

Al Quds University

Deanship of Graduate Studies

Master in Accounting and Taxation



**The Effect of Adopting Enterprise Risk Management
Framework on Financial Performance of the
Pharmaceutical Industry in Palestine.**

Yara “Basem Henry” Butros Abedrabbo

M. Sc. Thesis

Jerusalem – Palestine.

1443 هـ - 2022 م

**The Effect of Adopting Enterprise Risk Management
Framework on Financial Performance of the Pharmaceutical
Industry in Palestine.**

Prepared by: Yara “Basem Henry” Butros Abedrabbo

**B.Sc.: Accounting and Business Administration
Bethlehem University, Bethlehem, Palestine.**

Supervisor: Dr. Ibrahim Ateeq

**This Thesis is Submitted in Fullfillment of the Requirement for
the Degree of Master in Accounting and Taxation, Faculty of
Graduate Studies, Al-Quds University, Abu Dees, Palestine.**

1443 هـ - 2022 م

Al Quds University

Deanship of Graduate Studies

Master in Accounting and Taxation



Thesis Approval

**The Effect of Adopting Enterprise Risk Management
Framework on Financial Performance of the Pharmaceutical
Industry in Palestine.**

**Prepared by: Yara “Basem Henry” Butros Abedrabbo
Registration No: 21811057**

Supervisor: Dr. Ibrahim Ateeq

Master Thesis Submitted and Accepted, Date: 17 May 2022.

The names and signatures of the examining committee members are as follows:

- 1. Head of Committee: Dr. Ibrahim Ateeq** Signature: 
- 2. Internal Examiner: Dr. Kamel Abu Kuwiek** Signature: 
- 3. External Examiner: Dr. Muiz Abu Alia** Signature: 

Jerusalem – Palestine

1443 هـ - 2022 م

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signature:.....Yara "Basem Henry" Butros Abedrabbo

Yara "Basem Henry" Butros Abedrabbo

Date:.....17 May 2022.....

Acknowledgement

First and foremost, praises and thanks to God for his amazing blessings throughout my research work to complete this study successfully.

I would like to extend my deepest gratitude and appreciation to all who have helped and supported me throughout my thesis.

My special gratitude and thanks to my supervisor, Dr. Ibrahim Ateeq, who has been a tremendous mentor for me. I appreciate his continual help, guidance, and the provision of invaluable supervision throughout the study. It was a great privilege and honor to work and study under his guidance.

I am extremely blessed and grateful to my parents and family for their unconditional love, prayers, and support throughout my study. They are my role models and inspiration, and their continuous motivation have blessed me and encouraged me always.

Finally, I am sincerely thankful to all the people in the Pharmaceutical industry who have assisted with the provision of reliable data to conduct this study.

The Effect of Adopting Enterprise Risk Management Framework on Financial Performance of the Pharmaceutical Industry in Palestine.

Prepared By: Yara “Basem Henry” Butros Abedrabbo

Supervisor: Dr. Ibrahim Ateeq

Abstract

The study aims to examine the effect of adopting Enterprise Risk Management (ERM) framework on the financial performance of the Pharmaceutical Industry in Palestine, for the Pharmaceutical companies listed in the Palestine Exchange (PEX) during the period of 2016 till 2020. The study population consists of four major Pharmaceutical companies, with the percentage of 80% from the Pharmaceutical sector. The questions were examined through the published administrative reports and financial statements of the study population for the period of five years (2016-2020), in addition to Palestinian Central Bureau of Statistics. (PCBS) Website, Palestine Exchange Website (PEX), and Committee of Sponsoring Organizations of the Treadway Commission (COSO) Website. The study variables consist of ERM Framework as the independent variable, represented by (Market to Book Ratio, Opaque Ratio, and Slack Ratio), and Financial Performance as the dependent variable, represented by (Turnover Ratios, Operating Profitability Ratios, and Business and Financial Risk Ratios), while the control variables of the study were Market Share, Growth Rate, and Corporate Governance.

This study assesses quantitative relationship between ERM Framework and and Financial performance, through the use and analysis of financial information and ratios. The study adopted the Panel Data Regression Method in the statistical analysis. Results showed a significant effect of ERM Framework adoptin and implementation on the financial performance of the Pharmaceutical companies in Palestine.

Based on the study results, the recommendations are to raise the Pharmaceutical companies employees' awareness about the importance of ERM Framework and risk management, ensure efficiency and effectiveness of risk management implementation, necessity to adopt risk management model, and finally focus on continuous training on the efficient knowledge and use of the ERM system by managers and employees.

أثر تبني اطار ادارة المخاطر على الأداء المالي لقطاع الأدوية في فلسطين.

إعداد : يارا "باسم هنري" بطرس عبدربه.

اشراف : الدكتور ابراهيم عتيق.

الملخص

هدفت هذه الدراسة الى البحث في أثر تبني اطار ادارة المخاطر (ERM) على الاداء المالي لقطاع الأدوية في فلسطين، لشركات الأدوية المدرجة في بورصة فلسطين ، حيث كانت مدة الدراسة من 2016 لغاية 2020. تكونت مجتمع البحث من اربع شركات ادوية بنسبة 80% من قطاع الأدوية. تم فحص الفرضيات من خلال التقارير الإدارية والبيانات المالية المنشورة لمجتمع البحث لفترة خمس سنوات، بالإضافة إلى المعلومات المستخرجة من الجهاز المركزي للإحصاء الفلسطيني.(PCBS) ، الموقع الإلكتروني لبورصة فلسطين (PEX)، وموقع لجنة المنظمات الراعية التابعة للجنة تريدواي (COSO).

تتكون متغيرات البحث من إطار إدارة المخاطر كمتغير مستقل ، الذي يتمثل في النسب التالية (نسبة سعر السهم الى القيمة الدفترية ، ونسبة الاصول الغير ملموسة، ونسبة النقد وما يعادله لمجموع الاصول الكلي) ، والأداء المالي لشركات الأدوية كمتغير تابع، الذي يتمثل بالمتغيرات التالية (نسب الدوران ، ونسب الربحية التشغيلية ، والأعمال التجارية والمالية، و نسب المخاطر) ، بينما كانت متغيرات التحكم في البحث هي (الحصة السوقية ، معدل النمو، وحوكمة الشركات).

يقوم هذا البحث بتقييم العلاقة الكمية بين إطار إدارة المخاطر والأداء المالي ، من خلال استخدام وتحليل المعلومات الادارية والمالية للشركات والنسب المالية لدراسة العلاقة ما بين المتغيرات. اعتمد البحث العديد من التحاليل الإحصائية منها اسلوب تحليل البيانات الجدولية، الاحصاء الوصفي، ومقاييس الارتباط . أظهرت النتائج ان اعتماد وتنفيذ اطار ادارة المخاطر يظهر تأثير مهم وكبير على الأداء المالي لشركات الأدوية في فلسطين.

بناءً على نتائج البحث ، تهدف التوصيات إلى رفع وعي موظفي شركات الأدوية بأهمية إطار إدارة المخاطر، وضمان كفاءة وفعالية تنفيذه، وضرورة اعتماد نموذج إدارة المخاطر في كافة الاقساك، والتركيز أخيراً على التدريب المستمر على المعرفة الفعالة لنظام إدارة المخاطر المؤسسية واستخدامه من قبل المديرين والموظفين.

Table of Contents

Declaration.....	iii
Acknowledgement	ii
Abstract.....	iii
Table of Contents	VI
List of Tables	IX
List of Figures.....	X
List of Abbreviations.....	XI
List of Appendices.....	XII
Chapter One: General Framework of the Study.....	1
1.1 Introduction.....	1
1.2 Problem Statement.....	2
1.3 Study Objectives.....	4
1.4 Study Importance.....	5
1.5 Study Limits.....	7
1.6 Study Limitations:.....	7
Chapter Two: Theoretical Framework.....	8
2.1 Section One : Background of the ERM Framework.....	8
2.1 A - Enterprise Risk Management Framework.....	8
2.1.A.1 Origin	8
2.1.A.2 Definition.....	8
2.1.A.3 History of ERM.....	9
2.1.A.3.1 COSO 1992.....	9
2.1.A.3.2 COSO 2004 – 2013.....	9
2.1.A.3.2.1 - Objectives of ERM framework:.....	10
2.1.A.3.2.2 - Components of ERM Framework:.....	11
2.1.A.3.2.3 - Units of Company.....	12
2.1.A.3.3 COSO 2017.....	13
2.1.A.4 Objectives.....	14
2.1 B - COSO Framework Limitations.....	15
2.1 C - ERM Framework and Risk.....	16
2.2 Section Two : Literature Review.....	18
2.2 A - Previous Studies.....	18
2.2 B - Summary of Previous Studies.....	35
2.2 C - The study connection and relationship with the previous studies.....	38
2.2 D - What distinguishes this study from previous studies.....	40

2.3 Section Three: Pharmaceutical Industry in Palestinian Economy	41
2.3 A - Palestinian Economy	41
2.3 B - Pharmaceutical Industry	41
2.3.B.1 Pharmaceutical Companies in Palestine	42
2.3 B.2 Barriers that face the Pharmaceutical Industry:	44
2.3.B.2.1 General Common Barriers	44
2.3.B.2.2 Specific Shared Barriers.	45
2.3.B.3.3 Pharmaceutical companies action plan towards risk	48
2.3 C - Connection between ERM and Pharmaceutical Industry	50
Chapter Three: Study Methodology	52
3.1 Study Designs	52
3.2 Study Theory	52
3.3 Study Population	53
3.4 Study Variables	53
3.4.1 Independent Variable	53
3.4.1.1 Measuring ERM Framework	54
3.4.2 Dependents Variables	55
3.4.2.1 Measuring Financial Performance	55
3.4.3 Control Variables	58
3.4.3.1 Measure Control Variables	58
3.5 Study Questions	59
3.6 Study Models	60
3.6.1 Empirical Model	60
3.6.1.1 Proxy Method	60
3.6.1.2 Index Method	61
3.6.2 Conceptual Model	63
3.7 Data Collection and Analysis	63
3.8 Normal Distribution & Test Outliers Value	66
Chapter Four: Results and Recommendations	69
4.1 Introduction	69
4.2 Proxy Method Analysis	69
4.3 Index Method Analysis	70
4.3.1 Financial performance description of the Pharmaceutical sector in Palestine	70
4.3.2 Operational Performance description of the pharmaceutical sector in Palestine ...	72
4.4 The diagnosis tests of panel models	73
4.4.1 Panel unit root test for stationarity	73

4.4.2 Multi-collinearity test	74
4.4.3 Autocorrelation Test	75
4.4.4 Heteroskedasticity Test	75
4.5 Result of study questions	76
4.5.1 The effect of the ERM framework on Turnover Ratios	76
4.5.2 The effect of the ERM framework on Operating Profitability Ratio	80
4.5.3 The effect of the ERM framework on Business & Financial Risk Ratio	83
4.6 Recommendations	86
Citation	88
List of Appendices	97

List of Tables

<i>Table 1: Summary of Previous Studies</i>	38
<i>Table 2: Connection between this study and previous studies</i>	39
<i>Table 3: List of Pharmaceutical Companies in Palestine.</i>	42
<i>Table 4: Summary of Risks faced by Pharmaceutical companies in Palestine</i>	46
<i>Table 5: Proxy Method Indicators</i>	61
<i>Table 6: Normal distribution & test outliers value</i>	67
<i>Table 7: Proxy Method Results</i>	69
<i>Table 8 : Panel Unit Root test results for all variables.</i>	73
<i>Table 9 : Panel Unit Root test results for all variables.</i>	74
<i>Table 10 : Spearman Correlation matrix for the independent and control variables</i>	74
<i>Table 11 : Autocorrelation test for research models</i>	75
<i>Table 12: Heteroscedasticity test for research models</i>	76
<i>Table 13: Breusch and Pagan LM test for models that study The effect of the ERM framework on Turnover Ratios</i>	77
<i>Table 14: Pooled regression model of the effect of the ERM framework on turnover ratios</i>	79
<i>Table 15: Pooled regression model of the effect of the ERM framework on operating profitability ratios</i>	82
<i>Table 16: Pooled regression model of the effect of the ERM framework on business & financial risk ratio</i>	85

List of Figures

<i>Figure 1: COSO Cube 1992</i>	9
<i>Figure 2: COSO Cube 2004 – 2013</i>	10
<i>Figure 3: COSO Helix 2017</i>	14
<i>Figure 4: Average of the operating profitability and turnover ratios during (2016-2020)</i>	71
<i>Figure 5: Average of the business & financial risk ratios during (2016-2020)</i>	72
<i>Figure 6: Average of the ERM framework indicators during (2016-2020)</i>	72

List of Abbreviations

ERM	Enterprise Risk Management
ERP	Enterprise Risk Planning
ERPS	Enterprise Risk Planning Software
BJPC	Beit Jala Pharmaceutical Company
BZPC	Beir Zeit Pharmaceutical Company
JPC	Jerusalem Pharmaceutical Company
MEGAPHARM	The Middle East Pharmaceutical and Cosmetics Laboratories Ltd.
PHARMACARE	Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals.
ROAA	Return on Average Assets
ROE	Return on Equity
ROI	Return on Investment
EPS	Earnings Per Share
PER	Price Earnings Ratio
BOD	Board of Directors
CG	Corporate Governance
COSO	Committee of Sponsoring Organizations of the Treadway Commission
MS	Market Share
MB	Market Book Ratio

List of Appendices

<i>Appendix 1 The Normal Distribution Table of Research Variables for the research period pf (2016 - 2020)</i>	97
<i>Appendix 2: Breusch and Pagan LM test for models that research The effect of the ERM framework on operating profitability and business & financial risk ratios.....</i>	98

Chapter One: General Framework of the Study

1.1 Introduction

The deployment of Enterprise Risks Management (ERM) system is common practice in today's business surroundings. ERM, as defined by the Committee of Sponsoring Organizations Framework (COSO), is "a process effected by the company's board of directors, management, and other personnel, applied in strategy setting and across the company, designed to identify potential events that may affect the company, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of company objectives". (COSO, 2004).

ERM uses the company's risk appetite to determine the level of risks that should be accepted and the ones that should be mitigated or avoided. How a company effectively implements an ERM framework, to recognize and manage potential risks, can mean the difference between financial freedom and financial despair. The Committee of Sponsoring Organizations (COSO) has developed internal control guidelines to direct executive management on critical aspects of company's governance, business ethics, fraud, and financial reporting. (Bak & Stair, 2011).

With respect to the ongoing growing variations in the business world, which caused to create a competitive environment, Pharmaceutical companies must be able to manage uncertainty and risks by building a strong ERM system that can sense and respond to a changing business environment to sustain differentiated competitive advantage. In addition, they are necessitated to evaluate their internal and external factors, constantly evaluate their market share, and seek to understand the needs of the local market, and equip its Risks to fulfill them.

In response to the intensified competitive environment, local companies work to improve performance by innovating and adopting process and product improvements (Baily et al., 2005). In the era of market maturity, intense competition pressure, and continuous technological improvements, companies should plan in advance how to manage their resource towards the achievement of their objectives, and utilize their resources in the best way possible for any unexpected risks that might occur. Therefore, focusing on Risk management in operations is crucial for the continuity and assessment of the financial performance of the pharmaceutical companies. By doing so, it can ensure the increase in profitability and sustainability of the company.

Effectively managing company risks and implementing strategies is very crucial to the business performance. It is therefore vital that industries are proactive in evaluating risk and vulnerability from both financial and operational standpoints. Persisting in this environment requires the industries to mitigate risks and plan for recovery. (Deloitte, 2020).

This study further explores the methods the Pharmaceutical companies should follow in implementing ERM Framework, and assess the impact of this framework on the financial performance of the company.

1.2 Problem Statement

With respect to the variety of risks that confronts the development and sustainability of the Pharmaceutical industry nowadays and add complexity and risks to the business environment (MAS, 2019), managers have to attain a more comprehensive approach towards risk management and steadier governance in their companies (Shannak, 2010). The needs of ERM framework as an integrated and risk-based system result due to some increased risk complexity in both internal and external business environment. (Shaheen, Ağa, Rjoub & Abualrub, 2020). Therefore, in order to face these risks, a company's investment in an ERM

is no longer a matter of choice, but of necessity. Managing company resources, whether financial or non-financial has always been a dilemma for entities, the Palestinian economy has been under continuous fluctuations, the lack of stability in the economy has had a drastic effect on the local domestic productions.. The primary goal of ERM is to reduce the probability of financial distress and allow companies to continue their investment and growth strategies, by reducing the possibility of any losses in financial or non-financial resources caused by unforeseen events. (Pagach & Warr, 2010)

Many previous studies have debated the importance of the framework and its effect on the financial performance, as the title is controversial. There was no clear consensus regarding how effective the practical implementation of the framework regarding risk management is, and if the framework has any effects on the financial performance. Certain previous studies have stated that the framework existence and implementation does not help in risk management, and has no effect on financial performance (Yamin 2018, Al-Awattagama 2018). On the other hand, there were previous studies that have confirmed that the existence of the framework does effect the financial performance and helps in risk management strategies. (Rao 2017, Sithipolvanichgul, 2016, Buleje 2014, Bernitti, Cavezzali, Gardenal, 2013). Therefore this study focused on examining if the Pharmaceutical Companies in Palestine do adopt this framework or not, and if the adotion does achieve noticeable effect on the financial performance, and the results are consistent with the claimed benefits of ERM.

Therefore, according to the problem statement, the study question is as the following:

Does the adoption and implementation of the ERM Framework affect the financial performance of the Pharmaceutical Companies in Palestine?

And from the main question, the following sub questions are derived:

1. What are the current Risk management strategies and ERM framework practices that are applied by the Palestinian Pharmaceutical companies?
2. What are the main risks that the Palestinian Pharmaceutical companies are exposed to?
3. How does ERM contribute towards safeguarding the company assets, financial stability, and mitigating the impact of any unexpected events with potential risk on the overall company, its resources, and the financial system of the company?
4. How can the pharmaceutical companies use and rely on a unified integrated approach to measure the ERM framework execution level?

1.3 Study Objectives

The Main objective of the study is to analyze the effect of adopting the Enterprise Risk Management Framework on the financial performance of Pharmaceutical companies in Palestine.

From the main objective, the study will undertake the following sub objectives:

- 1- Explore the current implementation stage of the ERM framework in the Pharmaceutical industry.
- 2- Identify the main risks that the Palestinian Pharmaceutical companies are exposed to.
- 3- Increase awareness about the ERM framework and its importance in safeguarding the company assets, financial stability, and mitigating the impact of any unexpected events with potential risk on the overall company, its resources, and the financial system of the company.
- 4- Integrate accredited measurement approaches to measure the ERM framework and evaluate its predictive accuracy.

In addition, the study aims to analyze the external factors as in economic, social, and political aspects that influence the implementation of ERM Framework in the company, the obstacles the Pharmaceutical industry faces, and how the industry in general deals with such matters on all levels.

1.4 Study Importance

This study thoroughly presents the benefits that the companies receive from the adoption of ERM framework, and their effect on the financial performance of the Pharmaceutical Companies in Palestine. Some local Palestinian researches took into consideration the pharmaceutical industry in their studies, however their focus was on other matters than the ERM framework (Qawasmeh, 2015). Also, other local researches took into consideration the ERM framework implementation in industries other than the pharmaceutical sector, as in the insurance sector. (Mansour, 2015, Shaheen, Ağa, Rjoub & Abualrub, 2020). Therefore, according to researcher knowledge, this study is considered the first comprehensive study that searches for the effect of adopting and implementing the ERM framework on the Pharmaceutical industry in Palestine.

ERM Framework facilitates the flow of information whether inside the borders of the company or to the outside stakeholders (Aldossari & Mukhtar, 2018). Moreover, ERM integrates supervision of data across the whole company, by embracing accounting, sales and manufacturing, customer relationship, and service management.

