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PROPOSED RISK-BASED PERFORMANCE MANAGEMENT SYSTEM: INTEGRATING STRATEGY, RISK, AND PERFORMANCE A CASE STUDY INDONESIAN MANUFACTURING COMPANY

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Abstract

An increasingly competitive environment requires organizations to maintain corporate performance to achieve company goals. To improve company performance, the company needs a suitable and unique strategy and a sound enterprise risk management (ERM) implementation to face an era full of uncertainty and high volatility. Many studies have examined the impact of implementing ERM on company performance, but only a few researchers have integrated ERM, company performance, and strategy management. The integration focuses on ERM that mediates the relationship between business strategy and corporate performance. This study aims to design and implement the integration between strategic, risk, and performance management using the Risk-Based Performance Management System (RBPMS) in the case study of PT. XYZ is a manufacturing company and has dozens of competitors. This research will begin with problem exploration using interviews, selecting a model framework, namely RBPMS, determining key performance indicators (KPI), risk assessment, and determining key risk indicators (KRI) and key control indicators (KCI). The KPI, KRI, and KCI will be presented in the results of this study to integrate strategic, risk, and performance and make it easier for PT. XYZ to conduct evaluations. The RBPMS is expected to be used by various industries, especially high-risk profile industries, to increase competitive advantage.

Keywords: Competitive Advantage, Enterprise Risk Management (ERM), Performance Management, Risk-Based Performance Management System (RBPMS), Strategic Management.

1. Problem Background

PT. XYZ is a manufacturing company in Indonesia that provides pharmaceutical products. This company has more than a dozen competitors who manufacture and import these products for sale to customers. Intense competition, almost the same product prices, and uncertainty in this era encourage companies to try to achieve competitive advantages. Companies use all the resources they have intending to gain competitive advantages (Evans & Bosua, 2018).

A simple performance management system is how a company translates the plans that have been drawn up on execution so that it produces an outcome (Cokins, 2009). The company consistently pursues long-term, medium-term, and short-term objectives. Organizations require a dependable performance management system (PMS) to boost the likelihood of attaining organizational goals. PMS also identifies and analyzes internal and external factors to help the company achieve its goal (Sales, 2019). Executing a corporate strategy becomes one of the activities embedded in PMS when each individual focuses on the company's ultimate purpose (Otley, 1999).

Continuous improvement is one of the basic tenets of PMS for handling unpredictability (Cinquini et al., 2013). Implementing risk management is one technique for businesses to deal with unpredictable conditions; risk management is one of the approaches organizations employ to achieve organizational goals. The primary purpose of enterprise risk management (ERM) is to understand how businesses can produce and protect value by managing risk, such as minimizing risk exposure (Lai & Khan, 2017). The company's deployment of ERM increases due to its

growing anxiety for essential high volatility and unpredictability. Risk is the effect of uncertainty, either negative or positive, on a company's objective because of a lack of information. ERM focuses not only on uncertainty but also on the capabilities, behavior, and corporate culture when the organization faces risks. In contrast, ERM should also be able to balance minimizing adverse risks and exploiting positive risks (opportunities) for the organization to create higher returns (Romeike, 2018).

Both ERM and PMS do not create strategies for the organization to achieve its goals (The Institute of Risk Management (IRM), 2018); it takes a topic that is very attached to these two topics, namely strategic management. Strategic management is a sequence of processes from how the company formulates, implements, and evaluates the organization in achieving its goals by combining art and science (David & David, 2017). Strategy and risk are related to how far the company is willing to take risks in achieving its goals. In contrast, strategy and PMS is PMS focus on how the company evaluates the strategy according to the performance achieved at that time.

2. Problem Formulation

According to several earlier studies, there is a connection between PMS and the efficiency of ERM when viewed from several perspectives, such as financial and customer perspectives. PT. XYZ has several performance indicators from the balanced scorecard (BSC) perspectives: financial, customer, internal process, and learning and growth perspectives.

Symptom identification on strategic management, ERM, and PMS begins with gap analysis using the COSO Enterprise Risk Management 2017: Integrating with Strategy and Performance framework. This framework can connect five principles: governance & culture, strategy & objective-setting, performance, review & revision, information, communication & reporting.

From the focus group discussion, here are the results of the gap analysis for each principle:

1) Governance & Culture

   This principle can be improved by completing the risk governance document, the linkage between business strategy and risk profile, and statements and forming a risk culture for the company.

