predefined the important values.

V. A DISCUSSION OF THE RESULTS

Relationship between Risk Management (Multi-dimensional) and Firm Performance The relationship between risk management (Multi-dimensional) and firm performance, it is clear that from analysis the risk management has practical impact on firm performance, this is justified for many reasons, the main of them these firms dont adopted risk management systems, also the lack of training and awareness of risk management culture among employees and suitable tools use for risk management process. All these factors affected the relationship between risk management and firms performance in Giad Chemical Industrial Firms. Compare with other study we find the relationship between risk management and firm performance has positive impact. The result of regression analysis shows there is a positive and significant relationship between total risk management and company performance. Companies need to see risk management not only from defensive approach, but also as a key successes factor for sustainability of earnings and improvement in overall performance of the business. Effective risk management has direct implication on the earning performance of the company.

The second hypothesis is also acceptable as the result shows positive outcome in performance in the companies which have higher investment in intellectual capital.

VI. CONCLUSIONS & RECOMMENDATIONS

- 1) The full board is responsible for overseeing the risk management structure, and for that purpose a list of key risk indicators (KRIs) should be developed and risks should be ranked and risk management should be including in firm structure.
- 2) Firm have to adopt more complex types of risk management.
- 3) Results show that the firms in chemical group presently have well defined strategies that are updated on a regular basis, they dont even take risk into account, they were not well defined and they were not translated well into organizational objectives at the operational level. there is no clear plan for risk management involving in firm strategy so a risk plan should be cascading from all department which including all step of risk process.

REFERENCES

- [1] J. Abrahám and P. Lžičar, "Risk management in the sustainable development: Analysis of a selected key industry,," *Journal of Security & Sustainability Issues*, vol. 8, no. 2, 2018.
- [2] H. H. Al-Shibly, B. Louzi, and M. A. Hiassat, "The impact of risk management on construction projects success from the employees perspective," *Interdisciplinary journal of contemporary research in business*, vol. 5, no. 4, pp. 12–43, 2013.
- [3] J. Sithipolvanichgul, "Enterprise risk management and firm performance: developing risk management measurement in accounting practice," 2016.
- [4] I. S. V. Advisors, "Overview of the chemicals industry," tech. rep., 2007.
- [5] E. Osipova, "Risk management in construction projects: a comparative study of the different procurement options in sweden," 2008.
- [6] D.-W. Kwak, "Risk management in international container logistics operations: risk analysis and mitigating strategies," 2014.
- [7] M. ROPEL and E. GAJEWSKA, "Risk management practices in a construction project—a case study," 2011.

TABLE IV
LIST OF ABBREVIATIONS .

No.	Abbreviation	Meaning
1	PMBOK	Project Management Body of Knowledge
2	ERM	Enterprise Risk Management
3	IT	Information Technology
4	PMI	Project Management Institute
5	IEC	International Electro Technical Commission
6	RS	Risk Score
7	RPN	Risk Priority Number
8	RD	Risk Design
9	ERMS	Enterprise Risk Management System
10	PMS	Performance Measurement System
11	ROA	Return On Assets
12	ROE	Return On Equity
13	EPS	Earnings Per Share
14	BIM	Building Information Modeling
15	RMP	Risk Management Process
16	ERP	Enterprise Resource Planning
17	RBV	Resource-Based View
18	IARC	Identification, Assessment, Response And Control
19	ACSI	American Customer Satisfaction Index
20	AMOS	Analysis of Moment Structure
21	SEM	Structural Equation Model
22	EFA	Exploratory Factor Analysis
23	CFA	Confirmatory Factor Analysis
24	SPSS	Statistical Package For The Social Sciences
25	KMO	Kaiser-Meyer- Olkin
26	TVE	Total Variance Explained
27	MSA	Measure Of Sample Adequacy
28	GFI	Goodness-of-Fit Index
29	AGFI	Adjusted Goodness-of-Fit Index
30	NFI	Normed Fit Index
31	CFI	Comparative Fit Index
32	RMR	Root Mean Square Residual
33	RMSEA	Root Mean Square Error of Approximation
34	SFL	Standardized Factor Loadings
35	AVE	Average Variance Extracted
36	CR	Composite Reliability
37	CEO	Chief Executive Officer
38	COSO	Committee of Sponsoring Firms of the Tread way Commission
39	ISO	International Organization for Standardization
40	CRO	Chief Risk Officer
41	CFA	Confirmatory Factor Analysis
42	C.R	Critical Ratio
43	AVE	Average Variance Extracted
44	P	Probability
45	Max (R)	Regression
46	S.E	Standard Error
47	MSV	Maximum Share Variance