Due to rapid technological development and competition in the market, ERM has been widely used to enhance the performance of an company (Trott & Hoecht, 2013). Managing the company Risks is a fundamental concern in today's dynamic environment. For a pharmaceutical company to remain viable, it must implement enterprise risk management. (O'Brien and Joyce 2007).

This study is important on three main considerations as the following:

- **Theoretical Importance:**

On the theoretical level, this study will highlight ERM Framework, its components and objectives, and the importance of implementing it within the pharmaceutical industry. This study will also adds value and contributes to the knowledge based by serving to understand the impact ERM framework has on financial performance of Pharmaceutical companies in Palestine.

- **Practical Importance:**

On a practical level, first it will focus on the role of top management and finance director in contributing to the success of this framework, and assess the framework's contribution to the business performance. Therefore, it will help the management to analyze their accounting information system, spot the light on profitability and risk ratios as main indicators of financial performance, and work to provide the resources needed to achieve better results and enhanced performance in compliance with the company's objectives as well as the pharmaceutical industry's policies and procedures. Second, it will provide an insight and better understanding to the pharmaceutical companies' management regarding their current ERM adoption and implementation stage, and effective methods to improve its results and profitability.

Managing company's resources, whether financial or non-financial, has become so important to rely upon in the success of the company. And for the companies to remain ahead and efficient, they need to assess their position in the market, increase the market share, and focus on continuous supervision on managerial decisions achieve the company's overall objectives.

1.5 Study Limits

- **Geographic Limits:** This study is conducted in Palestine, to study the adoption of the ERM Framework and its effect on the financial performance within the Pharmaceutical industry.
- **Time Limits:** This study was conducted from the period Sept 2020 – Aug 2021.

1.6 Study Limitations:

- **Data Limitation:** The financial and administrative statements of one of the Palestinian Pharmaceutical companies named The Middle East Pharmaceutical and Cosmetics Laboratories Ltd (Also known as MEGA PHARM Company) were unable to be obtained. Therefore, it was omitted from the analysis, which yields to only 4 Pharmaceutical companies out of the 5 listed in Table (2).
- **Population Limitation:** Due to the data limitation regarding MEGA PHARM company, the population was reduced to 4 Pharmaceutical companies, which is relatively small for analysis.
- **Measurement Limitation:** One of the main limitations that was faced was the lack of a good ERM framework implementation measurement. We followed the path of previous researches, mainly (Rao, 2017) (Bertinetti, Cavezzali & Gardenal, 2013) in adopting the study model, and modifying the variables and measurements to suit the study.

Chapter Two: Theoretical Framework

2.1 Section One : Background of the ERM Framework

2.1 A - Enterprise Risk Management Framework

In this chapter, a holistic overview of the framework and its background is presented. In addition, a display of connection between the framework, its limitations, and how it is linked with risk management will be also discussed in this chapter.

2.1.A.1 Origin

A Control framework that was originally conceived in 1992, created by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), that incorporates five different organizations who work together to develop guidance and direction forms to aid companies with internal controls, risk assessment, and fraud prevention. (COSO, 2004)

2.1.A.2 Definition

ERM is defined as “a process, effected by an company's Board of Directors, management and other personnel, which is applied across the company in strategy setting, is designed to identify the potential events that may affect the company, and manage those events to be within the risk appetite, in addition to provide reasonable assurance regarding the achievement of company objectives”. (COSO, 2004).

This framework integrates, controls, and optimizes all the business processes in the entire company to attain an integrated information system solution, it also identifies several principles that should be followed to meet internal control objectives.

2.1.A.3 History of ERM

2.1.A.3.1 COSO 1992

Originally issued in 1992, COSO's Internal Control-Integrated Framework turned into one of the most broadly accepted internal control frameworks in the world. This framework was revised and reissued in 2013 and 2014. So, the 1992 framework is outdated and no longer available. (COSO, 2004).

As shown in the below figure (1), the COSO cube displays the relationship among all segments of an effective internal control system. The objective categories are the top columns (Operations, Reporting, & Compliance), The Companyal Structure is the side dimension of the cube (Company Level, Division, Operating Unit, & Function), and the Components of COSO Framework are the front rows (Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring Activities). (COSO, 2004).

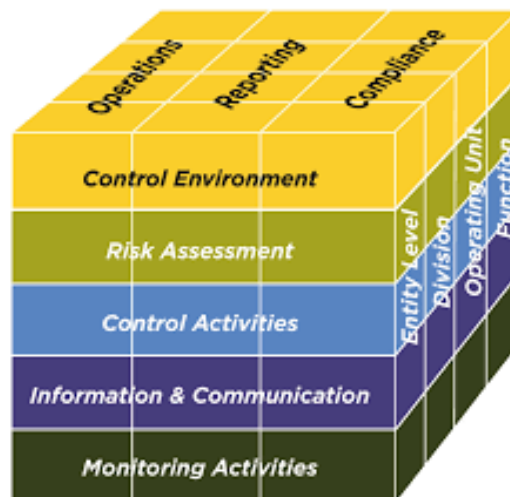


Figure 1: COSO Cube 1992

2.1.A.3.2 COSO 2004 – 2013

The absence of a broadly accepted ERM conceptual framework let COSO to develop common and accepted terminology for the ERM framework. As a result, COSO issued Enterprise Risk Management – Integrated Framework as a model of the ERM process. While the 1992 framework was capable of assessing current controls, it wasn't comprehensive. The

2013 version focused on the design and application of a risk management framework. (COSO, 2004).

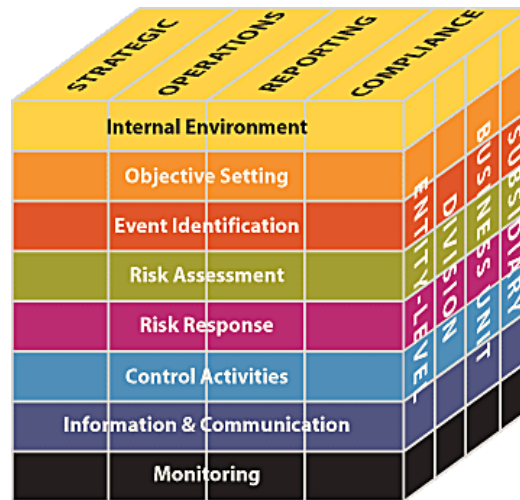


Figure 2: COSO Cube 2004 – 2013

2.1.A.3.2.1 - Objectives of ERM framework:

A. Strategic

They are high-level longer-term goals that align with the mission of the company and are vital to the success of the corporate strategy, they can be subject to externalities that are beyond the control of the management.

B. Operations

They are short-term tactical objectives that provides an effective and efficient guidance for the daily functioning of certain operations and track the performance for continuous measurement and evaluation.

C. Reporting

They are specific objectives that address reliable internal and external reporting to ensure that main indicators are measured and observed and take actions whenever necessary.

D. Compliance

This objective ensures that the company remains in compliance with the standards and regulations that are imposed by higher regulatory bodies, and comply with accounting and business standards in their operations.

2.1.A.3.2.2 - Components of ERM Framework:

A. Internal Environment

It establishes the tone of the company, and sets the basis for how risk and controls are viewed and addressed by the BOD. It focuses on risk management and ethical values, and determines the desired risk appetite.

B. Objective Setting

It ensures that the administration has established a process to set objectives that sustain and align with the company's mission and are consistent with the risk appetite. If the BOD is to set objectives effectively, risks arising should be taken into consideration if different objectives are pursued.

C. Event Identification

The company must recognize internal and external events that affect the accomplishment of its objectives, and should distinguish between events with the undesirable impact that signify risks and events with the positive impact that are opportunities.

D. Risk Assessment & Response

Risk assessment is conducted on inherent and residual basis by considering both risk likelihood and impact. Risk assessment needs to be done on a continuous basis and throughout the whole company.

E. Control Activities

Policies and procedures are established and executed to help ensure the risk responses management selects are effectively carried out.

F. Information & Communication

Information systems should assure that the data is recognized and communicated in a precise format and timeframe that enables managers to carry out their responsibilities and support the objectives. The information needs to be relevant, qualitative, and must cover all the objectives of the company.

G. Monitoring

Ongoing evaluations to determine that internal control components are present and functioning upon standards, and align with the objectives of the company. With continuous monitoring, the company can make sure that the work is going as planned, and modifications are made as necessary.

2.1.A.3.2.3 - Units of Company

Depending on a company's goals and the industry in which it operates, knowing the structure of the company is really useful in determining the implementation of ERM Framework, and understanding the responsibility of each unit and its contribution towards the achievement of objectives. Below are the main units in a company according to ERM COSO Framework:

- Subsidiary
- Business Unit
- Division
- Company Level

2.1.A.3.3 COSO 2017

The 2017 ERM Framework helps companies to think more strategically about how to manage instability, complexity and uncertainty. In comparison to the previous versions, COSO framework steps up to integrate risk into the strategic planning process. The framework helps entities to better project and anticipate risks with an understanding that some risks can create opportunities for changes and amendments, and not always be considered as a potential for crises. (Berman, 2019).

The 2017 ERM framework introduces important concepts, including:

Linking ERM with Strategy and Decision-Making: The framework clarifies why the risks of every strategy are addressed.

Culture. Culture sets a major role in the actions and performance of an institution. The framework determines how governance and culture plays a significant role in ensuring strong ERM framework, providing understandings into how to ensure that risk management is taken care of at all levels.

The Relationship Between Risk Management, Performance, and Value. Many entities view ERM as a cost, when in reality it identifies, assess, and mitigate risks that face the company. It's not just about diminishing or mitigating risk, it also understands how changes in risks will influence managerial decisions.

ERM connects to every department and function, allowing the company to aggregate knowledge for a more comprehensive picture. It also helps to align its actions with its mission, values, and goals, to ensure everyone has the same orders.

Figure 3: COSO Helix 2017

2.1.A.4 Objectives

The ERM Framework enables business processes integration to improve efficiency and preserve a competitive position. However, without a successful system employment, the projected benefits of enhanced productivity and competitive advantage would not be forthcoming.

ERM provides reasonable assurance of attaining objectives relating to reliability of reporting and compliance with laws and regulations that are within the company’s control. However, Achievement of strategic and operations objectives is subject to external events that outside the company’s control. Therefore, ERM can offer reasonable assurance that management and BOD are made aware in a timely manner of the degree to which the company is moving



toward accomplishment of the objectives. (COSO, 2004).

ERM major objective is to increase shareholders' equity (Sobel and Reding, 2004; Lajili and Zeghal, 2005). First, by enhancing the allocation of corporate resource via capital efficiency, it can reduce expenses on irrelevant and unrelated risks. Second, by exposing areas of high risk, it can support informed decision-making. Finally, by establishing a process that can stabilize financial results, and build investors' confidence. (Quon, 2012).

2.1 B - COSO Framework Limitations

The significance of the ERM Framework is recognized in understanding the knowledge and aspects of business risks, However, each framework has limitations. the limitations of the COSO ERM Framework should be mentioned in order to understand the weakness this system may holds, and the obstacles faced when implementing this framework on the Pharmaceutical companies in Palestine, therefore gaining an understanding if the effectiveness of the results occur from the success of implementing this framework within the industry, or if the results contradict the reality due to the limitations this framework possess. The limitations were studied and described as the following:

- The framework is broad to be applied to a wide range of industries.
- Appropriate implementation of the framework is dependent on the ability to initiate a strong, formal control environment, however, the framework provides minimal execution guidance. (Rubino, 2018).
- There is still no strong integration of management control, even though the framework has partially covered defining strategic objectives.
- No common or specific measurement tool to assess the effect of the framework on the financial performance, as this was clearly noted in the previous studies. (Kraus and Lehner, 2012, Sithipolvanichgul, 2016).

The framework facilitates the smooth flow of functional information and practices across the entire company. However, without BOD and top management support in having appropriate business plan and vision, effective management oversight, and continuous education and training, the companies can't embrace the full benefits of the framework, and the risk of failure might be at a high level.

2.1 C - ERM Framework and Risk

ERM is a management process that requires the administration to identify and evaluate the collective risks that affect company value and apply an overall strategy to manage those risks in order to establish an effective risk management approach. (Meulbroek, 2002).

ERM is not only a vital need to link strategies with business processes, it is also an integral part of the overall economy. (Wyman, 2017). The underlying premise of ERM is that every company exists to provide value for its stakeholders. All entities face uncertainty, and the challenge is to determine how much uncertainty should be accepted. ERM requires a company to take a portfolio view of risk, and the challenge is to determine how much risk the company is prepared to and does accept as it strives to create value. (COSO, 2004). Value is maximized by efficiently and effectively deploying resources in pursuit of the company's objectives. Enterprise risk management includes:

- Aligning risk appetite and strategy – Management considers the company's risk appetite in assessing strategic alternatives, setting related objectives, and emerging mechanisms to manage related risks.
- Enhancing risk response decisions – ERM provides the precision to identify and select among alternative risk responses – risk avoidance, reduction, sharing, and acceptance.
- Reducing operational losses – Entities receive greater capability in identify potential events and establish responses, reducing any associated costs or losses of the unplanned events.

- Identifying and managing multiple and cross-company risks – Every company faces a countless of risks affecting its different parts, and ERM eases effective response to the interrelated impacts, and integrated responses to multiple risks.
- Seizing opportunities – By considering a full range of potential events, management is positioned to classify and comprehend opportunities.
- Improving deployment of capital – Acquiring strong risk information allows management to effectively assess overall capital needs and enhance capital allocation.

2.2 Section Two : Literature Review

2.2 A - Previous Studies

Through this chapter, previous studies that discussed the Enterprise Risk Management Framework and its effect on the Financial Performance whether locally or internationally will be presented. In addition to the studies that dealt with the issues within the Pharmaceutical Industry in relation to risk management, and the methods and procedures adopted to control these risks.

- **The Impact of Enterprise Resource Planning on Business Performance: With the Discussion on Its Relationship with Open Innovation**

(AlMuhayfith, Shaiti, 2020).

This research studied the impact the ERM framework has on both the financial and non-financial performance measurements of the Saudi SMEs, that provide massive prospective markets for the framework adoption. A structural equation modelling tool was used for data analysis and hypothesis testing, and exploratory design has been used as well to identify the causes contributing to the effective ERP system.

This research's theoretical framework was derived from contingency theory to discover whether the framework has influenced the performance or not. A questionnaire was created as a data collection method. To assess the research's measurement model, four methods have been used that includes indicator reliability, internal consistency reliability, convergent, and discriminant validities. For the internal consistency factor, Cronbach alpha and composite reliability measures were used.

The results indicated that company and ERPs factors influence successful ERP system usage significantly and that the framework enhances business performance. The findings

also provide insight to SMEs managers on how to efficiently and effectively manage the adoption and successful usage of ERP systems.

The findings recommend that management support, user satisfaction, and training also impact the ERPs usage, and enhance SMEs' performance. Moreover, ERP systems can offer improved business performance if certain factors are applied.

- **A Study of the Adoption and Implementation of Enterprise Resource Planning (ERP): Identification of Moderators and Mediators.**

(Uddin, Alam, Mamun, Khan & Akter, 2019)

This study examined the predictors of ERP adoption and implementation in Bangladesh in 2019. The study extended the UTAUT model by including additional moderators and mediator to discover the factors responsible in adopting and implementing the framework. The results of this study has proposed practical implications for managers and enfold insight for ERP users and managers to execute ERP adoption and implementation.

An extended model is proposed covering mediator and moderator variables based on the (UTAUT) model and open innovation literature. The conceptual framework of the study viewed that Performance Expectancy, Social Influence, Effort Expectancy, and Facilitating Conditions are the control variables that affect the intention to use ERP system, taken into consideration the educational level of users and company size as the mediating factors, all combined towards the actual use of ERP.

Deducting reasoning approach with the positivism paradigm was used as the research theory. 225 out of 235 responses were collected via a self-administered sampling, and analyzed by using PLS-based structural equation modeling. The results showed that the hypothesized direct influences are significant except the influence of facilitating conditions on actual use, and states that there is no moderating effect of education and companies' size among the

hypothesized influence. The study contributes by using an extended UTAUT model and validates results with the rest of the world.

- **Impact of ERPS on Organizations' Financial Performance**

(Sarhan, Al Hajj, Nov 2019)

The study was conducted in 2018 on Lebanese companies that use ERPs System, and presented insights regarding ERP Framework implementation and its influence on organizational performance. 50 questionnaires were collected to evaluate the framework. The researcher used the frequency for the analysis of data from different perspectives, and SPSS software for statistical analysis. The research used the descriptive quantitative design because it enables modifying the variables at a time while filtering external factors. This research focused on the profitability ratios (Return on Equity, Margin of Profit, and Return on Assets) as the main aspects in measuring the financial performance.

Results showed that majority of Lebanese companies embrace the use of the framework, which indicates that ERM usage has proved to have significant influence on the performance of companies that employ it over time. Respondants have praised the system for the improvements it provides to the financial performance, and how it can be linked to the overall organizational performance as well.

- **The impact of enterprise risk management on institutional performance in Jordanian public shareholding companies**

(Altanashat, Dubai & Alhety, 2019)

This study examined the impact of Enterprise Risk Management (ERM) on institutional performance of public shareholding companies in Jordan based on COSO (2004) ERM Integrated Framework. This study adopted the descriptive research to further explain the impact of the framework on performance. This design included methods and procedures that

describe the intended variables using statistical logic. Questionnaire survey was adopted as the data collection tool. 313 questionnaires were collected from the population that was composed of supervisory staff at the level of manager, deputy director, and head of department. The dependent variable was the Institutional performance, and it was measured by balance scorecard. As for the independent variable, COSO framework was used to measure ERM implementation. The researcher used the Structural Equation Modeling Tool (Smart-PLS) to analyze the data, and the analysis showed that the implementation of ERM has a significant influence on institutional performance.

The results revealed that the framework had a role in improving financial performance of extraction companies in Jordan. All the independent variables (COSO components as in Internal Environment, Event Identification, Risk Assessment, Risk Response, Control Activities, Information and Communication, and Monitoring) are significant predictors that statistically and significantly predicted the positive correlation, except for objective setting. The findings help entities to better understand the status of their ERM implementation and assist them in identifying areas of performance improvements.

- **Measuring Enterprise Resource Planning (ERP) Systems Effectiveness in Indonesia.**

(Wibowo & Widya Sari, 2018)

This research projected an integrative ERP success measurement model and determined the factors that build the ERP system through establishing an empirical work from a developing country as in Indonesia in 2018. In the research model variables include System Quality, Information Quality, Service Quality, and External Pressures were used as the main factors in assessing the framework. A combined theoretical and structural model was conducted in support of empirical work by utilizing online survey that collected 86 valid responses from

various industries. The data was analyzed using a PLS-SEM algorithm. The research adopted non experimental quantitative design as the research approach to analyze the computer assisted questionnaire's answers. In addition, employment of explanatory studies in the research helped in supporting the research problem and objectives.

The findings demonstrate that research variables significantly impact on user satisfaction and influence perceived usefulness fairly. This research also recognizes that entities need to pay attention to rapid technology changes that could be beneficial to the ERP system. With regard to the organization level, this research finds significant proxies of perceived usefulness and user satisfaction, which is to anticipate the most business benefit through the independent factors. Moreover, the correlation between senior management support and overall system benefits was recognized as the most critical success factor that can drive the company, the business process, and technology to achieve the company's goal.

- **The Effect of Enterprise Risk Management on Firm Value in Manufacturing Companies Listed on Indonesian Stock Exchange Year 2010 – 2013.**

(Iswajuni, Manasikana, Soetedjo, 2018).