2) Strategy & Objective-Setting

   Organizations must establish a risk appetite statement, including cascading the risk appetite statement at each company level and integrating it with risk tolerance. In addition, It is also necessary to analyze the business context in the organization's risk profile to help manage risks from the implications of the chosen strategy chosen.

3) Performance

   Companies need to integrate operational risk by conducting risk aggregation and identifying risks at all company levels. In addition, methods are also required to identify emerging risks, using a key control indicator and considering risk velocity and persistence.

4) Review & Revision

   Companies need to validate or measure risk assessment accuracy and determine risk exposure-appetite and performance so that the decisions taken on the management review agenda are by strategy, performance, and risk.

5) Information, Communication & Reporting

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The company has established a RACI matrix related to risk management practice. However, it is necessary to develop more details about what relevant information is needed by each level of management in the company and how the communication media includes determining the key performance indicator (KPI), key risk indicator (KCI), and key control indicator (KCI).

In general, the gap analysis illustrates that companies can improve their performance by integrating strategy, risk, and performance in one framework for strategy determination and strategy execution to the needs of changes/revisions, not only based on changes in organizational context but also based on risks faced based on risk exposure-appetite and company's performance (red, amber, green)

This paper discussed how to integrate strategy, ERM, and PMS in the context of an Indonesian manufacturing company through the identification and establishment of KPI, finding the organization's key risk, and methods for evaluating the strategy based on the company's performance and risk exposure. The findings of this study are a set of indicators (KPI, KRI, and KCI) and the company's critical risk that influences the success of the company through strategy evaluation.

3. Literature Study

Many studies have been conducted on the implementation of ERM on PMS in previous studies. Research on the implementation of ERM and PMS on financial performance has also been widely studied. However, the integration between strategy, ERM, and PMS have yet to be studied much, especially regarding how risk bridges the strategy evaluation and organizational performance.

Based on appendix 1, which consists of 20 previous studies about strategy, ERM, and PMS, there has yet to be a single study that discusses the risk-based performance management system (RBPMS), which means that there is no integration between PMS and ERM. To the best of my knowledge, research on the integration between strategy, risk, and performance still needs to be completed, especially on how it is implemented directly in manufacturing companies. This research will fill this gap by providing a framework for integrating strategy, ERM, and PMS.

4. Methodology

The research was conducted through a careful literature review to support theories addressing the company's problems in managing organizational performance. Risk-based performance management system approach by Smart (2013), as shown in figure 1, was selected as a proposed framework for integrating strategy, risk, and performance. This research will start with business issue analysis, problem issue identification, data collection and analysis for managing performance, data collection and analysis for managing risk, and aligning risk-taking to strategy through strategy evaluation, as shown in figure 2.

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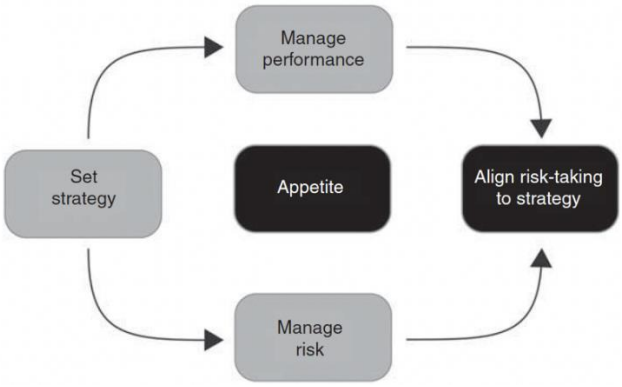

Figure 1. Risk-based performance management system

Source: Smart, 2013

Business issue analysis will be carried out by conducting a gap analysis using COSO ERM 2017 by identifying the principles of governance & culture, strategy & objective-setting, performance, review & revision, and information, communication & reporting. This data gap analysis will then be brought into problem issue identification by conducting interviews and focus group discussions (FGD) with the company's top management to re-detail the issues faced by the organization and the framework used to address the problems. Best performance indicators are carried out, starting with collecting data from the KPI list owned by the organization and identifying potential KPIs through interviews and FGD with top management. The data will be analyzed to determine the KPI for each strategic objective.

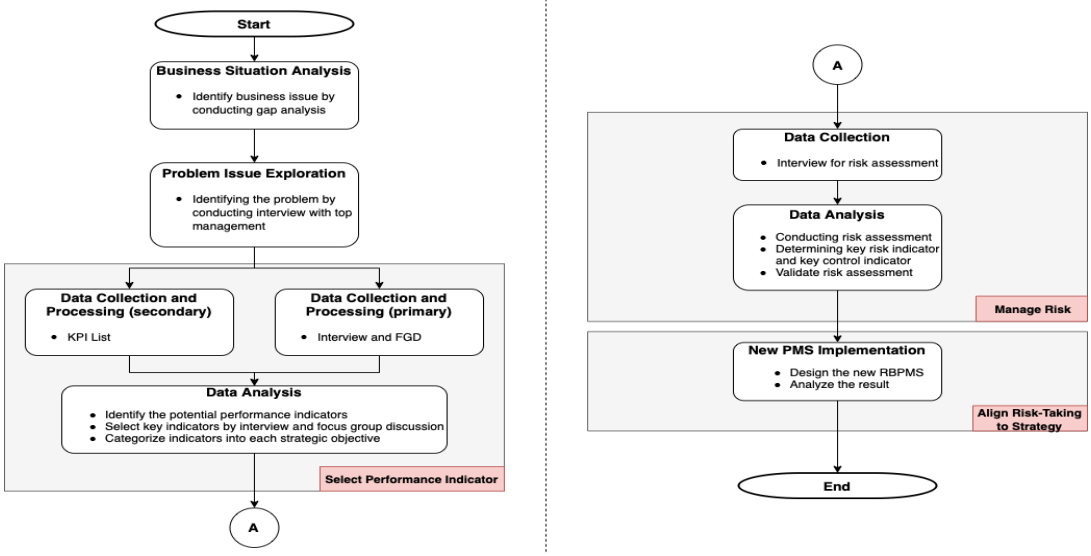

Figure 2. Research Methodology

Managing risk will begin with data collection in the form of identification of potential risks obtained from interviews with top management. Afterward, a risk assessment will be carried out, such as risk assessment and determining KRI and KCI. After determining critical risk, KRI, and KCI, it will proceed to the align risk-taking to strategy stage by conducting a strategy evaluation considering risk exposure and the company's performance. Risk assessment criteria are presented in table 1-3. Based on the organization's risk appetite, as shown in table 3, the organization should start implementing risk mitigation in orange.

Table 1. Risk likelihood level

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Scale	Descriptor	Annual Probability
1	Rare	< 0,05
2	Unlikely	0.05 < 0.1 < 0.15
3	Possible	0.15 < 0.2 < 0.3
4	Likely	0.3 < 0.5 < 0.8
5	Almost Certain	> 0.7

Table 2. Risk consequences level

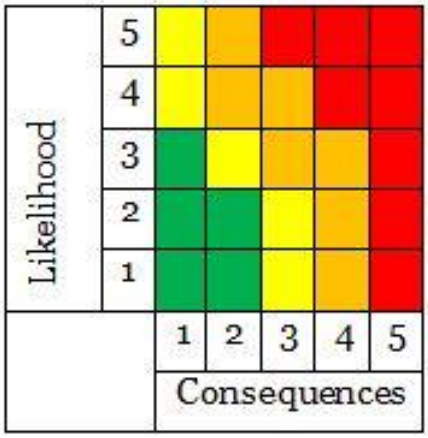

Table 3. Risk Exposure – Risk Treatment

Scale	Descriptor	Consequences
1	Insignificant	No effect on profits and achievement of strategic objectives
2	Minor	Low effect on profits and achievement of strategic objectives
3	Moderate	The organization may have low productivity
4	Large	Can reduce profit and low probability of achievement of strategic objectives
5	Very Large	Reduce profit and very low probability of achievement of strategic objectives

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5. Analysis

5.1 PT. XYZ Company Performance Management System Review

PT. XYZ has a vision of becoming an essential player in pharmaceutical products manufacturing through superior project management processes, efficient business processes, and applying technology 4.0 / IoT. PT. XYZ has implemented a PMS using a balanced scorecard, starting from preparing strategy and strategy maps at the holding company, and will cascade on strategy maps for each strategic business unit. One on strategic themes in PT. XYZ is operational excellence, as shown in figure 3. Strategy maps for operational excellence.