The study identified the effect of ERM framework on company value by investigating how the framework allows management to effectively handle uncertainties and risk by integrating all types of risks that the company might be exposed to, and using integrated tools and techniques in increasing the capacity to build company value.

This study was conducted in the period of 2010 – 2013 on the manufacturing companies listed on the Indonesian Stock Exchange (IDX). The control variables were company size, ROA, and managerial ownership on company value that is proxied by Tobin's Q. This research is conducted by using a descriptive statistical analysis and quantitative approach that focused on hypothesis testing. To test the regression coefficients with 5% level of

significance, the researcher used multiple linear regression-ordinary least square and hypotheses testing t-test.

The results showed that ERM, ROA and size of the company have a significant positive effect on the company value, which means that company value increases as ERM, ROA and size of the company improves, while the managerial ownership has a significant negative effect on the company value. Also, ERM supports management to face all types of risks caused by uncertainties by using integrated tools and techniques, so that all types of risks can be managed and minimized

- **The Effect of Enterprise Risk Management (ERM) on Firm Performance: Evidence from the Diversified Industry of Sri Lanka.**

(Alawattegama, 2018)

This study discovers the effect of adopting ERM on the financial performance of the diversified industry of Sri Lanka in 2018. A sample of 17 companies listed on the Colombo Stock Exchange were selected upon specified criteria to answer the questionnaire, that was created as the data collection tool. The questionnaire assessed the extent of the independent variable by using five-point Likert scale on eight ERM functions recommended by the COSO's ERM integrated framework, and was also analyzed with proxy method. The dependent variable, which is the company performance, was measured using ROE, which is used as a proxy to company value.

This study found internal environment, objective setting, event identifications, and risk response have a insignificant positive impact on company performance. In addition, risk assessment, control activities, and monitoring functions have a negative impact on the company performance , where Information & communication and monitoring functions also

indicated a significant impact. The researcher believed that this negative impact is due to the increased cost of monitoring activities that are important for a diversified business setup. The researcher also stated that the presence of a CRO/CEO, audit company, audit committee, risk committee, institutional investors were deemed to be indicative components of the ERM implementation, and showed a positive impact on the company performance. This research concluded that except for communication and monitoring (six out of eight key functions), the adoption of ERM has no significant impact on the company performance. The study recommended for future researchers to assess the value relevance of ERM using a robust and in-depth study.

- **The Impact of the Application of Enterprise Resource Planning System on Banks Financial Performance – a Case study of Arab Bank and Islamic Bank of Jordan**

(Yamin, 2018).

This Study aims to identify the impact of the framework on the financial performance of Jordanian Islamic and commercial banks in 2018. The banking sector was considered for this study because it relies mainly on the electronic and technological work in its operations in dealing with customers and other financial institutions. Therefore, the necessity to relate the technological advancement and frameworks as in ERP System in evaluating the performance of banks is a basis for determining their skill in managing their assets optimally, demonstrating their ability to improve the quality and development of their work, and evaluating performance using financial measures that give a clear picture of the reality of the bank's financial position. The financial performance measures were Return on Investment, Return on Equity, Earnings Per Share, and Debt Ratio, as these metrics are considered one of the most affected by the use of the framework, because they express the bank's ability to generate profits from its assets and ownership rights in it.

A questionnaire was made and distributed to the managers of both banks, and the results were analyzed with multiple statistical techniques (KMO analysis). The study followed a case study descriptive design in exploring the impact of the framework implementation on banks financial performance in Jordan.

The study concluded that there is no impact of the framework on the financial performance on both banks. It also detected some impact on only Financial Performance measures as in ROI but not the other Financial Performance Indicators. Moreover, there are no statistically significant differences of the impact of the framework on the study sample. The study recommended that ERP should be applied in all Jordanian banks in their operations, and to maintain a continuous training on the system for the staff. Finally, it is recommended to conduct further studies by using different variables to assess the performance of banks in terms of financial and non-financial standards.

- **Empirical Analysis of Joint Impact of Enterprise Risk Management and Corporate Governance on Firm Value.**

(Rao, 2017).

This research was conducted in 2017 on the Gulf Cooperation Council financial institutions, by assessing the quantitative relationship between corporate governance, ERM, and company value. Under its methodology, this study firstly employed the proxy method in measuring ERM initiatives and assessing if the companies adopted ERM framework by meeting the listed proxy conditions. Secondly, it employed the index method by creating an equation to measure ERM, CG, and Company's Value with multiple correlating variables. The hypotheses were tested through simultaneous equation system for ERM, CG, and company's value, using 3SLS – Instrumental Variable (IV) Technique (4 3SLS-IV system modelling), However it does not assume cross equation correlation of error terms.

The research results offer quantitative rationalizations for the boards to make investments in ERM and Corporate Governance initiatives for improved shareholder value. The result revealed insignificant, yet joint and positive impact between company value with ERM framework & Corporate Governance initiatives. Unexpectedly, determinants as in intangibility and profitability had a significant and negative impact on ERM initiatives. Also, Company size was the only determinant with positive and significant impact on company value. Moreover, the existence of audit committees and ERM adoption significantly positively impacted the corporate governance.

- **Factors Affecting Implementation of Enterprise Risk Management (ERM): An Exploratory Study Among Saudi Organizations.**

(Aleisa. 2017).

This study aimed to empirically determine the factors affecting ERM implementation based on ERM framework dimensions that are derived from the COSO ERM Integrated Framework, and how they were actually implemented in the research sample among Saudi Organizations in 2017.

The researcher used the exploratory factor analysis method to analyze the data, the data collection tool was via an online questionnaire. The results support the retention of the ERM structure and standards, the company's portfolio of risks and opportunities, and Risk oversight and corporate governance.

This study used quantitative methods as in factor analysis. The response rate of 28.1% was set, and the collected data were analyzed using the EFA method, ML was selected for factor extraction, and the oblique promax technique was selected for factor rotation and supported the retention of three factors affecting the framework implementation.

The results showed that a model with a three-factor structure was deemed the best fitting model, and that each ERM dimension has a significant impact on framework implementation.

- **The Impact of Internal Control Systems on Financial Performance: The Case of Health Institutions in Upper West Region of Ghana.**

(Ibrahim, Diibuzie, Abubakari, 2017).

This study searched for internal control variables impact on financial performance of health institutions in Ghana. in 2017. The internal control independent variable is acknowledged and measured with the implementation of COSO framework components. For financial performance, it is clarified in terms of profitability (Gross profit ratio, Net profit ratio), Liquidity (Current ratio), and Accountability (Financial accountability).

The methodology used was ordered logistic regression model. In addition, the agency and contingency theories were adopted to explain the relationship between internal control systems and financial performance. This study selected a sample of five health institutions in Ghana using the purposive sampling technique. The answers were arranged and coded using point numeric rating scales.

Results found a positive relationship between internal controls and financial performance where all internal control variables have met their predictable signs with positive coefficients. The recommendations were that the governing body of the institutions should ensure that the appropriate internal control are monitored and supervised periodically.

- **Enterprise Risk Management and Company Performance: Developing Risk Management Measurement in Accounting Practice.**

(Sithipolvanichgul, 2016)

This research investigated the relationship between ERM framework implementation and the company's performance on the sample of the Thai listed companies in The Stock Exchange of Thailand (SET) by adopting the rigorous holistic perspective of ERM. This research adopted the positivism epistemological philosophical approach in studying the contingency theory and the relationship between variables.

The methodology used was exploratory based on quantitative methods. The control variables were the company's size and characteristics, industry effects, sales growth and the external environment as in technology, market uncertainty, as well as economic factors.

Data was collected through a survey then compared to three alternative methodologies: cluster analysis (CA), principal component analysis (PCA) and partial least squares (PLS). In addition, financial ratio analysis was also used to determine the impact of the framework on the financial performance. With the aim of having an effective and consistent ERM assessment standard, the researcher developed ERM Scoring model.

The results revealed that the projected method, whether statistically and in prediction, did well compared to the alternatives. Descriptive analysis and statistical analysis as in Heckman correction and reliability test were used as evaluation indicators, reliability test, in addition to correct measurement errors.

Results showed that ERM implementation could improve company's performance in terms of Tobin's Q, ROE and ROA. For the significant factors of the framework, the results revealed that company's size and economic factors have a positive relationship with the degree of ERM implementation, while lower ERM scores show more revenue volatility than those who have well implemented ERMs. Furthermore, technology and growth are positively related to each ERM in the scoring system considered.

- **COSO Enterprise Risk Management Implementation in Jordanian Commercial Banks and its Impact on Financial Performance.**

(Al-Khadash, 2015)

This study aimed to investigate COSO ERM framework implementation in the Jordanian commercial banks in 2015. The independent variable was the ERM framework and its components, while the dependent variable was the financial performance measured by ROA, ROE, EPS, DE Ratio, quick ratio, capital adequacy ratio, and non performing loans ratio. This study started by testing the degree of the framework implementation including its eight components. Then it tested the complications of implementation, and finally focused on the impact of implementation on the financial performance of banks.

Data was derived from the Jordanian commercial banks' annual reports, the official website of Securities Depository Center, and questionnaire responses.

Results revealed that COSO ERM framework was highly implemented by Jordanian commercial banks. However, there are some difficulties that the banks might face during the implementation process that need be addressed for efficient results. Also, higher degree of implementation leads to higher ROE, ROA, EPS, and quick ratio and lower NPL ratio. On the other hand, debt to equity ratio and adequacy ratio were not affected by the framework implementation.

- **Impact of ERP System Using on the Accounting Information Relevance: Evidence from Saudi Arabia.**

(Attayah & Sweiti, 2014).

This research studied whether the implementation of ERP framework has effects on the accounting information relevance by measuring timeliness, feedback value, and predictive value of accounting information.

The study was conducted in 2014 on Saudi Arabia market. The sample consists of companies working in various sectors, from both ERP adopters and non ERP adopters. A survey was administered manually for data collection. A total of 90 responds were collected.

The analysis displayed that the existence of ERP System has a positive effect on accounting information relevance. The results also revealed that the using of ERP system increased the predicative value of accounting information , the accuracy of data, and can participate in managerial decision making.

In addition, results showed that the entities that didn't adopt the framework suffered from data processing delays, that negatively affected the relevance of accounting information, which means that using of ERP system reduces the time lag of financial reports, the time of data processing and generate financial reports.

- **The Impact of Enterprise Resource Planning Systems on Small and Medium Enterprises.**

(Buleje, 2014).

This study evaluated the benefits the company receives from adopting the ERP system, especially for SME in Florida, and assessed the impact on the financial performance. It aimed to propose a well-informed method for measuring the long term effect and benefits from ERP.

The research methodology was created based on the concept of production function to assess the impact of IT for business productivity, such method is the "total productivity factor.

Data were collected though survey data and financial ratios using the well-known CRSP datasets. Data analysis proposed that framework implementation has no effect on dependent variable, the company's performance, as it was measured by Profit margins, Tobin's Q ratio and Labor productivity. In addition, ERP investments don't yield remarkable improvements

on the performance measures. The results of this research study added value to the academic knowledge by helping to understand the effects the ERP have on SMEs overall performance.

- **Accounting Information Systems in an ERP Environment and Tunisian Firm Performance**

(Daoud, Tariki, 2013).

This study purposed to test the influence of the accounting information system in an ERP environment on Tunisian's companies Performance. By conducting an empirical study on 102 Tunisian's company adopting this system, this study investigated the direct effects of top management involvement and external expertise on the AIS. In addition, it examined the interaction effect of accounting staff competency and tested its impact on company's performance.

This study took into consideration the theoretical, methodological, and practical analysis by highlighting DeLone, McLean, and Gable's information system success model in determining the relationship between contingency factors, AIS, and overall business performance. This study combined the accounting literature with the information systems literature that was categorized by the accounting practices used, by the information quality and by the ERP system quality.

A questionnaire was made to collect data from key personnel in the Tunisian companys, 110 responses were collected, from which 102 were only usable for analysis upon specific criteria. As for data analysis, the partial least squares technique of structural equation modelling was used.

The results indicated that top management connection and external expertise have an impact on the AIS. Moreover, they showed that the accounting methods used after the system

adoption influenced company performance. The interface effect of accounting staff competency with the AIS showed a positive impact on company performance improvement.

- **The effect of the Enterprise Risk Management Implementation on the Firm Value of European Companies.**

(Bertinetti, Cavezzali & Gardenal, 2013).

This research investigated the effect of adopting ERM framework on the company's value and determined the determinants of this adoption. The study sample was 200 publicly traded European companies operating in 17 different industries during the time horizon from 2002 to 2011. Also, it tests which determinants that are important to the adoption of the ERM system.

The methodology used was the FE panel regression analysis and a FE logistic analysis. The dependent variable of the study was the Tobin's Q, and the independent variables were stated by risk management components with other control variables derived by the main literature about corporate risk management (size, profitability, leverage, beta, ROA, growth, dividends, opacity).

Results showed a positive significant relation between the framework adoption and company's value. Also for ERM protocol, size, beta and profitability, the results were statistically significant. Among the control variables, company size, leverage, ROA, and the company beta had a significant impact on the company's value. As for the other control variables, as in sales growth and dividends, the results revealed no effect on TOBIN's Q. Evidences also displayed that the ERM adoption relied on the company's opacity and slack, Therefore, the existence of intangible assets and the presence of free liquidity encourage companies to better manage risks.

Results also presented that the implementation of ERM benefits companies by lowering earnings and stock price volatility, increasing capital efficiency, and creating synergies and interaction between different risk management activities.

- **Uses of ERP Systems and Their Influence on Controllership Functions in Brazilian Companies**

(Lira, Parisi, Peleias, Peters, 2012)

This study aimed to identify and examine the ERP system impact on Controllership functions, confirming the relationships between the use of solutions and possible improvements. This study was conducted in the State of São Paulo, Brazil in 2012 on the Publicly Traded Companies in the automotive industry and used 477 companies as their sample to reach assertive results.

The research classified the controllership responsibilities into two main areas; Accounting & Fiscal (Operational Controls), and Planning & Control (Management Controls). The research focused on assessing the main responsibilities of Controllership as in Integrated Management, Information Integration between departments, and Support to Information System in relation to Accounting & Finances decisions. The research studies how these Controllership responsibilities with the implementation of ERP System would help managers in their search for management efficacy and yielding better results. This study employed the descriptive and exploratory design. A closed questionnaire was used to collect data related to controllership functions in relation to ERP functions. The sampling techniques used the non-probability sampling. The results obtained were charted and evaluated for each of controllership functions, correlating them to ERP functionalities, and examined in relation to what was recognized in the literature review.

The results showed improvements in controllership functions especially in the integration between controllership and information integration. The results also concluded that ERP may influence the quality, the integrity, and the shaping of the information, and ensure higher efficiency and effectiveness in work. Even if this research showed that ERP System meet the needs of controllerships functions, it may need specific improvements regarding information management functions, cost management, and budget processes to yield better results and ensure proper reporting to meet management needs.

- **ERP Implementation and their Impact Upon Management Accountants**

(Sangster, Leech, & Grabski 2009)

This study considered the impact of ERP implementations upon management accountants personnels, management accounting in general, and business processes, to study the perceived success of the framework Implementation. This research was conducted in 2009, on UK based organizations, and 92 responses out of 668 were received for analysis, of which only 62 claimed implementing the ERP system.

A case study approach was used to examine the changes in management accounting. A questionnaire was developed with 13.8% response rate. Findings were that under successful ERP implementations, management accountants had time for other activities and their role becomes more inspiring, the results displayed that ERP system was significantly related to the role of management accountant, but not to management accounting in general. There was also a positive result of the ERP system on the quality of information, which yielded to decision making improvements.

- **The Impact of Enterprise Risk Management on the Internal Audit Function**

(Beasley, Clune, Hermanson, 2006).

This study examined the overall influence of adopting ERM framework on the internal audit function's activities on IIA's Global Audit Information Network members, with a sample of 122 organizations in 2006. This study employed the exploratory research design that provided indications about factors related with the overall impact of framework on internal audit function activities. In addition, it employed the multi variate regression analysis and OLS Model to explore factors associated with the purpose.

The research developed a questionnaire addressed to the chief audit executives to gather information on the impact of the framework. With 10.3% response rate, the research stated that ERM had the highest impact on internal audit's activities when the company's ERM process is more completely in place, audit committee have asked for greater internal audit activity. Higher results were found for the entities in the banking industry or in educational system. The results showed that the impact the framework has on internal audit is affected by the company's stage of ERM development and involvement from other governance participants.

2.2 B - Summary of Previous Studies

Title & Author	Research Design	Research Methodology	Results
AlMuhayfith, Shaiti (2020)	<ul style="list-style-type: none"> •Deductive Approach •Exploratory Study 	<ul style="list-style-type: none"> •Positivist Paradigm •Interview •Questionnaire •Structural Equation Modeling •Contingency Theory 	<ul style="list-style-type: none"> •management support, user satisfaction, and training significantly impact the ERPs usage, •ERP systems enhance SMEs' performance.
Uddin, Alam, Mamun, Khan Akter (2019)	<ul style="list-style-type: none"> •Deductive Approach 	<ul style="list-style-type: none"> •Positivist Paradigm •UTAUT Model •Questionnaire 	<ul style="list-style-type: none"> •The hypothesized direct influences are significant except the influence of facilitating conditions on actual use. •There is no moderating effect of education & companys' size among the hypothesized influence

Sarhan, Al Hajj (2019)	<ul style="list-style-type: none"> •Descriptive Quantitative •ROI, MP, ROA as financial indicators 	<ul style="list-style-type: none"> •Questionnaire •Frequency Test 	<ul style="list-style-type: none"> •the use of ERPs has proved to have significant influence on the performance of companys that employ it
Altanashat, Dubai & Alhety, (2019)	<ul style="list-style-type: none"> •Descriptive Quantitative 	<ul style="list-style-type: none"> •Questionnaire •PLS –SEM Algorithm 	<ul style="list-style-type: none"> •ERM was found to have a significant influence on institutional performance. •ERM had a role in improving the performance of extraction companies in Jordan
Alawattegama (2018)	<ul style="list-style-type: none"> •Exploratory Design 	<ul style="list-style-type: none"> •Questionnaire •Correlation Regression 	<ul style="list-style-type: none"> •This research concludes that except for communication and monitoring (six out of eight key functions), the adoption of ERM has no significant impact on the company performance •The negative impact is attributable to the increased cost of monitoring activities that is crucial for a diversified business setup.
Wibowo & Widya Sari, (2018)	<ul style="list-style-type: none"> •Non experimental quantitative design •Explanatory Design 	<ul style="list-style-type: none"> •PLS-SEM algorithm •Questionnaire 	<ul style="list-style-type: none"> •The findings demonstrate that system quality, information quality and service quality significantly impact on user satisfaction
Iswajuni, Manasikana, Soetedjo, (2018).	<ul style="list-style-type: none"> •Descriptive Statistical Design •Exploratory Analysis. 	<ul style="list-style-type: none"> •multiple linear regression •ordinary least square •Agency Theory 	<ul style="list-style-type: none"> •ERM, ROA, and Company size have positive effect on Company Value. •Managerial ownership has negative effect on Company Value.
Yamin (2018)	<ul style="list-style-type: none"> •Descriptive & Exploratory Design 	<ul style="list-style-type: none"> •Questionnaire •KMO analysis 	<ul style="list-style-type: none"> •No impact of ERP on Financial Performance of each bank. It showed some impact on RIO but no other financial KPIs. •Study recommends that ERP should be applied in all Jordanian banks in operations, and maintain continuous training for staff.
Rao (2017)	<ul style="list-style-type: none"> •Exploratory Design •Case Study. 	<ul style="list-style-type: none"> •3SLS-IV system modelling. •Proxy Method •Index Method 	<ul style="list-style-type: none"> •Company value is jointly and positively impacted by ERM & Corporate Governance initiatives
Aleisa (2017)	<ul style="list-style-type: none"> •Exploratory Design. 	<ul style="list-style-type: none"> •Structural Equation Modeling. •Questionnaire. 	<ul style="list-style-type: none"> •ERM dimensions have impact on its implementation

		<ul style="list-style-type: none"> •EFA Analysis, ML Factor Extraction, Oblique Factor Rotation. 	
Ibrahim, Diibuzie, Abubakari (2017).	<ul style="list-style-type: none"> •Exploratory Design •Case Study. 	<ul style="list-style-type: none"> •Logistic Regression •Agency Theory •Contingency Theory •Questionnaire 	<ul style="list-style-type: none"> •Positive relationship between Internal Control components and Financial Performance.
Sithipolvanichgul (2016)	<ul style="list-style-type: none"> •Exploratory Design 	<ul style="list-style-type: none"> •Contingency Theory •Cluster analysis (CA) •Principal component analysis (PCA) •Partial least squares (PLS) •Financial Ratios and Models 	<ul style="list-style-type: none"> •ERM could improve company performance in term of Tobin's Q, ROE and ROA. •The empirical results show that a company's size and economic factors have a statistically positive relationship with a high level of ERM implementation. •Lower ERM scores show more revenue volatility than those who have well implemented ERMs. •Technology and growth are positively related to each ERM in the scoring system considered.
Al-Khadash (2015)	<ul style="list-style-type: none"> •Exploratory Design 	<ul style="list-style-type: none"> •Questionnaire 	<ul style="list-style-type: none"> •COSO ERM is highly implemented in Jordanian Banks. •ERM affected financial performance through its higher levels of implementation that led to higher ROE, ROA, EPS, and Quick ratio and lower NPL ratio. •Implementation does not affect the bank's debt to equity and capital adequacy ratios.
Attayah & Sweiti (2014).	<ul style="list-style-type: none"> •Exploratory Design 	<ul style="list-style-type: none"> •Questionnaire 	<ul style="list-style-type: none"> •ERP system improves decision making efficiency by increasing the relevance of accounting information in all aspects: timeliness, feedback value, and predictive value.
Buleje (2014).	<ul style="list-style-type: none"> •Exploratory Design 	<ul style="list-style-type: none"> •Questionnaire •Financial Ratios and Models •Regression Analysis 	<ul style="list-style-type: none"> •ERP investments do not yield noticeable improvements on the performance measures
Daoud, Tariki (2013).	<ul style="list-style-type: none"> •Exploratory Design. 	<ul style="list-style-type: none"> •Delone & Mclean model 	<ul style="list-style-type: none"> •Top management have impact on AIS, and evidence showed

		<ul style="list-style-type: none"> •Contingency Theory •Questionnaire •PLS analysis. 	that ERP has influence on financial performance.
Bertinetti, Cavezzali & Gardenal, (2013).	<ul style="list-style-type: none"> •Exploratory Design. 	<ul style="list-style-type: none"> •FE panel regression •FE logistic analysis 	<ul style="list-style-type: none"> •Positive relationship between ERM and company value with the determinants of size, beta, and profitability. •ERM benefits companies by decreasing earnings and stock price volatility, increasing capital efficiency, and creating synergies between different risk management activities. •ERM adoption promotes increased risk awareness, which facilitates better operational and strategic decision-making.
Lira, Parisi, Peleias, Peters (2012)	<ul style="list-style-type: none"> •Descriptive Design. •Exploratory Design. 	<ul style="list-style-type: none"> •Questionnaire 	<ul style="list-style-type: none"> •Improvements in controllership functions •ERP influence the quality of information in operations.
Sangster, Leech, & Grabski (2009)	<ul style="list-style-type: none"> •Case Study Design. •Exploratory Design. 	<ul style="list-style-type: none"> •Questionnaire 	<ul style="list-style-type: none"> •ERP relates to the role of management and quality of information •Improvement in decision making.
Beasley, Clune, Hermanson, (2006)	<ul style="list-style-type: none"> •Exploratory Design. 	<ul style="list-style-type: none"> •Questionnaire •Multi Variate Regression Analysis. •OLS Model 	<ul style="list-style-type: none"> •ERM has impact on internal audit function.

Table 1: Summary of Previous Studies

2.2 C - The study connection and relationship with the previous studies

Through the previous studies reviewed, it is noted that all studies have discussed the effect of ERM COSO framework on the financial performance of the sample studied, and have stated confirmation of the appreciated benefits of implementing the framework. The different and wide ranges of techniques used to assess this relationship, of which were adopted in this research, in terms of methodology, theory, and variables, are listed in the following schedule:

Table 2: Connection between this study and previous studies

Research Areas	Liteature Adopted	Connection
Financial Indicators	Iswajuni, Manasikana, Soetedjo, (2018), Yamin (2018), Rao (2017), Sithipolvanichgul (2016), Al-Khadash (2015), Buleje (2014).	Adopted the financial indicators in aspects and ratios relevant to this research, as in Profitability and Risk ratios. ROE, ROA, Company Size, Managerial Ownership.
Empirical Model	Rao (2017) Sithipolvanichgul (2016)	Measurement Methods of Proxy and Index Models
Research Theory	Sithipolvanichgul (2016) AlMuhayfith, Shaiti (2020), Uddin, Alam, Mamun, Khan Akter (2019)	Epistemological Positivism.
Research Design	AlMuhayfith, Shaiti (2020) Sarhan, Al Hajj (2019), Iswajuni, Manasikana, Soetedjo, (2018), Yamin (2018), and many more.	Descriptive, Correlational ,and Exploratory
Financial and Data Analysis	Altanashat, Dubai & Alhety, (2019), Alawattegama (2018), Wibowo & Widya Sari, (2018), Ibrahim, Diibuzie, Abubakari (2017)., Sithipolvanichgul (2016), and Buleje (2014)	Correlational and Regression analysis.

2.2 D - What distinguishes this study from previous studies.

This study is a comprehensive study that examines the nature, existence, and effect of Enterprise Risk Management Framework on financial performance of Pharmaceutical industry in Palestine, as it is distinguished from the previous studies with the following points:

- A. It reviews the reality of risk management and its implementation within the Pharmaceutical companies.
- B. it also builds a solid understanding and basis of management's role in implementing ERM framework in its operations and strategic plans.
- C. It assesses the effect of this framework on the financial performance and continuity of the Pharmaceutical companies in Palestine.
- D. In addition, this study also focuses on the primary role the management exercises in managing its resources – whether financial or non-financial - and the risks to which the company is exposed to in improper Risk management.

This study also provides recommendations on how to deal with any potential risk and proper planning for future plans and strategies. In addition, it spots the light on the importance to the continuity and reputation of the company within ERM aspects, including:

1. Risk Management in the company in general
2. Strategies in effective and efficient implementation of ERM Framework.
3. The company's readiness to deal with any potential risk.
4. The financial dimension of risk management in the company

2.3 Section Three: Pharmaceutical Industry in Palestinian Economy

2.3 A - Palestinian Economy

There are many economic sectors that make up the Palestinian economy, of which are: Industrial Sector (Manufacturing and Mining), Services Sector, Construction Sector, Tourism Sector, Renewable Energy Sector, Information & Communication Technology Sector, Banking & Finance Sectors, and Agricultural Sector. The industrial sector plays an important role in the process of economic development in Palestine, as it exists at the base of the pyramid through which many other economic areas stem. (USAID & ICC Palestine, 2013).

The industrial sector also includes the following subsectors: Stone & Marble, Textiles & Garments, Food Processing, Engineering & Metallurgical Industries, Chemical Industries, Pharmaceuticals & Veterinary, Construction Industries, Handicrafts, Paper & Printing, Furniture, Leather & Shoes, and Plastics.

Among the various sectors in the Palestinian economy, The Pharmaceutical Industry is considered one of the most important industrial sectors, it is an integral part and fundamental basis of market composition. The Palestinian pharmaceutical industry contains five major manufacturers, which have around 50% of the local market share (PNA, 2011). The sector plays an important role in supplying medical security and public health to society by providing 64% of the total medicines available in the Palestinian market. (MAS, 2019).

2.3 B - Pharmaceutical Industry

The Palestinian pharmaceutical industry was established after 1967 as a result of certain medicines shortages in the Palestinian market. The pharmaceutical industry is considered as one of the pillar industries in the Palestinian economy. This sector is one of the among fastest growing industries in Palestine due to the replication of its influence on the

Palestinian GDP in a period less than 10 years despite of its small number of companies. Therefore, this makes it a very promising industry.

All of the pharmaceutical direct materials used are imported specially for each manufacturer. Thus, it is clear that the Palestinian pharmaceutical market has no multinational pharmaceutical companies that manufacture medicines locally. (PNA, 2011). The percentages of exportation to the other markets are so limited due to the difficulty of penetration of other markets. (USAID & ICC palestine, 2013)

The companies under the pharmaceutical industry are listed according to the Ministry of Health (MOH) registration information in the following table:

Table 3: List of Pharmaceutical Companies in Palestine.

	Manufacturer	Acronym	Location	Est. Year
1	Beit Jala Pharmaceutical Company	BJPC	Beit Jala	1969
2	Jerusalem Pharmaceutical Company	JPC	Ramallah	1969
3	Birzeit Pharmaceutical Company	BPC	Ramallah	1973
4	The Middle East Pharmaceutical and Cosmetics Laboratories Ltd.	MEGAPHARM	Gaza	1981
5	Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals.	PHARMACARE	Ramallah	1986

2.3.B.1 Pharmaceutical Companies in Palestine

In this section, an overview of the Pharmaceutical companies in Palestine is presented, where the information for each company was derived from the administrative reports in addition to each company's website.

- **Beit Jala Pharmaceutical Company (BJPC)**

Beit Jala Pharmaceutical Manufacturing Company, formerly known as Jordan Chemical Laboratory, was established in 1969 in Beit Jala. BJPC conducts its operations in accordance with Good Manufacturing Practices (GMP), as it is obvious in the ISO certifications.

- **Jerusalem Pharmaceutical Company (JPC)**

Jerusalem pharmaceutical company is a publicly joint stock company established in 1969 and located at Ramallah. The company has other facilities in Palestine, Jordan, and Algeria. JPC holds a good manufacturing practice (GMP) certification, and ISO credentials.

- **Birzeit Pharmaceutical Company (BPC)**

Birzeit Pharmaceutical Company (BPC) was established in 1974 in Birzeit, Ramallah as a private shareholding company. It holds Good Manufacturing Practices and ISO certifications. BPC market is not limited to the Palestinian Territory, the company has export to different markets mainly Algeria and East Europe.

- **The Middle East Pharmaceutical and Cosmetics Laboratories Ltd. (MEGAPHARM).**

The factory was established in 1994 in Gaza by the Middle East Pharmaceutical and Cosmetics Laboratories Ltd, but production started in 1999. This company has faced lots of obstacles that delayed the production process and the growth of the factory. Since the blockade in 2007 was imposed, the Israeli authorities had prevented the entry of various raw materials needed for manufacturing, which reduced the production rate to 80%, and the company struggled ever since.

- **Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals PLC (PHARMACARE).**

It was founded in 1986 in Ramallah. During 2008, Dar Al Shifa Company received the European good manufacturing certificate (GMP) from the German Ministry of Health, which allowed the company to sell its pharmaceutical products in The European Union. Moreover, the company acquired in the same period the Palestinian GMP certification.

2.3 B.2 Barriers that face the Pharmaceutical Industry:

In this section, the barriers that the pharmaceutical companies face, whether general or specific, are presented. The information were derived from the administrative reports, in addition to the company's website. Throughout the study, it was noticed that these barriers are common to the pharmaceutical companies, and the exposed risks were mutual. The risks were listed in a table later in this chapter to fully summarize and display them.

2.3.B.2.1 General Common Barriers

The pharmaceutical industry faces a number of challenges that will restrict its economic feasibility and future profitability unless a proper strategy of development is adopted. (MAS, 2019). There are many barriers and problems that face the Pharmaceutical Industry in Palestine, and they are as the following:

- Similar production of medical products

The local pharmaceutical companies and facilities are only capable of producing certain products according to their capacities and capabilities. The local companies produce kindly similar products that don't require technological advancements, unlike foreign medical products that the market thereof imports to fulfill the local needs, therefore duplication of medical products exists in the market due to production of similar types of medical products. This is evident in the lack of coordination between local pharmaceutical companies regarding production and distribution.

- Public policy issued towards the Pharmaceutical Industry

This can be seen clearly regarding the different requirements and methods for registering medicines between the West Bank and Gaza Strip. In addition, there are no specific policies that work to organize the importation process, specifying types and items of medicine along with quantities, and work on developing the capabilities of local producers.

- Financial barriers

The Palestinian pharmaceutical companies are facing high debts owed by the Palestinian National Authority. In addition, there is a huge lack in funding sources needed to finance the expansion processes necessary to apply good manufacturing principles.

- Intensive procedures in entering international markets.

The companies working in the Palestinian pharmaceutical sector are operating according to the standards required from the Ministry of Health; however, certain production methods are not accredited internationally. Thus, some products are unable to enter the international market without extensive tests and procedures.

2.3.B.2.2 Specific Shared Barriers.

After presenting the general common barriers that face the Palestinian Pharmaceutical companies, the study took into consideration the specific barriers and risks that each Pharmaceutical company might be exposed to according to its operations and location. Table (4) states the type of risks each company is exposed to, the description & definition to each risk, and how the companies worked in mitigating their effect. It is important to note that table (4) also represents the Pharmaceutical companies active implementation of risk management towards any expected or unforeseen threats, which indicates that the pharmaceutical companies are alerted to any unpredicted events.

Table 4: Summary of Risks faced by Pharmaceutical companies in Palestine

Risks	Description	Procedures to Mitigate the effect	Affected companies
Political instability in the Palestinian Territories	- Negative repercussions on the economy, movement, import and transport of raw materials necessary for the production and distribution of product.	Reduce the vulnerability by focusing on the local economy needs rather than exports, therefore the companies can still generate revenues in the midst of instability and political restrictions, and having reserves for raw materials and other items needed in production process for any unexpected political events that might affect the production of medicine in Palestine.	BJPC BZPC JPC PharmaCare
The Israeli control over the borders	- The company's machines and equipment are seized as a result of the security check. - Shortage in raw materials due to prevention of entry - Raise the cost of import due to long term shortage.	- Ensure that the specific shipment has no limitations upon entry. - Prepare all necessary documents and licenses prior to shipment and entry.	BJPC BZPC JPC PharmaCare
Foreign Currencies exchange rate fluctuations	- The rise in the exchange rate of the Euro and the US Dollar leads to an increase in the cost of foreign purchases. - It also raises the cost of borrowing, knowing that most of the company's revenues are in the Israeli shekel currency	- Effectively manage the currency basket - Entering into hedging contracts with local banks	BJPC BZPC JPC PharmaCare
Intense competition in production and marketing sector	Competition between Local, Israeli and imported sources, and a variety of similar brands in a relatively small pharmaceutical market.	The competition would still exist regardless, however the companies need to study the local production and needs and try to present new medicines and target specific sectors and niches in order to outstand from other local companies, in addition to Israeli and imported ones.	BJPC BZPC JPC PharmaCare
Depending on one vendor	raw materials used in production are delayed	- The necessity of having at least two to three suppliers for all raw materials and packaging supplies. - Importance of reorder point and presence of minimum stock	BJPC
Not enough storage space	Shortage in the amount of raw materials needed for production and the	- Building additional storage floors - Lease storage space outside the company	BJPC

	ones purchased in large quantities for bids purposes.		
Water Shortage	water shortage is worsened in the summer, which causes a disruption in production	- Building Cement tanks - Continuous follow-up with the Water and Sewage Authority in the governorate	BJPC
Power outage from the source	Temporary suspension in machinery and equipment, in addition to pause in production process.	- The presence of electrical generator - Existence of temporary UPS attached to the sensitive machines and devices	BJPC
Disrupt in machines and equipment	Temporary suspension in machinery and equipment until the malfunction is completed.	- Periodic maintenance of machines and equipment by maintenance technicians - Availability of additional spare parts stock - Contracting with external maintenance technicians	BJPC
Confidentiality	Disclosure of company's secrets by employees	- Have the resigned employees sign a pledge to not disclose any of the company's secrets, otherwise legal actions might be taken against the employee. - Prevention of access to employees to the confidential and important documents, and guarantee passcodes for these special documents.	BJPC
Maintaining the quality of the raw materials used in production	Intentionally or unintentionally changing the specifications of the raw material and packaging from the supplier.	- Purchase from the authorized supplies of the company - Request the necessary certificates of analysis of raw materials - Perform necessary checks for each material received to ensure that it conforms to the required specifications	BJPC
Cease in the Hazardous waste disposal process	Inability to store it and the company loses the environmental management certificate, which leads to damage to the company's reputation	- Contact Disposal company, despite the high financial cost and the long period of time that waste is accumulated in the company until approval is obtained from the competent authorities to hand it over to the disposal company that conducts the destruction process.	BJPC
Pollution of water sources	Microbial contamination of water sources leads to stopping the supply of water treatment systems as well as the various facilities of the company, which affects the health of workers and stops the company's operations,	- Maintaining the process of evaluating the water storage wells in the company - Relying on the water that is supplies by the water authority.	BJPC

	especially production processes, until the problem is addressed and pollution is eliminated, although the frequency of its occurrence is very low.		
Indebtedness of the Ministry of Health	Low on financial support and financial security, unable to pay the medication purchased from the pharmaceutical companies.	- The company should focus on continuous flow of funds, and not be dependent fully on one source of funding, therefore it should always have multiple sources to rely on.	BZPC

2.3.B.3.3 Pharmaceutical companies action plan towards risk

Both risk and uncertainty have had major impacts on companies (Protiviti, 2006). Companies need to detect, manage and control any internal or external conditions that relate to risk and uncertainty, as well as their potential outcomes. Below are the actions plans taken by the Pharmaceutical companies in Palestine towards general and specific risks that were listed in the previous table. These information were taken from the companies' administrative report.

- Beit Jala Pharmaceutical Company:

The company has developed a special risk management policy to overcome risks of all categories in order to ensure its continuity on daily basis from the events that the company might be exposed to, whether environmental, political, social, economic, technological and legal aspects.

- Birzeit Pharmaceutical Company:

The company has created risk committee under the supervision of Board of Directors that continuously prepares, studies, and analyzes financial reports for the feasibility of making new investments, by investing in companies in different sectors in order to mitigate and distribute risks in addition to increase the overall returns.

- Jerusalem Pharmaceutical Company:

The company has created risk committee under the supervision of the Board of Directors monitors and audits the company's financial, administrative and technical work and identifies the various risks that surround the internal and external work environment.

Oversight is implemented through different tools, as in:

- Ensure the completeness and adequacy of internal audit work by reviewing the effectiveness of risk management arrangements.
- Ensuring the full response of the executive management to the issues that are identified and monitored, especially through internal and external audits, and ensuring their independence.
- Checking the internal compliance of the technical departments by following up on the internal audit reports in the quality department.
- Review the reports of the committees that are formed to examine suspicions of corruption, embezzlement, conflict of interest, or other cases.
- Follow-up work to correct the situation and get rid of weaknesses.
- Measuring and evaluating the effectiveness of the company's control and internal audit systems.
- Working to direct the attention of the executive management to any risks of any kind, such as operational risks, market risks or credit risks

- Dar Al-Shifa'a for the Manufacturing of Pharmaceuticals. (PHARMACARE)

The company has adopted a policy according to the areas of investment in which it operates in. As the company's management decided to invest only in the pharmaceutical sector, it has therefore focused all its local investments in the company's fixed assets and facilities, In addition, in order to distribute the risks and not focus all the company's investments

locally, the company decided to invest in other countries which are more stable, So this diversification policy in investment reduces the risks and special effects arising from working in one and completely unstable country, and opens up great prospects for the company in new promising markets.