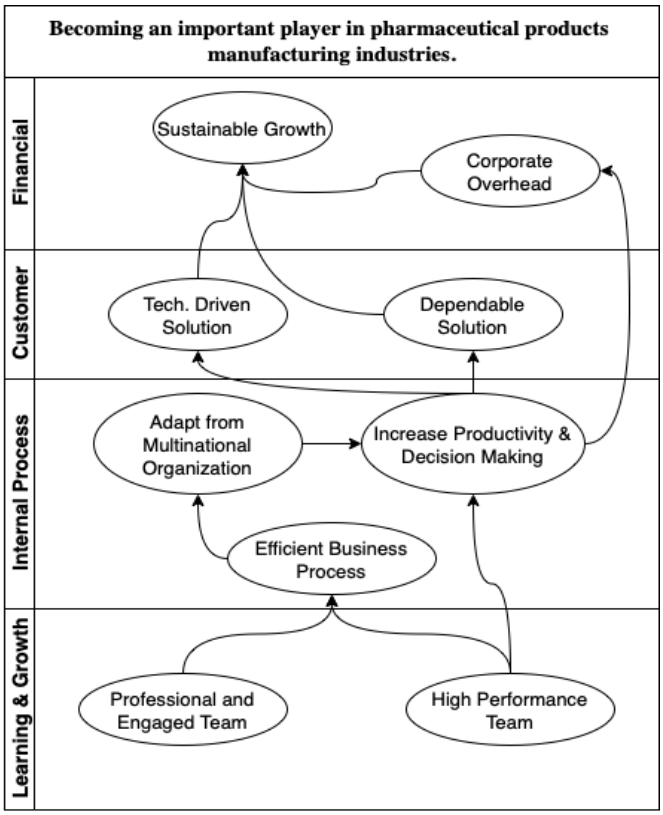

Figure 3. Strategy maps for operational excellence

5.2 Proposed Performance Indicator for PT. XYZ

Determination of performance indicators will still be mapped using a BSC consisting of financial, customer, internal process, and learning & growth perspectives for strategic themes operational excellence. A set of 132 potential performance indicators obtained from the company's KPI list and literature review, 27 indicators are determined which can reflect the company's performance, which is divided into each strategic objective as follows in table 4.

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Table 4. Key Performance Indicator

Indicator ID	Perspective	Strategic Objective	Indicators	Description
F1	Financial	Sustainable Growth	Return on Equity	Divide net income by shareholders' equity to determine the financial performance ratio.
F2			% increase in profit (earnings) per share per year	Measures of profitability evaluate the percentage of profit earned as an indicator of the "productivity" of asset utilization and the quantity of sales profits generated.
F3			% increase in dividends per share per year	Dividend growth represents the increase in earnings delivered to shareholders.
F4		Corporate Overhead	% reduction in operating costs in a given period	This is an essential metric since it monitors one of the operations function's main performance objectives, operations department should be concerned with is reducing operational expenses
C1	Customer	Tech. Driven Solution	average lead time required to re-deploy equipment	Redeployment of technologies is crucial to ensure that technologies are accessible when needed to complete operations and meet consumer demand for the organization's goods and services.
C2		Dependable Solution	Customer satisfaction survey value	Customer satisfaction surveys often offer a numerical figure, such as a percentage, to indicate the degree of customer satisfaction.
C3			% of existing customers that return to purchase from the company in a given period	Client Retention is an essential metric for measuring customer happiness. It focuses on customer retention, which implies increased customer satisfaction with the product and service given and, consequently, a longer-lasting relationship with clients.

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C4			% of orders that result in customer complaints / returns in a given period	This measure is intended to adopt a systematic approach to identifying and resolving consumer concerns. It is essential to analyze the most prevalent complaints' fundamental causes and take steps to eradicate them.
I1	Internal Process	Increase Productivity & Decision Making	% of projects completed on time during a specified period	On-time project completion measures the frequency of projects / procedures being finished on time. It is one of the primary client/customer needs contributing to internal and external customer happiness and discontent.
I2			cost or budget variance as a % of total cost	The regularity at which projects are completed under budget is monitored by project cost compliance (or within budget).
I3			% of projects / processes not complying fully with specifications	Project completion according to quality requirements quantifies the frequency with which projects are completed according to the project's specifications.
I4			Overall equipment effectiveness	Overall equipment effectiveness is a measure of output that considers a process's availability, performance, and quality.
I5			total cost of quality conformance (COC)	It assesses the overall cost (cost of conformance and cost of nonconformance) associated with delivering items with the desired quality.
I6			# first pass yield	Throughput yield indicates the proportion of quality units generated relative to the total number of units that began the process.
I7		Adapt From Multinational Organization	% reduction in the cost of benchmarking projects in a given period	The expense of obtaining and sustaining best practices quantifies the cost of ensuring that the organization's procedures are best practices.

I8			average time required to implement best practices	It is essential to apply best practices as fast as possible to maximize the advantages and accelerate the beneficial effect on performance.
I9			% of key processes that are covered by practices that are considered to be best	Best practice coverage assesses how many best practices are implemented inside an organization and how many of its activities and processes are covered by best practices.
I10		Efficient Business Process	Asset utilisation	In order to maximize the contribution of equipment to the completion goals.
I11			lead time to respond to suggestions / feedback	Employees are a valuable source of ideas for improvement of operations. They have an indepth knowledge of current operations and can identify how they can be improved.
I12			average lead time to produce and circulate financial reports	The rate at which financial reports are generated is a crucial indicator of the performance and efficiency.
L1	Learning & Growth	Professional and Engaged Team	% of employees improvement ideas / suggestions that are implemented	Ideas and proposals for employee enhancement represent an essential method in which workers may contribute to enhancing the organization's performance.
L2			% of employees that leave the organisation in a given time period	Employee Turnover is the rate of employees leaving an organization.

L3		the total number of working days lost due to absenteeism as % of maximum number of project days	Absenteeism quantifies the number of times employees are physically present and available for work. The degree of absenteeism is a significant input in the capacity planning process, indicating the likelihood that people and skills will be available when needed.
L4	High Performance Team	Employee satisfaction with training program	The transferability of talents is a quality that an organization will seek to cultivate since it enables personnel to be shifted across locations or occupations to meet fluctuating demand.
L5		% of skills held that are transferable to other employers	Transferability of skills refers to the capacity to apply specific talents to several occupations. This will impact employees' capacity to transition from one position to another.
L6		number of ideas / suggestions for improvement received monthly	Ideas are the beginning of any creative process. For an organization that encourages innovation, the capacity to launch new goods, services, and processes is contingent on the availability of ideas.
L7		Return on training investment (RoTI)	Comparison between the financial advantages derived from a training program and its total operating expenses.

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5.2 Risk Assessment for PT. XYZ

Implementation of risk assessment is carried out by identifying risks related to strategic objectives and determining the amount of risk known as risk exposure. Table 5 describes the results of the risk assessment along with the key risk indicators and key control indicators.

Indicator ID	Perspective	Risk Description	L	I	E	KRI	KCI
F1 – F4	Financial	The organization's sustainable growth is hampered due to high corporate overhead (due to the absence of a decrease in operating costs) and decreased revenue (due to a decrease in customer loyalty).	2	4	8	Net Sales per period	Customer Loyalty
C1 – C4	Customer	Utilization of technology by customers takes a long time due to customer resistance and limitations from customers, causing dissatisfaction and the potential to disrupt the project schedules of other customers.	3	2	6	Internet Literacy Level	Technology Readiness Assessment Value
		The customer does not return to order the organization's products because there are complaints outside the organization's standards due to the lack of achievement of customer needs which can lead to a decrease in customer satisfaction.	3	4	12	Customer Loyalty	Customer demand achievement survey level
I1 – I9	Internal Process	Delays in achieving strategic initiatives due to overly administrative procedures and lack of motivation from employees related to program improvement this has the potential to increase the budget for the implementation of strategic initiatives, increase the total cost quality of conformance.	4	2	8	% Yield Pass	Average cost of poor quality
I10 – I12		Making decision-making requires a long time because the lead time for providing information requires a long time and can potentially cause incorrect asset utilization and missing opportunities.	3	3	9	Average decision-making lead time in management review	Average operational report making lead time
L1 – L7	Learning & Growth	Employees do not generate improvement ideas due to a lack of feedback from supervisors and ineffective training activities, which result in not increasing organizational maturity and potentially having an impact on increasing costs in manufacturing activities.	4	4	16	% absenteeism during project	Employee satisfaction due training

6. Conclusion

The findings of this research identified 27 key performance indicators for operational excellence strategic themes based on interviews and FGD with top management. This KPI will be used as a performance measurement at PT. XYZ and will be integrated into the strategy evaluation. In addition, six critical risks, along with their risk exposures for each strategic objective, achievement of performance, and risk exposure, can be used as input in the organization's management review activities to re-evaluate strategy and objective-setting processes, as shown in appendix 2.

This research is only the beginning of PT's overall risk-based performance management system. XYZ, further integration is required in more detail on each strategic theme, including the need always to be evaluated according to the management review period. Further research can improve the method by adding quantitative analysis, such as correlation analysis, to measure the correlation of indicators for each strategic objective so that data is obtained to support the results of focus group discussions.