2.3 C - Connection between ERM and Pharmaceutical Industry

The pharmaceutical industry is obliged with compliance regulations related to safety, quality, patenting, and testing. In addition, they are continuously pulled down by strong environment challenges, including healthcare restructurings, administration requirements, customer demands, market trends, and global competition. (Stair, 2011).

The existence of ERM offers an excellent opportunity for entities to handle complex circumstances efficiently. The framework acts as a centralized platform to establish connectivity between multiple departments, thus leading to the optimization of workflow and enhancement of business efficiency. Therefore, the integration of the framework will enable the pharmaceutical companies to restructure their production process while also preserve compliance with the overall regulations. (Ibrahim, Diibuzie, Abubakari, 2017).

The pharmaceutical industry can attain greater flexibility with the capabilities of the framewok. As consumers seek high quality products at affordable prices, companies have to reduce costs and maximize efficiency to remain relevant in the market. The integration of ERM framework with the company's processes help in achieving new capabilities, including:

A. Regulatory Compliance

ERM empowers companies to achieve business growth, helping them meet the necessary quality and compliance requirements, in addition to industry standards and government regulations.

B. Inventory Management

ERM reduces material wastage and efficiently monitor the inventory management process. It allows to plan the production material requirements, and set specific goals for procurement and replenishment. It can also help in formulating accurate inventory status reports.

C. Quality Control

ERM enables companies to improve the production standards and manufacture high quality products, by allowing them to overcome compliance challenges and experience growth in the market. The framework accommodates regular quality control tests, results tracking, and application of corrective action.

D. Sales and marketing

ERM helps sales and marketing teams to streamline sales order. It can assess customer records and create effective sales quotations, therefore enhancing marketing workflows.

E. Document Management

For the legal and compliance regulations, the ERM facilitates audit checks, and document analysis, for it provides a centralized database for information to be stored and accessed seamlessly by different departments.

Chapter Three: Study Methodology

3.1 Study Designs

Descriptive Design:

The study design refers to the procedures and framework that were used in addressing the study objectives. This study employed the descriptive study design in collecting information and enquiring the effect of adopting ERM Framework on the financial performance of pharmaceutical companies in Palestine.

Exploratory Design:

In addition, this study has adopted the exploratory study design to provide insights and investigate whether effective ERM implementation improves a company's performance or not.

Correlational Analytical Design

The main objective is to create a reliable ERM measurement model that can be standardized. This ERM measurement is used to study the relationship between the study variables with verifiable data collection and analysis through the scientific methods. Therefore, a correlational analytical study design was employed to collect data related to the theoretical aspect, and to investigate the correlation between the variables. (Kirshenblatt, 2006).

3.2 Study Theory

This study viewed the study design from the boarder standpoint of the epistemological perspective. Since this study is descriptive and exploratory in design, it seeks to verify the data and assessing its validation from a scientific based approaches, and adopting previously tested models and concepts. Therefore, the best appropriate epistemological approach for the study in proving the effect of ERM on the financial performance of the Pharmaceutical

companies is adopting the positivism theory that assumes that only evidences derived from the scientific method can make legitimate knowledge claims. It also assumes that the studyer is separate from and not affecting the outcomes of study (Lander, 2009).

In addition, positivism is based on empiricism, therefore the verified data (positive facts) are received as empirical evidence. And this can be evident in the empirical study models that aim to measure the study variables in multivariate data analysis techniques.

3.3 Study Population

The population consists of the individuals or elements about which information is desired (Kothari, 2004), it is important to collect a appropriate population size that allows statistical analysis, and since this study is conducted for the Pharmaceutical companies in Palestine, the population of this study is mainly the Pharmaceutical companies listed in Table 2 which are five companies, that are also listed in the Palestine Exchange. However, some limitations were faced in obtaining the financial and administrative statements of The Middle East Pharmaceutical and Cosmetics Laboratories Ltd (Also known as MEGA PHARM Company), and other relatively small pharmaceutical companies that the selection criteria doesn't apply on. Therefore, they were omitted from the analysis, which yields to only 4 Pharmaceutical companies, with percentage (80%) in Pharmaceutical sector.

3.4 Study Variables

Since this study examines how the usage and implementation of Enterprise Risk Management Framework will affect the financial performance of the Pharmaceutical companies in Palestine, there are many factors that have direct and indirect effect on this study and they are as the following:

3.4.1 Independent Variable

COSO ERM Framework – Helix 2017.

3.4.1.1 Measuring ERM Framework

Market-Book (MB) ratio: This ratio measured the market characteristics and the risks of stock volatility and valuation that the company might be exposed to. It applied to signify how much equity investors are paying for each dollar in net assets. A positive sign is predicted on the estimated coefficient representing the fact that investors value favorably the companys adopting ERM as risk management strategy. (Rao, 2017, CFI Education, 2015).

MB Ratio = Closing Price of the stock / Book Value per share

Opaque: Pottier and Sommer (2006) explain that “relatively opaque companys are those that are harder for outsiders to evaluate”. Liebenberg and Hoyt (2003) argue that “companys that are relatively more opaque should originate greater benefits from ERM plans that communicate risk management objectives and strategies to outsiders”. Pagach and Warr (2010) hypothesize that “ERM adoption is related to the opacity of a company's assets because assets that are relatively more opaque are more difficult to liquidate to prevent financial distress”, therefore this variable helps to detect internal environment of the company. The ratio predicts a positive relation between opaque and ERM, due to the fact that more opaque companys have illiquid asset structure and thus are more prone to risk exposure.

Opaque Ratio= Intangible Assets / Book Value of Total Assets

Slack (Liquidity): Slack implies financial liquidity. ERM companys may have higher levels of financial slack due to the emphasis of financial distress reduction. ERM users may also be able to reduce the level of financial slack because of enhanced risk management (Pagach and Warr, 2010). Thus, the direction of the relation is ambiguous.

Slack = Cash & Marketable Securities / Total Assets

3.4.2 Dependents Variables

Financial Performance for the Pharmaceutical companies in Palestine for the period of 2016 – 2020.

3.4.2.1 Measuring Financial Performance

□ **Turnover Ratios:** also known as activity ratios. This type of ratios specify the efficiency with which an company's resources are utilized.

Capital Turnover Ratio: It indicates the company's efficiency in managing the financial resources, and how efficiently the company is managing the capital invested by shareholders to generate revenues. If the ratio is high, it shows that the company is efficiently utilizing the amount of capital invested. In contrast, if the ratio is low, then it indicates that the company is not managing its capital investment efficiently to generate the required revenue (Thakur, 2021). This ratio is calculated as a ratio of total sales divided by the total amount of stockholder's equity.

Capital Turnover Ratio = Total Gross Sales / Owner's Equity

Assets Turnover Ratio: This ratio measures how efficiently a company is utilizing its assets and resources, it reveals the number of times the net tangible assets are turned over during a year. The higher the asset turnover ratio, the more efficient a company is at generating revenue from its assets. Conversely, if a company has a low asset turnover ratio, it indicates it is not efficiently using its assets to generate sales. (Hayes, 2021).

Asset Turnover Ratio Formula = Net Sales/ Average Total Assets

Inventory Turnover Ratio: It is used to measure the number of sales generated from its inventory and how efficiently the inventories in the company are used. It is a good

ratio to measure the efficiency of utilizing resources in the company. (CFI Education, 2021).

Inventory Turnover Ratio = Cost of Goods Sold / Average Inventory.

□ **Operating Profitability Ratio Analysis:** It measures the profitability of a company through the efficiency of business activity. It also analyzes risk and predicts the future growth.

Return on Equity (ROE) : is an indicator of how profitable the company is relative to its equity. It is measured by the ratio of the net profit to the Shareholder's Equity. ROE provides a better understanding of how well a company uses every unit of shareholders' equity to efficiently use its income. (Sithipolvanichgul, 2016).

Return on Equity = Net Profit / Shareholder's Equity.

Return on Average Assets (ROA) : It is an indicator of how profitable a company is relative to its total assets by providing a better understanding of how the company uses its assets to generate income. The sign on this determinant is mixed. Positive sign indicates companies have resources to implement ERM initiatives, where negative sign states that adoption of ERM involved significant capital expenditure resulting in reduced profitability. We expect a positive relation between ROAA and Financial Performance. (Sithipolvanichgul, 2016) (Roa, 2017).

Return on Average Asset = Net Profit / Average Total Asset

Price Earnings Ratio (PE) : This determinant represents the time over which the company needs to sustain its current earnings in order to make enough money to pay back the current share price. A high PE ratio specifies that investors are expecting higher growth of company's earnings in the future. A low PE ratio may indicate either

that a company may currently be undervalued or that the company is doing remarkably well relative to its past trends. (Fernando, 2021).

Price Earnings Ratio: Market Price / Earnings Per Share (EPS).

□ **Business & Financial Risk Ratios:** it measures how sensitive is the company's earnings are with respect to the debt on the balance sheet.

Financial Leverage: is the percentage change in Net profit relative to Operating Profit, and it measures how sensitive the Net Income is to the change in Operating Income (Earnings before Interest and Taxes). Financial leverage mainly originates from the company's financing decisions (Carlson, 2019).

Financial Leverage formula = % change in Net Income / % change in EBIT.

Leverage (DE): companies dealing with ERM may have less leverage if they decided to lower their probability of financial distress by decreasing financial risk. However, companies may consider that due to ERM, they are able to undertake greater financial risk. Pagach and Warr (2010) suggest that the relation between ERM adoption and leverage is unclear.

On the one hand, financial leverage enhances company value to the extent that it reduces free cash flow (Jensen, 1986). On the other hand, leverage can increase the probability of financial distress and costs. Thus, the predicted sign on this variable is ambiguous.

Debt Equity Formula = Book Value of Liabilities / Shareholder's Equity.

Debit to Asset Ratio: is a leverage ratio that indicates the percentage of assets that are being financed with debt. The higher the ratio, the greater the degree of leverage and financial risk. It is used to determine the overall risk of the company (CFI

Education, 2015). Companies with a higher ratio are more leveraged, and therefore riskier to invest in.

Debt to Asset Ratio= Total Liabilities / Total Assets.

3.4.3 Control Variables

Control variables refer to variables whose effects on an outcome variable are statistically adjusted in order to estimate causal effects of an explanatory variable (Mehta, 2015). Based on the literature available, the study has examined control factors that may influence the relationship between ERM framework and company performance. The rationale underlying each factor is developed below.

3.4.3.1 Measure Control Variables

- **Market Share:** The market share of the company is used as a control variable to control the effect of industry. It can be expected that a company with a higher market share will have more competition in its industry and benefit from cost effectiveness. Therefore, the market share variable positively relates to the company's value. Market share is defined as the company's sale divided by the total sales of the industry (Gordon et al., 2009).

Market Share = Sales of Company / Total Sales of industry

- **Growth:** Average annual growth rate (AAGR) is the average increase in the value of an individual investment, portfolio, asset, or cash stream over the period of a year. (Hayes, 2021). A company's assets growth rate for year t is defined as the percentage change in total assets from fiscal year 2 to fiscal year 1.

Growth Rate = (Total assets 1 – total assets 2) / total assets 1

- **Corporate Governance:** This condition reflects active BOD and audit committee supervision in mitigating risks. Yermack (1996) used factors such as board size and existence of audit committees to measure the impact on Financial Performance. In

this study, an analysis of the percentage of shares owned by BOD and first degree relatives to the total shares outstanding are analyzed and assessed to the level of controllership in each company. This ratio represents that if the corporate governance percentage is high, a conflict of interest exists and the managerial decisions are taken to the benefit of the BOD and management. Therefore this ratio tests internal involvement and how it impacts the financial decision and financial performance.

Corporate Governance = the number and percentage of shares owned by BOD members to the total outstanding shares of the company.

3.5 Study Questions

This section is intended to formulate the main questions that the study tries to examine in view of the motivations listed above and the state of literature that were collected. It is essential to point out at this point that the gathered data for this study were collected in view of these questions. They are divided into the subsections as detailed below:

1. **H₁**: Is there any significant effect of adopting ERM Framework on Capital Turnover Ratio ?
2. **H₂**: Is there any significant effect of adopting ERM Framework on Assets Turnover Ratio ?
3. **H₃**: Is there any significant effect of adopting ERM Framework on Inventory Turnover Ratio ?
4. **H₄**: Is there any significant effect of adopting ERM Framework on Return on Equity ?
5. **H₅**: Is there any significant effect of adopting ERM Framework on Return on Average Assets ?
6. **H₆**: Is there any significant effect of ERM components & adoption of ERM Framework on Price Earnings Ratio ?
7. **H₇**: Is there any significant effect of ERM components & adoption of ERM Framework on Financial Leverage ?
8. **H₈**: Is there any significant effect of ERM components & adoption of ERM Framework on Leverage ?

9. **H₉**: Is there any significant effect of ERM components & adoption of ERM Framework on Debt to Asset Ratio ?

3.6 Study Models

3.6.1 Empirical Model

In order to empirically test the study questions, it is important to collect data that is relevant and can assess the relationship between the framework and financial performance. This study followed (Buleje, 2014) (Rao, 2017) for formulas and estimated regression of multiple financial performance ratios, and applied three key qualifications for the analysis of impacts as follows: Performance Turnover Ratios, Profitability Ratios, and Risk Ratios. In this model, the variables of the study will be presented as they were measured in the previous section, both through proxy and index methods.

3.6.1.1 Proxy Method

Most methodologies have used ERM proxy, such as ERM Keywords, as an indicator of ERM existence and implementation within the company (Hoyt and Liebenberg, 2003 & 2011). In this study, detailed search for the keywords that are relevant to ERM Framework and Control Variables was followed, and examine the existence of other conditions that are under ERM definition. According to (Rao, 2017), the ERM metric in this study is proxied as an indicator variable where the check mark refers to the existence and adoption of ERM initiatives by the Pharmaceutical companies who have met any one of the following conditions. The keywords included the following phrases, their abbreviations, as well as individual words or phrases within the same paragraph are described in the below table:

Table 5: Proxy Method Indicators

#	Nature of Condition	What the condition reflects ?
1	If the company has derivative products under Assets & Liabilities	This conditions reflect active implementation of risk reducing instruments such as derivatives (like Options, Futures, SWAPs, off balance sheet commitments) to manage financial and operational risks of the company.
2	ERM & Control Variables Keywords	Enterprise risk management, Chief Risk Officer, Risk Committee, Strategic Risk Management, Efficient Utilization of Resources.

The search for the above conditions will mainly be in the company's Annual Reports, Management Discussion and Analysis (MD&A), as well as notes to the financial statements. A proxy search might not measure different stages of ERM implementation in the company. However, it is a good evidence of the existence of ERM activities and determinants within the company.

3.6.1.2 Index Method

Previous researchers have developed a new ERM measurement called the ERM index (Mikes and Kaplan, 2013). The ERM index was formed by using the study variables in ERM specific components and secondary data to reach to the desired ERM equation, where the dependent variables are measured by using the independent and control variables. This method reflects the quantitative relationship between the framework and the financial performanceas, in the following equations:

$$\begin{aligned}
 Cap_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C. G_{it} \\
 & + B_5 G. R_{it} \\
 & + B_5 M. S_{it} \\
 & + \epsilon_{it}
 \end{aligned}
 \tag{1}$$

$$\begin{aligned}
Ass_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} \\
& + B_5 M.S_{it} \\
& + \varepsilon_{it}
\end{aligned} \tag{2}$$

$$\begin{aligned}
Inv_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} \\
& + B_5 M.S_{it} \\
& + \varepsilon_{it}
\end{aligned} \tag{3}$$

$$\begin{aligned}
ROE_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} + B_5 M.S_{it} + \varepsilon_{it}
\end{aligned} \tag{4}$$

$$\begin{aligned}
ROA_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} \\
& + B_5 M.S_{it} \\
& + \varepsilon_{it}
\end{aligned} \tag{5}$$

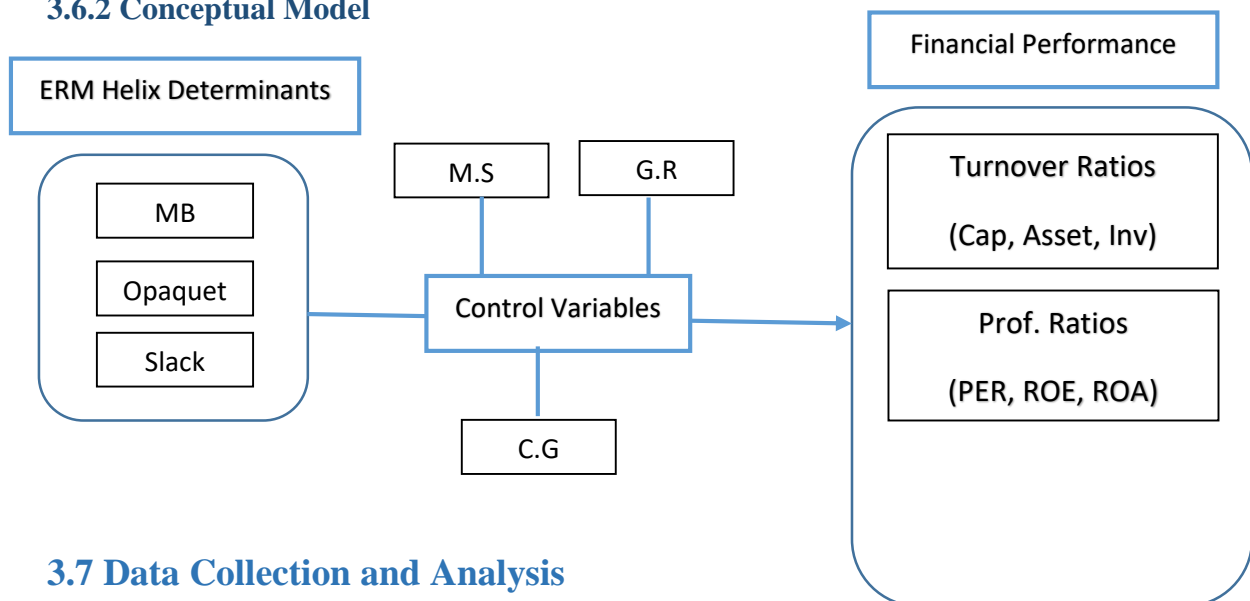
$$\begin{aligned}
PER_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} \\
& + B_5 M.S_{it} \\
& + \varepsilon_{it}
\end{aligned} \tag{6}$$

$$Fin Lev_{it} = B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} + B_5 G.R_{it} + B_5 M.S_{it} + \varepsilon_{it} \quad (7)$$

$$DE_{it} = B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} + B_5 G.R_{it} + B_5 M.S_{it} + \varepsilon_{it} \quad (8)$$

$$OP Lev_{it} = B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} + B_5 G.R_{it} + B_5 M.S_{it} + \varepsilon_{it} \quad (9)$$

3.6.2 Conceptual Model



3.7 Data Collection and Analysis

The data sources for this study came from both primary and secondary data. For the secondary data, the sources are in the form of the published annual financial statements and administrative reports of the listed Pharmaceutical companies on the Palestine Exchange during (2016-2020), in addition to the company's official website. Furthermore, reports from the Palestinian Central Bureau of Statistics (PCBS) and COSO website were also beneficial.

For the primary sources, as in researches, thesis, and articles that specifically explained the effect of adopting and implementing ERM Framework within the Pharmaceutical companies in specific, and other industries in general, whether locally or internationally. This help in getting a thorough understanding of the study problem from different perspectives.

In order to test the effect of ERM components & adoption of ERM framework on the financial performance of four companies during the period from 2016 to 2020, panel regression models were used. Since the repetition of a unit, companies, and time are the primary basis to deal with in the analysis, the panel data approach is considered more reasonable, since it is suitable to use in studying the behavior of individual units as well as over different time periods.

There are three main types for panel data models: pooled regression model (PLS); fixed effect regression model (Fe) and random effect regression model (Re). The equation of the panel data regression model can be written as follows:

$$Y_{it} = B_{0i} + \sum_{j=1}^k B_j X_{jit} + \epsilon_{it} \quad (i = 1, 2, \dots, N; t = 1, 2, \dots, T; j = 1, 2, \dots, K)$$

Where Y_{it} is the dependent variables in company i during t period, X_{it} represent the independent variables at time t and company i , and ϵ_{it} represent the error term in the models, while B_{0i} and B_j represents the scalar constant and regression coefficient respectively.

Pooled regression model is one type of model that has constant coefficients, referring to both intercepts and slopes. For this model, researchers can pool all of the data and run an ordinary least squares regression model. The equation of the pooled regression model can be written as follows:

$$Y_{it} = B_{0i} + \sum_{j=1}^k B_j X_{jit} + \epsilon_{it} \quad (i = 1, 2, \dots, N; t = 1, 2, \dots, T; j = 1, 2, \dots, K)$$

With assumed $E(\varepsilon_{it}) = 0$, $\text{var}(\varepsilon_{it}) = \sigma_{\varepsilon}^2$

Fixed effect model for a particular individual i , means that the factors do not change with time. In other words, the fixed effect model study the relationship between predictor and outcome variables within an company. The equation of the fixed effect regression model can be written as follows:

$$Y_{it} = B_{0i} + \sum_{j=1}^k B_j X_{jit} + \varepsilon_{it} \quad (i = 1, 2, \dots, N; t = 1, 2, \dots, T; j = 1, 2, \dots, K)$$

With assumed $E(\varepsilon_{it}) = 0$, $\text{var}(\varepsilon_{it}) = \sigma_{\varepsilon}^2$, and B_0 for all companies doesn't change over time, but it change over unites or companies.

While the random effect model handles the intercept for each section not as fixed, but as random parameters as follows:

$$B_{0i} = \mu + v_i$$

Also, the random error term in the random effect model is divided into two parts, one part is the error term (ε_{it}) that does not change with time, and the other part is the error term (v_i) that changes with time, as follows:

$$Y_{it} = \mu + \sum_{j=1}^k B_j X_{jit} + v_i + \varepsilon_{it}$$

With assumed $E(\varepsilon_{it}) = 0$, $\text{var}(\varepsilon_{it} + v_i) = \sigma_{\varepsilon}^2 + \sigma_v^2$.

To choose the sufficient model to answer the study questions, two stages of tests were used. First, Breusch and Pagan LM test was applied to choose the sufficient model between the RE pooled regression models. If the p-value of this test is more than (0.05), pooled model will be used, while if p-value of this test is less than (0.05), then Hausman test will be used to select a fixed effect model or a random effect model for panel data. If the null hypothesis

is accepted (p -value of this test is more than 0.05), then the random effect model should be adopted, and if the null hypothesis is rejected, then the fixed effect model should be adopted.

Finally, before performing the estimation and statistical analysis, the model must be diagnosed. The main five diagnostic tests which should be conducted before analyzing the data are:

- The stationarity test
- Multicollinearity test
- Autocorrelation
- Heteroscedasticity

3.8 Normal Distribution & Test Outliers Value

This study contains nine models to study the effect of adopting ERM Framework on the financial performance of pharmaceutical companies in Palestine.

In panel models analysis, the data should not have an outlier, which is the first assumption to apply. In order to evaluate the existence of outliers, skewness and kurtosis value was used, the skewness measures the asymmetry of the distribution of variables, while the kurtosis is a measure for the peakedness of a distribution (Mehmetoglu & Jakobsen, 2017). The absolute values for skewness less than (2) and kurtosis less than (9) are considered acceptable, in other word the data do not have an outlier (Schmider et al, 2010).

According to the result in table (5), the skewness and kurtosis values of all variables, which are Assets Turnover Ratio, Return on Equity, Return on Average Assets, Price Earnings Ratio, Market Share, Growth, Corporate Governance, Market-Book Ratio, Opaque Ratio, Slack Ratio, Capital Turnover Ratio, Inventory Turnover Ratio, Debit to Asset Ratio and Leverage, are less than the cut off values (skewness (2) and kurtosis (9)), while the kurtosis

and skewness values of financial leverage are more than the cutoff values. In order to minimize the outliers of financial leverage, Winsorizing Method at 5% is considered. (Rousseeuw & Leroy, 1987).

Checking for the data normality is imperative in deciding which correlation matrix has to be applied when assessing the multicollinearity. According to Brooks (2014), the normality assumption is also important for conducting single or joint hypothesis tests regarding the model parameters, but isn't an assumption to apply the panel models. As shown in table 7 and through using Shapiro Wilk test, Market-Book Ratio, Assets Turnover Ratio, Return on Equity, Return on Average Assets, Capital Turnover Ratio, Inventory Turnover Ratio and Debit to Asset Ratio were in normal distribution, while all the other variables were not in normal distribution. Consequently, Spearman correlation matrix was applied to show the correlations among variables to test the multicollinearity between independent variables.

Table 6: Normal distribution & test outliers value

Variable	skewness	kurtosis	z-test	P-value
MB Ratio	-0.15	1.63	1.27	0.10
Opaque Ratio	0.84	1.94	3.67	0.00**
Slack	1.82	5.46	3.60	0.00**
Capital Turnover Ratio	0.51	3.50	0.78	0.22
Assets Turnover Ratio	-0.24	2.26	-0.52	0.70
Inventory Turnover Ratio	0.65	2.45	1.01	0.16
Return on Equity	0.46	2.54	-0.31	0.62
Return on Average Assets	0.34	2.08	0.56	0.29
Price Earnings Ratio	1.29	3.54	2.90	0.00**
Financial Leverage	4.04	17.60	5.57	0.00**
Debit to Asset Ratio	1.51	4.15	3.46	0.00**
Leverage	0.88	2.43	2.36	0.01**
Market Share	-1.13	3.82	2.84	0.00**

Growth	-0.96	5.77	1.76	0.04**
Corporate Governance	1.01	2.21	3.60	0.00**

** represents statistical significance at 5% level. **Source:** output of Stata software 12

Chapter Four: Results and Recommendations

4.1 Introduction

This chapter contains the presentation of data analysis and testing by answering the study questions. Stata v.12 program was used to obtain the results of the study that will be presented and analyzed in this chapter.

4.2 Proxy Method Analysis

The proxy for ERM Framework was the appointment of a ERM Keywords or finding synonymous phrases, abbreviations, or individual words within the same paragraph as mentioned in table (5) that were equivalent to ERM. A proxy indicator is an indirect sign or measure that can estimate or can be representative of a phenomenon without the presence of a direct sign or measure. From the detailed search and content analysis in the companies' Financial and Administrative annual statements, as well as notes to the financial statements from the period 2016 to 2020. It was found that the existence of the certain conditions and keywords that reflect the adoption and implementation of ERM framework is evident. The Pharmaceutical companies have taken into consideration the risks that they might face in their operations, and worked towards mitigating them. In the following table, the existence of the two proxy conditions among the Pharmaceutical companies is represented as the following:

Table 7: Proxy Method Results

#	Nature of Condition	What the condition reflects ?	BJPC	BZPC	JPC	Pharma Care
1	If the company has derivative products under Assets & Liabilities	These conditions reflect active implementation of risk reducing instruments such as derivatives (like Options, Futures, SWAPs, off balance sheet commitments) to manage financial and	✓	✓	✓	✓

		operational risks of the company.				
2	ERM & Control Variables Keywords	Enterprise risk management, Chief Risk Officer, Risk Committee, Strategic Risk Management, Efficient Utilization of Resources.	✓	✓	✓	✓

A proxy search does not measure different levels of ERM implementation in the company, however it indicates the existence of risk strategies the company is using to define and mitigate the risks that the company are exposed to. (Liebenberg and Hoyt, 2003 & 2011, Sithipolvanichgul, 2016, Rao 2017).

4.3 Index Method Analysis

Under the index method, the employment of financial measurements and ratio analysis from secondary data helped in creating statistical equations to quantitatively measure the study variables and relationship among them for the period of (2016 – 2020). Relating to the literature overview in this study, this method was previously adopted and used by (Sithipolvanichgul, 2016, Rao 2017). Under this section, both ERM and Financial performance description will be further presented in analysis.

4.3.1 Financial performance description of the Pharmaceutical sector in Palestine

This section displays the descriptive statistic of financial performance for the pharmaceutical sector in Palestine for the period of (2016-2020). The financial performance was measured in this study by Turnover Ratios, Operating Profitability Ratios, and Business & Financial Risk Ratios. In Figure 4, the development of six different ratios of financial performance

between the period (2016-2020) is displayed. For Turnover Ratios, the result indicates that mean value of inventory turnover ratio was higher than the other turnover ratios (Assets Turnover Ratio, Capital Turnover Ratio) during the study period. Also, the mean value of Inventory Turnover Ratio was decreased in 2017 to (1.66) compared to (1.96) in 2018. On other hand, the mean value of Capital Turnover Ratio is higher than mean value of Assets Turnover Ratio during the same period, and these values were ranged between (0.58-0.72) and (0.33-0.41) respectively, (see appendix1). Furthermore, Figure 5 clarifies that the mean value of Price Earnings Ratio is higher than the mean of Return on Average Assets and Return on Equity during the study period in general. Also, the mean value of Price Earnings Ratio in Palestine declined in 2017 to (10.48%) compared to (12.80%) in 2018, and then slow up increased until 2020 to achieve the highest mean value during the same period (15.01), while the Return on Average Assets and Return on Equity have the same trend, and the mean values of them were ranged between (5.74-9.57) and (7.82-12.13) respectively.

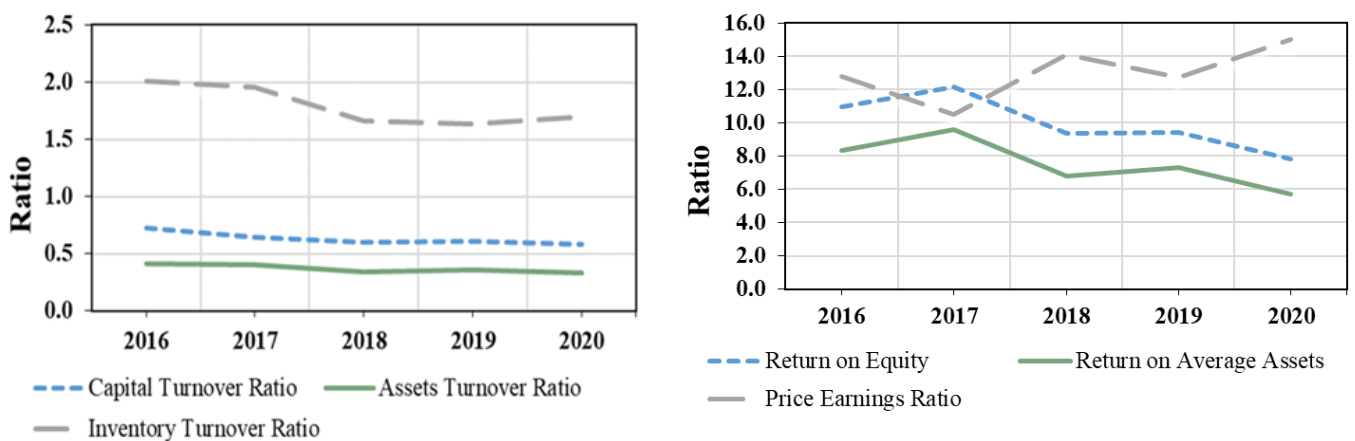


Figure 4: Average of the operating profitability and turnover ratios during (2016-2020)

In addition, Figure 5 indicates that the mean value of financial leverage is higher than the other two ratios that measured Business & Financial Risk Ratios during (2016-2018), and the maximum value of it was (2.41) in 2018, also the mean value of leverage are ranged between (0.39-0.52), and the mean value of Debt to Asset Ratio was ranged between (0.27-0.29) (see appendix 1).

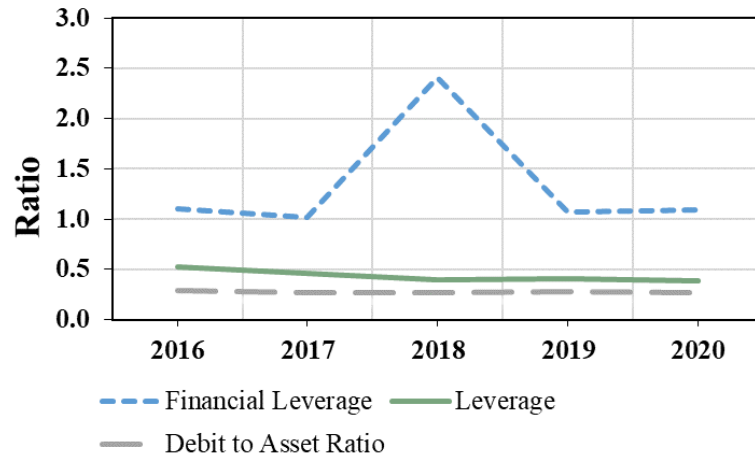


Figure 5: Average of the business & financial risk ratios during (2016-2020)

4.3.2 Operational Performance description of the pharmaceutical sector in Palestine

Three indicators (Market-Book Ratio (MB), Opaque, Slack) represent the ERM framework execution level in this study, figure 6 displayed the development of these indicators during (2016-2020). The result in figure 6 clarifies that the mean value of Opaque Ratio is the largest compared with MB ratio and Slack during (2016-2020), and the mean value of it was ranged between (1.44-1.96), in 2019 Opaque get the highest value during the same period (1.96). Also, the mean value of MB ratio was ranged between (1.32-1.47) and the mean value of Slack was ranged between (0.02-0.08).

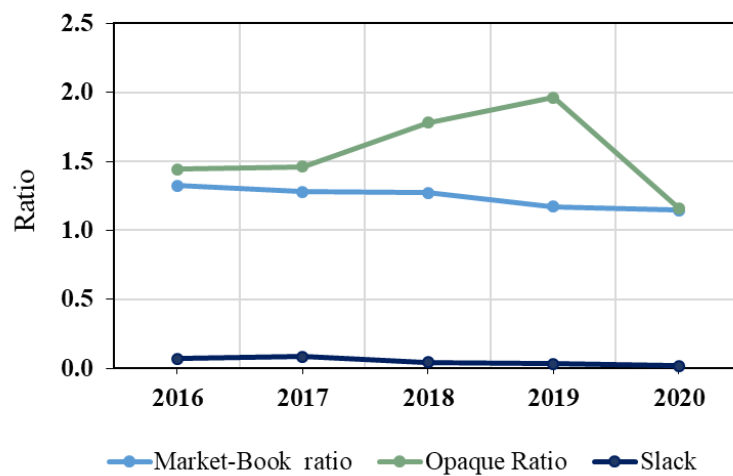


Figure 6: Average of the ERM framework indicators during (2016-2020)

4.4 The diagnosis tests of panel models

In general, before performing the estimation and statistical analysis, the model must be diagnosed. This section represents the diagnostic checks for panel data. The main five diagnostic tests which should be conducted before start analyzing the data are the stationarity test and Multi-collinearity test for the study's data. Autocorrelation and heteroskedasticity will be tested as well.

4.4.1 Panel unit root test for stationarity

Harris–Tzavalis test was used to test the panel unit root which indicates that Assets Turnover Ratio, Return on Equity, Return on Average Assets, Price Earnings Ratio, Financial Leverage, Market Share, Growth, and Corporate Governance are stationary, while Market-Book Ratio, Opaque Ratio, Slack, Capital Turnover Ratio, Inventory Turnover Ratio, Debit to Asset Ratio, and Leverage are nonstationary. But this is not a problem in this study because in panel series when the period is more than 10 years, there is always effect of instability variables on the result (Oppong et al., 2019) and in this study the period is 5 years only.

Table 8 : Panel Unit Root test results for all variables.

Variable	z-test	P-value
MB Ratio	-1.375	0.0845*
Opaque Ratio	0.790	0.785
Slack	1.399	0.919
Capital Turnover Ratio	-0.715	0.237
Assets Turnover Ratio	-1.669	0.048**
Inventory Turnover Ratio	-1.238	0.108
Return on Equity	-2.271	0.012**
Return on Average Assets	-1.847	0.032**
Price Earnings Ratio	-3.848	0.000***

Financial Leverage-w	-2.486	0.007***
Debit to Asset Ratio	0.719	0.764
Leverage	-0.447	0.327

Table 9 : Panel Unit Root test results for all variables.

Variable	z-test	P-value
Leverage	-0.447	0.327
Market Share	-2.218	0.013**
Growth	-3.259	0.000***
Corporate Governance	-4.013	0.000***

Note: Harris–Tzavalis Panel Unit Root test including the z-statistic and P-value.

***, ** and * represents statistical significance at 1%, 5% and 10% levels, respectively. **Source:** output of Stata software 12

4.4.2 Multi-collinearity test

To test the Multi-collinearity, correlation coefficient and Variance Inflation Factor (VIF) were used. Kennedy (1985) suggested that a correlation coefficient between two independent variables in the same model of more than (0.8) shows the existence of multi-collinearity, which is a serious problem. According to the result in table 10, Spearman correlation values between pairwise variables are less than (0.8), this indicates that multi-collinearity doesn't cause any problem among variables. Ringle et al. (2015) recommended that, multi-collinearity is a concern if VIF value is greater than 5. Since the result in table 11 indicates that all VIF values of independent variables are less than 5, then this refers that the Multi-collinearity problem doesn't exist.

Table 10 : Spearman Correlation matrix for the independent and control variables

	C.G	G.R	M.S	MB	Opaquet	Slack	VIF
C.G	1.000						
G.R	-0.118	1.000					
M.S	-0.236	0.051	1.000				
MB	0.419*	0.095	-0.409*	1.000			2.35

Opaquet	-0.028	0.372	-0.212	-0.361	1.000		1.75
Slack	0.336	0.382*	-0.331	0.516**	0.085	1.000	2.11

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.
Source: output of Stata software 12

4.4.3 Autocorrelation Test

Autocorrelation problem causes the standard errors of the coefficients to be smaller than they actually are, in addition to a higher R-squared results, and it is a problem for macro panels with long time series. In this study, the panels are micro. The Wooldridge (2010) test of autocorrelation was applied, and the results confirmed the existence of first-order autocorrelation (see table 11). The autocorrelation problem is dealt with the models recommended by Hoechle (2007).

Table 11 : Autocorrelation test for study models

	Study Models	F-test	Sig.
H_1	Effect of adoption of ERM Framework on Capital Turnover Ratio	24.50	0.016**
H_2	Effect of adoption of ERM Framework on Assets Turnover Ratio	24.50	0.016**
H_3	Effect of adoption of ERM Framework on Inventory Turnover Ratio	24.50	0.016**
H_4	Effect of adoption of ERM Framework on Return on Equity	24.50	0.016**
H_5	Effect of adoption of ERM Framework on Return on Average Assets	24.50	0.016**
H_6	Effect of adoption of ERM Framework on Price Earnings Ratio	24.50	0.016**
H_7	Effect of adoption of ERM Framework on Financial Leverage	24.50	0.016**
H_8	Effect of adoption of ERM Framework on Leverage	24.50	0.016**
H_9	Effect of adoption of ERM Framework on Debit to Asset Ratio	24.50	0.016**

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.
Source: output of stata software 12

4.4.4 Heteroskedasticity Test

Heteroskedasticity refers to the situations where the variance of the residuals is unequal over a range of measured values. Breusch-Pagan / Cook-Weisberg test was used to check the heteroscedasticity, and the results in table 13 indicate that the models of studying the effect

of ERM Framework adoption on Financial Leverage, Leverage, and on Debit to Asset Ratio infer the presence of heteroskedasticity, since the p-value is less than the significant level ($\alpha=0.05$). Robust standard error (Rogers, 1993) estimates applied in order to deal with heteroscedasticity problem in the models.