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Appendix 1

No	Title	Author	Year	PMS	BSC	RBPMS	RA	IRPS	CERM
1	Risk-based performance evaluation of improvement strategies for sustainable e-waste management	Yan Xu, Chung-Hsing Yeh, Shaopeng Yang, Bhumika Gupta	2019	x	x	v	x	v	x
2	Enterprise Risk Management Implementation and Firm Performance: Evidence from the Malaysian Oil and Gas Industry	Muhammad Kashif Shad Fong-Woon Lai	2019	v	x	x	x	x	x
3	Enterprise Risk Management and Company's Performance: Empirical Evidence from China	Md. Jahidur Rahman Armann I. Kennedyd, Zhenkui Chen	2021	v	x	x	x	x	x
4	Enterprise Risk Management – Approaches Determining Its Application and Relation to Business Performance	Jozef Klučka, Rudolf Grünbichler	2020	v	x	x	x	x	x
5	Effect of Enterprise Risk Management (COSO) Application on Company Value: An Empirical Study on Manufacturing Companies Listed on the IDX	Adie Pamungkas	2017	x	x	x	x	x	x
6	Does Enterprise Risk Management Enchance Operating Performance?	Carolyn Callahan, Ajared Soileau	2018	v	x	x	x	x	v
7	Enterprise Risk Management and Firm Performance: The Itialian Case	Cristina Florio, Giulia Leoni	2017	v	x	x	v	x	x
8	The Impact of Enterprise Risk Management on Institutional Performance in Jordanian Public n Shareholding Companies	Majed Aldubai	2019	v	v	x	x	v	x
9	Mediating Role of Enterprise Risk Management Practices Between Business Strategy and SME Performance	Amin Ur Rehman , Muhammad Anwar	2019	v	x	x	x	v	x
10	Integrating Enterprise Risk Management with Strategic Planning for Improved Firm Performance	Mohamed Santigie Kanu	2020	v	x	x	x	v	v

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No	Title	Author	Year	PMS	BSC	RBPMS	RA	IRPS	CERM
11	Risk Mitigation using Integration Enterprise Risk Management and Balanced Scorecard Model (A Case Study in a Consulting Services Company in Indonesia)	Elisa Kusrini , Asri Novia Sahraen	2021	x	v	x	x	x	x
12	A Theoretical Framework for Enterprise Risk Management and Organizational Performance	Mohamed Santigie Kanu	2021	v	x	x	x	v	x
13	ERM and Strategic Planning: a Change in Paradigm	Elizabeth M. Pierce, James Goldstein	2018	v	x	v	x	v	v
14	Integrating Sustainability Reporting into Enterprise Risk Management and Its Relationship with Business Performance: A Conceptual Framework	Muhammad Kashif Shad, Fong-Woon Lai, Chuah Lai Fatt, Jiri Jaromir Klemes	2018	v	x	x	x	v	x
15	A Study of the Relationship Between a Successful Enterprise Risk Management System, a Performance Measurement System and The Financial Performance of Thai Listed Company	Kittipat Laisasikorn Nopadol Rompho	2014	v	x	x	x	x	x
16	Balanced Scorecard Development as a Performance Management System in Saudi Public Universities: A Case Study Approach	Hussein H. , Sharaf-Addin, Hesham Fazell	2021	v	v	x	x	x	x
17	The Relationship Between Chief Risk Officer Expertise, ERM Quality, and Firm Performance	Cristina Bailey	2019	x	x	x	x	x	x
18	Risk Management Committees and Firm Performance	Jing Jia, Michael E. Bradbury	2020	v	x	x	v	v	x
19	Risk Culture and Strategic Planning Roles on Enterprise Risk Management and Firm Performance in Selected African Countries	Mohamed Santigie Kanu	2022	v	x	x	x	v	x
20	The Effect of Enterprise Risk Management (ERM) on Organization Performance: Empirical Investigation from the Diversified Industry of United Arab Emirates	Omar Alaeddin Ahmed A.S. Thabet Rao Tahir Anees Belal Albashiti	2021	v	x	x	x	x	x

Notes:

PMS : Performance Management System BSC : Balanced Scorecard

IRPS : Integrated Risk Performance and Strategy RA : Risk Appetite

CERM : COSO Enterprise Risk Management 2017 RBPMS : Risk-Based Performance Management System

Appendix 2