Table 12: Heteroscedasticity test for research models

Study Models		χ^2	Sig.
H_1	Effect of adoption of ERM Framework on Capital Turnover Ratio	1.29	0.255
H_2	Effect of adoption of ERM Framework on Assets Turnover Ratio	2.98	0.084
H_3	Effect of adoption of ERM Framework on Inventory Turnover Ratio	0.90	0.344
H_4	Effect of adoption of ERM Framework on Return on Equity	0.36	0.548
H_5	Effect of adoption of ERM Framework on Return on Average Assets	0.52	0.469
H_6	Effect of adoption of ERM Framework on Price Earnings Ratio	2.36	0.124
H_7	Effect of adoption of ERM Framework on Financial Leverage	3.92	0.048**
H_8	Effect of adoption of ERM Framework on Leverage	6.98	0.008***
H_9	Effect of adoption of ERM Framework on Debit to Asset Ratio	4.88	0.027**

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.

Source: output of Stata software 12

4.5 Result of study questions

This section has been devoted for testing the study models of the questions through estimating the effects of independent variables, which are the ERM framework along with other control variables, that may have effect on this relation on the dependent variable which is the financial performance, that is measured by nine indicators, three of them are related to Turnover Ratios, three of them are related to Operating Profitability Ratio analysis, and three of them are also related to Business & Financial Risk Ratios. The regression model that represents the variables relationship is multiple regression, applied through using Panel data for four companies over the period of (2016-2020).

4.5.1 The effect of the ERM framework on Turnover Ratios

In this section, the intention is to investigate the possibility of building a regression model to test the first three questions that focused on the effect of ERM components & adoption of

ERM framework on the financial performance, that was measured by Turnover Ratios, of the Pharmaceutical companies in Palestine, which are stated as the following:

H₁: Is there any significant effect of adopting ERM Framework on Capital Turnover Ratio?

H₂: Is there any significant effect of adopting ERM Framework on Assets Turnover Ratio ?

H₃: Is there any significant effect of adopting ERM Framework on Inventory Turnover Ratio ?

According to the result of Breusch and Pagan LM test, Pooled regression model was applied to test the questions (see table 13), since the p-value of Breusch and Pagan LM test was less than 0.05. This result was expected, since the population size is relatively small.

Table 13: Breusch and Pagan LM test for models that study The effect of the ERM framework on Turnover Ratios

	Study Models	χ^2	Sig.
<i>H₁</i>	Effect of adoption of ERM Framework on Capital Turnover Ratio	0.00	1.00
<i>H₂</i>	Effect of adoption of ERM Framework on Assets Turnover Ratio	0.00	1.00
<i>H₃</i>	Effect of adoption of ERM Framework on Inventory Turnover Ratio	0.00	1.00

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.

Pooled regression model was applied to test the questions, and the specification of the regression models for theses questions are as follow:

$$\begin{aligned}
 Cap_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C. G_{it} \\
 & + B_5 G. R_{it} \\
 & + B_5 M. S_{it} \\
 & + \epsilon_{it}
 \end{aligned} \tag{1}$$

$$\begin{aligned}
 Ass_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C. G_{it} \\
 & + B_5 G. R_{it} \\
 & + B_5 M. S_{it} \\
 & + \epsilon_{it}
 \end{aligned} \tag{2}$$

$$\begin{aligned}
Inv_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C. G_{it} \\
& + B_5 G. R_{it} \\
& + B_5 M. S_{it} \\
& + \epsilon_{it}
\end{aligned}
\tag{3}$$

The results in table 14 revealed to reject the first question, and confirmed the existence of a significant effect of ERM components & adoption of ERM framework on Capital Turnover Ratio ($P=0.000<0.05$) (RAZALI, YAZID & Tahir, 2011), and the dependent and control variables can explain 69.90% of the variation in Capital Turnover Ratio. Furthermore, Market Share has a negative significant effect on Capital Turnover Ratio ($p\text{-value}=0.00<0.05$), (Bradely,2017). If the Market Share increases by 1 unit, the Capital Turnover Ratio will decrease by 0.542. However, Market-Book (MB) Ratio, Opaque Ratio, Slack, Growth Rate, and Corporate Governance have no significant effect on the Capital Turnover Ratio.

On other hand, the results confirmed to reject the second question ($P=0.000<0.05$), so there is a significant effect of ERM components & adoption of ERM framework on Assets Turnover Ratio (Kleffner, Lee and McGannon 2003; Yazid, 2001), and the dependent and control variables can explain 68.07% of the variation in Assets Turnover Ratio. Market Share has a positive significant effect on Assets Turnover Ratio ($p\text{-value}=0.079<0.10$), and If the Market Share increases by 1 unit, the Assets Turnover Ratio will increase by 0.324, (Hagigi, Manzon & Mascarenhas, 1998, Brush, 2019). Also, Corporate Governance has a negative significant effect on Assets Turnover Ratio ($p\text{-value}=0.043<0.05$), If the Corporate Governance ratio increases by 1 unit, the Assets Turnover Ratio will decrease by 0.002. (Mohan & Chandramohan, 2018, Huu Nguyen, Thuy Doan & Ha Nguyen, 2020,). However,

Market-Book (MB) Ratio, Opaque Ratio, Slack Ratio, and Growth Rate have no significant effect on Assets Turnover Ratio.

In addition, there is a significant effect of ERM components & adoption of ERM framework on Inventory Turnover Ratio ($P=0.000<0.05$), so the third question is rejected and the dependent and control variables can explain 93.21% of the variation in Inventory Turnover Ratio. Market-Book Ratio has a positive significant effect on Inventory Turnover Ratio ($p\text{-value}=0.069<0.10$), and If the Market–Book Ratio increases by 1 unit, the Inventory Turnover Ratio will increase by 0.616 (Wang, Fu & Luo, 2013). Also, Opaque Ratio has a negative significant effect on Inventory Turnover Ratio ($p\text{-value}=0.071<0.10$), and If the Opaque Ratio increases by 1 unit, the Inventory Turnover Ratio will decrease by 0.081 (Hoyt and Liebenberg, 2011 Rao, 2017). Slack ratio has a positive significant effect on Inventory Turnover Ratio ($p\text{-value}=0.021<0.05$), If the Slack ratio increases by 1 unit, the Inventory Turnover Ratio will increase by 2.157 (Pagach and Warr 2010, Rao,2017). Furthermore, Corporate Governance ratio has a positive significant effect on Inventory Turnover Ratio ($p\text{-value}=0.000<0.05$), and If the Corporate Governance ratio increases by 1 unit, the Inventory Turnover Ratio will increase by 0.01 (Zedan & Abu Nassar, 2014). However, Market Share and Growth Rate have no significant effect on Inventory Turnover Ratio.

Table 14 clarifies that the highest impact of ERM components & adoption of ERM Framework on Turnover Ratios indicators was for Inventory Turnover Ratio being (93.21%), followed by Capital Turnover Ratio at (69.90%), and then the Assets Turnover Ratio at (68.07%), which answers the main study question, that the existence and adopting of the ERM framework significantly effects the financial performance of the Pharmaceutical companies in Palestine.

Table 14: Pooled regression model of the effect of the ERM framework on turnover ratios

Variables	Capital Turnover Ratio			Assets Turnover Ratio			Inventory Turnover Ratio		
	β	Std. Err.	Sig.	β	Std. Err.	Sig.	β	Std. Err.	Sig.
Intercept	0.807	0.216	0.002***	0.401	0.1785	0.043**	0.491	0.518	0.360
MB	-0.093	0.142	0.524	-0.040	0.1332	0.768	0.616	0.310	0.069*
Opaquet	0.018	0.015	0.249	0.014	0.0130	0.312	-0.081	0.041	0.071*
Slack	-0.297	0.253	0.261	0.165	0.1968	0.417	2.157	0.821	0.021**
G.R	0.071	0.001	0.741	0.166	0.0010	0.430	0.787	0.002	0.121
C.G	0.001	0.209	0.207	-0.002	0.2043	0.043**	0.010	0.475	0.000**
M.S	-0.542	0.133	0.001***	0.324	0.1703	0.079*	0.310	0.344	0.383
Significance of model									
F-test	F(6,13)=12.38			F(6,13)=26.48			F(6,13)=44.62		
Significant	Sig.=0.000			Sig.=0.000			Sig.=0.000		
R-squared	0.6990			0.6807			0.9321		

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.

Source: output of Stata software 12

4.5.2 The effect of the ERM framework on Operating Profitability Ratio

This section displays the effect of ERM components & adoption of ERM Framework on the Operating Profitability Ratios (Return on Equity, Return on Average Assets, Price Earnings Ratio) of the pharmaceutical companies in Palestine, which are stated as the following:

H₄: Is there any significant effect of adopting ERM Framework on Return on Equity ?

H₅: Is there any significant effect of adopting ERM Framework on Return on Average Assets ?

H₆: Is there any significant effect of ERM components & adoption of ERM Framework on Price

According to the result of Breusch and Pagan LM test, Pooled regression model was tried to test the questions (see appendix 2), and the specification of the regression models for these questions as follow:

$$\begin{aligned}
 ROE_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
 & + B_5 G.R_{it} + B_5 M.S_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{1}$$

$$\begin{aligned}
ROA_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} \\
& + B_5 M.S_{it} \\
& + \varepsilon_{it}
\end{aligned} \tag{2}$$

$$\begin{aligned}
PER_{it} = & B_0 + B_2 MB_{it} + B_3 Opaquet_{it} + B_4 Slack_{it} + B_5 C.G_{it} \\
& + B_5 G.R_{it} \\
& + B_5 M.S_{it} \\
& + \varepsilon_{it}
\end{aligned} \tag{3}$$

The results table 15 indicate that there is a significant effect of ERM components & adoption of ERM Framework on Return on Equity ($P=0.000<0.05$), and the dependent and control variables can explain 60.92% of the variation in Return on Equity. Furthermore, Market-Book ratio has a positive significant effect on Return on Equity ratio ($p\text{-value}=0.083<0.10$). So, If the Market-Book increases by 1 unit, the Return on Equity Ratio will increase by 0.056 (Rao, 2017, Cordeiro da Cunha Araújo & André Veras Machado, 2018). Also, Slack has a positive significant effect on Return on Equity Ratio ($p\text{-value}=0.008<0.05$), If the Slack increases by 1 unit, the Return on Equity Ratio will increase by 0.409 (Chiu & Liaw, 2009, Agusti-Perez, M., Galan, J.L. and Acedo, F.J, 2020). Corporate governance has a negative significant effect on Return on Equity Ratio ($p\text{-value}=0.078<0.10$), If the Corporate Governance increases by 1 unit, the Return on Equity Ratio will decrease by 0.001.(Anjani & Yadnya, 2017, Ekasari & Kus Noegroho, 2020). Furthermore, results showed that Market Share has a positive effect on Return on Equity Ratio ($p\text{-value}=0.028<0.10$), (Dzingai & Fakoya, 2017, Rao, 2017). However Opaque Ratio, Slack Ratio, and Growth Rate have no significant effect on Return on Equity Ratio.

On other hand, the results confirmed to reject the second question ($P=0.000<0.05$), so there is a significant effect of ERM components & adoption of ERM Framework on Return on Average Assets, and the dependent and control variables can explain 72.30% of the variation in Return on Average Assets. Market-book has a positive significant effect on Return on Average Assets Ratio ($p\text{-value}=0.017<0.05$), If the Market-Book increases by 1 unit, the Return on Average Assets Ratio will increase by 0.069.(Al Qaisi, Tahtamouni & AL-Qudah, 2016, Mahdaleta, Muda & Nasir, 2016). Also, Slack has positive significant effect on Return on Average Assets Ratio ($p\text{-value}=0.010<0.05$), If the Slack increases by 1 unit, the Return on Average Assets Ratio will increase by 0.328. (Tan, 2003, Carnes, Xu, Sirmon & Karadag, 2018). Market Share has a positive significant effect on Return on Average Assets Ratio ($p\text{-value}=0.000<0.05$), If the Market Share increases by 1 unit, the Return on Average Assets Ratio will increase by 0.124 (Szymanski, Bharadwaj & Varadarajan, 1993, Fraering & Minor, 1994). However Opaque Ratio, Growth Rate and Corporate Governance have no significant effect on Return on Equity Ratio.

In addition, there is a significant effect of ERM components & adoption of ERM Framework on Price Earnings Ratio ($P=0.000<0.05$), so the third question is rejected and the dependent and control variables can explain 54.45% of the variation in Price Earnings Ratio. Also, Slack has negative significant effect on on Price Earnings Ratio ($p\text{-value}=0.019<0.05$), If the Slack increases by 1unit, the Price Earnings Ratio will decrease by 59.425. (LUO, LUO, GE & ZHANG, 2016, Wood, Wang, Olesen & Reiners, 2017). Market share has a negative significant effect on Price Earnings Ratio ($p\text{-value}=0.018<0.05$), If the Market Share increases by 1 unit, the Price Earnings Ratio will decrease by 13.846.

Table 15 clarifies that the highest impact of ERM components & adoption of ERM Framework on operating profitability indicators was for Return on Average Assets (72.30%), followed by Return on Equity (60.92%), and Assets Price Earnings Ratio (54.45%), which

answers the main study question, that the existence and adopting of the ERM framework significantly effects the financial performance of the Pharmaceutical companies in Palestine.

Table 15: Pooled regression model of the effect of the ERM framework on operating profitability ratios

Variables	ROE			ROA			PE		
	β	Std. Err.	Sig.	β	Std. Err.	Sig.	β	Std. Err.	Sig.
Intercept	0.019	0.046	0.678	-0.039	0.037	0.311	10.979	7.646	0.175
MB	0.056	0.030	0.083*	0.069	0.025	0.017**	4.270	4.645	0.375
Opaquet	-0.003	0.003	0.377	-0.003	0.003	0.362	0.274	0.538	0.620
Slack	0.409	0.131	0.008**	0.328	0.110	0.010**	-59.425	22.177	0.019**
C.G	-0.001	0.000	0.078*	0.000	0.000	0.195	0.058	0.049	0.260
G.R	0.003	0.058	0.965	0.028	0.046	0.552	-1.396	7.729	0.859
M.S	0.075	0.030	0.028**	0.124	0.025	0.000**	-13.846	5.104	0.018**
Significance of model									
F-test	F(6,13)=5.80			F(6,13)=15.40			F(6,13)=13.90		
Significant	Sig.=0.000			Sig.=0.000			Sig.=0.000		
R-squared	0.6092			0.7230			0.5445		

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.

Source: output of Stata software 12

4.5.3 The effect of the ERM framework on Business & Financial Risk Ratio

Three indicators of Business & Financial Risk Ratios were used to assessment the effect of the ERM framework on Business & Financial Risk Ratios, three questions were used to test them, which are stated as the following

H₇: Is there any significant effect of ERM components & adoption of ERM Framework on Financial Leverage ?

H₈: Is there any significant effect of ERM components & adoption of ERM Framework on Leverage ?

H₉: Is there any significant effect of ERM components & adoption of ERM Framework on Debt to Asset Ratio ?

According to the result of Breusch and Pagan LM test, Pooled regression model was tried to test the questions (see appendix 2), and the specification of the regression models for these questions are as the following:

$$\begin{aligned} \mathbf{Fin\ Lev}_{it} = & \mathbf{B}_0 + \mathbf{B}_2 \mathbf{MB}_{it} + \mathbf{B}_3 \mathbf{Opaquet}_{it} + \mathbf{B}_4 \mathbf{Slack}_{it} + \mathbf{B}_5 \mathbf{C. G}_{it} \\ & + \mathbf{B}_5 \mathbf{G. R}_{it} + \mathbf{B}_5 \mathbf{M. S}_{it} + \boldsymbol{\varepsilon}_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \mathbf{DE}_{it} = & \mathbf{B}_0 + \mathbf{B}_2 \mathbf{MB}_{it} + \mathbf{B}_3 \mathbf{Opaquet}_{it} + \mathbf{B}_4 \mathbf{Slack}_{it} + \mathbf{B}_5 \mathbf{C. G}_{it} \\ & + \mathbf{B}_5 \mathbf{G. R}_{it} \\ & + \mathbf{B}_5 \mathbf{M. S}_{it} \\ & + \boldsymbol{\varepsilon}_{it} \end{aligned} \quad (2)$$

$$\begin{aligned} \mathbf{OP\ Lev}_{it} = & \mathbf{B}_0 + \mathbf{B}_2 \mathbf{MB}_{it} + \mathbf{B}_3 \mathbf{Opaquet}_{it} + \mathbf{B}_4 \mathbf{Slack}_{it} + \mathbf{B}_5 \mathbf{C. G}_{it} \\ & + \mathbf{B}_5 \mathbf{G. R}_{it} + \mathbf{B}_5 \mathbf{M. S}_{it} + \boldsymbol{\varepsilon}_{it} \end{aligned} \quad (3)$$

Table 16 illustrate there is no significant effect of ERM components & adoption of ERM framework on Financial Leverage ($P=0.000<0.05$), although there is a positive significant effect of Growth Rate on Financial Leverage ($p\text{-value}=0.024<0.05$), (Bei & Wijewardana, 2012, Alghusin, 2015).

Furthermore, the results confirmed to reject the second question ($P=0.000<0.05$), so there is a significant effect of ERM components & adoption of ERM Framework on Leverage, and the dependent and control variables can explain 80.27% of the variation in Leverage. Market-Book has negative effect on Leverage Ratio, If the Market-Book increases by 1 unit, the Leverage Ratio will decrease by 0.222. (Lynch, 2018).

Also, Market Share has a negative effect on Leverage Ratio, If Market Share increases by 1 unit, the Leverage Ratio will decrease by 0.650 (Mavrick, 2021). Moreover, Corporate

Governance has a negative effect on Leverage, If the Corporate Governance increases by 1 unit, the Leverage will decrease by 0.001. (Ruwanti, Chandrarin & Assih, 2019, Uddin, Khan & Hosen, 2019).

In addition, there is a significant effect of ERM components & adoption of ERM framework on Debt to Asset Ratio ($P=0.000<0.05$), so the third question is rejected and the dependent and control variables can explain 83.99% of the variation in Debt to Asset Ratio. Also, Market-book Ratio has negative effect on Debt to Asset Ratio, If the Market-Book Ratio increases by 1 unit, the Debt to Asset Ratio will decrease by 0.368 (Hutabarat & Simanjuntak, 2013, Putro, 2020, Rukmini & Hadi, 2020). Corporate Governance has a negative significant effect on Debt to Asset Ratio ($p\text{-value}=0.011<0.05$), If the Corporate Governance increases by 1 unit, the Debt to Asset Ratio will decrease by 0.005 (Haque, Arun & Kirkpatrick, 2011, Ahmed Sheikh & Wang, 2012) Finally, Market Share has a negative significant effect on Debt to Asset Ratio ($p\text{-value}=0.000<0.05$), If the Market Share increases by 1 unit, the Debt to Asset Ratio will decrease by 1.764 (Hestinoviana & Handayani, n.d, RAHMAN, SAIMA & JAHAN, 2020, MAVERICK, 2021)

Table 16 clarifies that the highest impact of ERM components & adoption of ERM Framework on Turnover Ratios indicators was for Debt to Asset Ratio (83.99%), followed by Leverage (80.27%), which answers the main study question, that the existence and adopting of the ERM framework significantly effects the financial performance of the Pharmaceutical companies in Palestine.

Table 16: Pooled regression model of the effect of the ERM framework on business & financial risk ratio

Variables	Financial leverage			leverage			Debit to asset ratio		
	β	Std. Err.	Sig.	β	Std. Err.	Sig.	β	Std. Err.	Sig.
Intercept	1.014	0.268	0.002**	0.754	0.089	0.000**	1.496	0.192	0.000**
MB	0.179	0.234	0.456	-0.222	0.068	0.006**	-0.368	0.139	0.020**

Opaquet	-0.010	0.014	0.482	-0.002	0.008	0.821	0.013	0.021	0.558
Slack	0.472	0.670	0.494	-0.176	0.227	0.453	-0.324	0.522	0.546
C.G	-0.003	0.002	0.117	-0.001	0.001	0.186	-0.005	0.002	0.011**
G.R	-0.807	0.316	0.024**	0.005	0.215	0.98	0.217	0.569	0.71
M.S	0.188	0.192	0.345	-0.650	0.114	0.000	-1.764	0.265	0.000**
Significance of model									
F-test	F(6,13)=2.14			F(6,13)=10.53			F(6,13)=12.09		
Significant	Sig.=0.1176			Sig.=0.000			Sig.=0.000		
R-squared	0.4911			0.8027			0.8399		

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively.

Source: output of Stata software 12

4.6 Recommendations

Enterprise Risk Management (ERM) is an effective instrument to manage risk within a business that allows the business to achieve their company's objectives. ERM framework aims to improve a company's performance by effectively managing the related risks, this was clearly seen and proved by the study results, that supported the study questions. The Pharmaceutical industry is very important in Palestine, and managing company Risks is a fundamental concern in today's dynamic environment. For a pharmaceutical company to remain, it is imperative for it to implement enterprise risk management (O'Brien and Joyce 2007).

And for so, the study recommendations are as the following:

1. The Pharmaceutical companies must raise its employee's awareness about the importance of ERM Framework and risk management. In order to insure the efficiency and effectiveness of risk management implementation.
2. The necessity to adapt risk management model and implement ERM framework within all company's departments in a more effective manner.
3. The importance to introduce the ERM framework and implement it in all industries as well.
4. Increased focus on continuous training on the efficient knowledge and use of the ERM system by managers and employees to ensure increased effectiveness, and achieving the desired goals from its use.

My further recommendations for other researchers are to conduct future studies to study the relationship between a proposed ERM measurement method and financial performance in other industries. This would enable the researchers to assess whether there is a correlation between ERM components and framework and financial performance components in all sectors, in addition to test is relevancy on Company Value. Moreover, to extend the effect of ERM framework on non-financial measures, and test the framework effectiveness in all company's departments. Based on a reliable ERM scoring method, I hopes that this thesis has provided an important study for further research.

Citation

- Agusti-Perez, M., Galan, J.L. and Acedo, F.J. (2020), "Relationship between slack resources and performance: temporal symmetry and duration of effects", *European Journal of Management and Business Economics*, Vol. 29 No. 3, pp. 255-275. <https://doi.org/10.1108/EJMBE-10-2019-0177>.
- Ahmed Sheikh, N., & Wang, Z. (2012). Effects of corporate governance on capital structure: empirical evidence from Pakistan. *Corporate Governance: The International Journal Of Business In Society*, 12(5), 629-641. doi: 10.1108/14720701211275569.
- Alawattagama, K. (2018). The Effect of Enterprise Risk Management (ERM) on Firm Performance: Evidence from the Diversified Industry of Sri Lanka. *Journal Of Management Research*, 10(1), 75. doi: 10.5296/jmr.v 10i1.12429. ISSN 1941-899X.
- Aldossari, S., & Mukhtar, U. A. (2018). Enterprise Resource Planning and Business Intelligence to Enhance Organizational Performance in Private Sector of KSA: A Preliminary Review. In *International Conference of Reliable Information and Communication Technology* (pp. 343–352). Springer
- Aleisa, Y., 2017. Factors Affecting Implementation of Enterprise Risk Management (ERM): An Exploratory Study Among Saudi Organizations. Doctorate of Business Administration (DBA). University of Liverpool.
- ALghusin, N. (2015). Do Financial Leverage, Growth and Size Affect Profitability of Jordanian Industrial Firms Listed?. *International Journal Of Academic Research In Business And Social Sciences*, 6(16). doi: 10.6007/ijarbss/v5-i4/1580.
- Almajali, D. A., Masa'deh, R., & Tarhini, A. (2016). Antecedents of ERP systems implementation success: a study on Jordanian healthcare sector. *Journal of Enterprise Information Management*, 29(4), 549–565.
- AlMuhayfith, S., & Shaiti, H. (2020). The Impact of Enterprise Resource Planning on Business Performance: With the Discussion on Its Relationship with Open Innovation. *Journal Of Open Innovation: Technology, Market, And Complexity*, 6(3), 87. doi: 10.3390/joitmc6030087.
- Al-Khadash, H. (2015). COSO Enterprise Risk Management Implementation in Jordanian Commercial Banks and its Impact on Financial Performance (Professor of Accounting). Hashemite University.
- Al Qaisi, F., Tahtamouni, A., & AL-Qudah, M. (2016). Factors Affecting the Market Stock Price - The Case of the Insurance Companies Listed in Amman Stock Exchange. *International Journal Of Business And Social Science*, 7(10). doi: ISSN 2219-1933 (Print), 2219-6021.
- Altanashat, M., Dubai, M., & Alhety, S. (2019). The impact of enterprise risk management on institutional performance in Jordanian public shareholding

companies. *Journal Of Business & Retail Management Research*, 13(03). doi: 10.24052/jbrmr/v13is03/art-23.

- Anjani, L., & Yadnya, I. (2017). Pengaruh Good Corporate Governance Terhadap Profitabilitas Pada Perusahaan Perbankan Yang Terdaftar Di BEI. *E-Journal Manajemen Universitas Udayana*, 6(11), 11- 40. <https://ojs.unud.ac.id/index.php/Manajemen/article/view/33195>
- Attayah, O., & Sweiti, I. (2014). Impact of ERP System Using on the Accounting Information Relevance: Evidence from Saudi Arabia. *GSTF Journal On Business Review (GBR)*, Vol.3(No.2). doi: DOI: 10.5176/2010-4804_3.2.302.
- Baily, M., Farrell, D., Greenberg, E., Henrich, J., Jinjo, N., Jolles, M., & Remes, J. (2005). Increasing Global Competition and Labor Productivity: Lessons from the US Automotive Industry. *Research Gate*.
- Bak, O., & Stair, N. (2011). Impact of E-Business Technologies on Public and Private Organizations (pp. ISBN:978-1-60960-501-8 (hbk). ISBN:978-1-60960-502-2 (ebook). USA: Business Science Reference IGI Global.
- Beasley, Mark S., Richard Clune, and Dana Hermanson. "The Impact of Enterprise Risk Management on the Internal Audit Function.", *Journal of Forensic Accounting*, 2006: 1-20.
- Beers, B. (2021). How Is Asset Turnover Calculated from <https://www.investopedia.com/ask/answers/032415/how-asset-turnover-calculated.asp>
- Bei, Z., & Wijewardana, W. (2012). Financial leverage, firm growth and financial strength in the listed companies in Sri Lanka. *Procedia - Social And Behavioral Sciences*, 40, 709-715. doi: 10.1016/j.sbspro.2012.03.253.
- Berman, M., 2019. ERM 101: What's COSO, and Why Should I Care?. [online] Ncontracts.com.
- Bertinetti, G., Cavezzali, E., & Gardenal, G. (2013). THE EFFECT OF THE ENTERPRISE RISK MANAGEMENT IMPLEMENTATION ON THE FIRM VALUE OF EUROPEAN COMPANIES (Professors). Ca' Foscari University of Venice.
- Bradley, J. (2021). Gross Sales to Equity Ratio. *Imperial College London: CHRON*.
- Brooks, C. (2014). *Introductory Econometrics for Finance*. UK: Cambridge University Press.
- Brush, K. (2019). *Asset Turnover Ratio [Ebook]*. USA: Search Business Analytics.
- Buleje, M. (2014). *The Impact of Enterprise Resource Planning Systems on Small and Medium Enterprises (Professor)*. College of Engineering and Computing, Nova Southeastern University.

- CARLSON, R "What Financial Ratios Measure Business Risk?", The Balance Small Business, 2019. Available: <https://www.thebalancesmb.com/how-to-calculate-business-risk-393472>.
- Carnes, C., Xu, K., Sirmon, D., & Karadag, R. (2018). How Competitive Action Mediates the Resource Slack–Performance Relationship: A Meta-Analytic Approach. *Journal Of Management Studies*, 56(1), 57-90. doi: 10.1111/joms.12391.
- Chiu, Y., & Liaw, Y. (2009). Organizational slack: is more or less better?. *Journal Of Organizational Change Management*, 22(3), 321-342. doi: 10.1108/09534810910951104.
- Cordeiro da Cunha Araújo, R., & André Veras Machado, M. (2018). Book-to-Market Ratio, return on equity and Brazilian Stock Returns. *RAUSP Management Journal*, 53(3), 324-344. doi: 10.1108/rausp-04-2018-001.
- Daoud., H., & Triki., M. (2013). Accounting Information Systems in an ERP Environment and Tunisian Firm Performance. *The International Journal Of Digital Accounting Research*, 13(ISSN: 1577-8517), 1-35. doi: 10.4192/1577-8517-v13_1.
- Debt to Asset Ratio - How to Calculate this Important Leverage Ratio, from <https://corporatefinanceinstitute.com/resources/knowledge/finance/debt-to-asset-ratio>.
- De Lira, (2012). *Journal of Information Systems and Technology Management*. Vol. 9, No. 2, May/Aug. 2012, pp.323-352, ISSN online: 1807-1775. DOI: 10.4301/S1807-17752012000200007
- Desender, K. and Lafuente, E., 2009. The Influence of Board Composition, Audit Fees and Ownership Concentration on Enterprise Risk Management. *SSRN Electronic Journal*,.
- Dzingai, I., & Fakoya, M. (2017). Effect of Corporate Governance Structure on the Financial Performance of Johannesburg Stock Exchange (JSE)-Listed Mining Firms. *Sustainability*, 9(6), 867. doi: 10.3390/su9060867.
- Eby, K. (2019). How to Calculate Workplace Productivity | Smartsheet. from <https://www.smartsheet.com/blog/how-calculate-productivity-all-levels-organization-employee-and-software>
- Ekasari, J., & Kus Noegroho, Y. (2020). The Impact of Good Corporate Governance Implementation on Firm Value. *International Journal Of Social Science And Business*, 4(4), 553-560. doi: 10.23887/ijssb.v4i4.29688.
- Enyinda, C., 2018. Modeling Enterprise Risk Management in Operations and Supply Chain: A Pharmaceutical Firm Context. *Operations and Supply Chain Management: An International Journal*, 11, 1(1979-3561 | EISSN 2759-9363), pp.1-12.

- Fernando, J, T. Brock and T, Li. “Price-to-Earnings (P/E) Ratio”, Investopedia 2021, <https://www.investopedia.com/terms/p/price-earningsratio.asp>.
- Fraering, M., & Minor, M. (1994). The Industry-specific Basis of the Market Share-Profitability Relationship. *Journal Of Consumer Marketing*, 11(1), 27-37. doi: 10.1108/07363769410053673.
- Gerring, John., 2004. “What Is a Case Study and What Is It Good for?” *American Political Science Review* 98, 341-354.
- Hagigi, M., Manzon, G., & Mascarenhas, B. (1998). Increase Asset Efficiency to gain Multinational Market Share. *MANAGEMENT INTERNATIONAL REVIEW*, 39(3), 205-222.
- Haque, F., Arun, T., & Kirkpatrick, C. (2011). Corporate governance and capital structure in developing countries: a case study of Bangladesh. *Applied Economics*, 43(6), 673-681. doi: 10.1080/00036840802599909.
- Hausman, J.A (1978). Specification testsineconometrics. *Econometric / Journal of the econometric society*, 1251 – 1271.
- Hayes, A. Asset Turnover Ratio.<https://www.investopedia.com/terms/a/assetturnover.asp>.
- Hayes, A. (2021). Average Annual Growth Rate (AAGR) Definition, from <https://www.investopedia.com/terms/a/aagr.asp>
- Hayes, A. (2021). Coefficient of Variation (CV) Definition. Reviewed by Somer Anderson, from <https://www.investopedia.com/terms/c/coefficientofvariation.asp>
- Hoyt, R. E. and Liebenberg, A. P. 2011. The Value of Enterprise Risk Management. *Journal of Risk and Insurance*, 78(4), 795-822.
- Hestinoviana, V., & Handayani, S. THE INFLUENCE OF PROFITABILITY, SOLVABILITY, ASSET GROWTH, AND SALES GROWTH TOWARD FIRM VALUE. Brawijaya University.
- Hutabarat, F., & Simanjuntak, D. (2013). THE RELATIONSHIP BETWEEN FINANCIAL RATIOS AND STOCK PRICES OF TELECOMMUNICATION COMPANIES OF INDONESIAN STOCK EXCHANGE TELECOMMUNICATION SUB SECTOR INDICES. *Jurnal Ekonomi*, 4(2).
- Huu Nguyen, A., Thuy Doan, D., & Ha Nguyen, L. (2020). Corporate Governance and Agency Cost: Empirical Evidence from Vietnam. *Journal Of Risk And Financial Management*, 13(5), 103. doi: 10.3390/jrfm13050103.
- Ibrahim, S., Diibuzie, G., & Abubakari, M. (2017). The Impact of Internal Control Systems on Financial Performance: The Case of Health Institutions in Upper West Region of Ghana. *International Journal Of Academic Research In Business And Social Sciences*, 7(4, ISSN: 2222-6990). doi: 10.6007/ijarbss/v7-i4/2840.
- Inventory Turnover Ratio. (2021). CFI Education Website. <https://corporatefinanceinstitute.com/resources/knowledge/finance/inventory->

[turnover-ratio/#:~:text=The%20inventory%20turnover%20ratio%2C%20also,goods%20that%20a%20is%20managed..](#)

- Iswajuni, I., Manasikana, A., & Soetedjo, S. (2018). The effect of enterprise risk management (ERM) on firm value in manufacturing companies listed on Indonesian Stock Exchange year 2010-2013. *Asian Journal Of Accounting Research*, 3(2), 224-235. doi: 10.1108/ajar-06-2018-0006.
- *Journal of Forensic Accounting*, 2006: 1-20.
- Kraus, V. and Lehner, O. M. 2012. The nexus of Enterprise Risk Management and value creation: A Systematic Literature. *Journal of Finance and Risk Perspectives*, 1(1), 61-163.
- Kennedy, P. (1985). *A guide to econometrics* (2nd ed). UK: MIT Press Cambridge, Massachusetts. Rogers
- Kirshenblatt-Gimblett, Barbara. Part 1, What Is Research Design? The Context of Design. *Performance Studies Methods Course syllabus*. New York University, Spring 2006.
- Kleffner, A., Lee, R., & McGannon, B. (2003). The effect of corporate governance on the use of Enterprise Risk Management: Evidence from Canada. *Risk Management and Insurance Review*, 6(1), 53-73. <http://dx.doi.org/10.1111/1098-1616.00020>.
- Kothari, C.R. (2004) *Research Methodology: Methods and Techniques*. 2nd Edition, New Age International Publishers, New Delhi.
- Ladner, S. (2009). An Ontological and Epistemological Critique of Web-Traffic Measurement. *Handbook Of Research On Web Log Analysis*, 65-79. doi: 10.4018/978-1-59904-974-8.ch004.
- Lira, A., Parisi, C., Peleias, I., & Peters, M. (2012). USES OF ERP SYSTEMS AND THEIR INFLUENCE ON CONTROLLERSHIP FUNCTIONS IN BRAZILIAN COMPANIES. *Journal Of Information Systems And Technology Management*, 9(2, ISSN online: 1807-1775), 323-352. doi: 10.4301/s1807-17752012000200007.
- Lynch, P. (2018). *Optimum Capital Structure*. Presentation, Dublin Business School.
- Mahdaleta, E., Muda, I., & Nasir, G. (2016). Effects of Capital Structure and Profitability on Corporate Value with Company Size as the Moderating Variable of Manufacturing Companies Listed on Indonesia Stock Exchange. *Academic Journal Of Economic Studies*, (3), 30-43.
- Delittee, *Managing business continuity and finance during COVID-19*. (2020). from <https://www2.deloitte.com/ch/en/pages/financial-advisory/articles/managing-business-continuity-finance-covid-19.html>.

- Mansour, M. (2015). Developing Risk Management Model For the Palestinian Insurance Sector (MA). Al-Najah National University.
- Market to Book Ratio. (2021), from <https://corporatefinanceinstitute.com/resources/knowledge/valuation/market-to-book-ratio-price-book/>.
- MAS, 2019. The Development Of Competitiveness And The Increase Of The Share Of The National Product In Palestine: The Pharmaceutical Sector. MAS. Available at: <http://www.mas.ps/files/server/20191104114020-2.pdf>.
- MAVERICK, J. (2021). Strategies Used to Reduce a Company's Debt-To-Capital Ratio. Investopedia.
- Mehmetoglu, M & Jakobsen, T.G. (2017). Applied Statistics Using Stata: A Guide for the Social Sciences, 1st ed. London: SAGE Publications, Ltd.
- Mehta, P. (2015). Control Variables in Research. International Encyclopedia Of The Social & Behavioral Sciences, 840-843. doi: 10.1016/b978-0-08-097086-8.44013-4.
- Mohan, Aswathy and Chandramohan, S., Impact of Corporate Governance on Firm Performance: Empirical Evidence from India (March 3, 2018). IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL) ISSN (P): 2347-4564; ISSN (E): 2321-8878 Vol. 6, Issue 2, Feb 2018, 209-218, Available at SSRN: <https://ssrn.com/abstract=3133491>.
- O'Brien, P. and Joyce, G. (2007). Risk Management: Supply Chain Risk-Are you the Weakest Link? LinkResQ Ltd, pp. 1-6,
- Oppong, G.L., & Pattanayak, J.K. (2019). Does investing intellectual capital improve productivity? Panel evidence from commercial banks in india. Borsa Istanbul Review, 19 (3), 2019-227.
- Pagach, D., & Warr, R. (2010). The Effects of Enterprise Risk Management on Firm Performance. SSRN Electronic Journal. doi: 10.2139/ssrn.1155218
- Palestinian National Authority publications, (2011).
- Price-earnings ratio - Wikipedia. (2018).
- Putro, R. (2020). Effect of Debt to Asset Ratio, Return On Asset, and Earning Per Share on Stock Return (Case studies on construction and building subsector companies listed on the IDX) (Master Degree Lecturer). Indonesian College of Economics, Jakarta.
- Qawasmeh, A. (2015). Enhancing the Competitiveness of Palestinian Pharmaceutical Companies Through Clustering (MA). Birzeit University.
- Quon, T., Zeghal, D. and Maingot, M., 2012. Enterprise Risk Management and Firm Performance. *Procedia - Social and Behavioral Sciences*, 62, pp.263-267.
- RAHMAN, M., SAIMA, F., & JAHAN, K. (2020). The Impact of Financial Leverage on Firm's Profitability: An Empirical Evidence from Listed Textile

Firms of Bangladesh. *Journal Of Business Economics And Environmental Studies*, 10(2, Print ISSN: 2671-4981 / Online ISSN: 2671-499X), 23-31. doi: 10.13106/jbees.2020.vol10.no2.23.

- Rao, A. (2018). Empirical Analysis of Joint Impact of Enterprise Risk Management and Corporate Governance on Firm Value. *International Review Of Advances In Business, Management And Law*, 1(1, ISSN: 2616-4272), 34-50. doi: 10.30585/irabml.v1i1.66.
- RAZALI, A., YAZID, A., & Tahir, I. (2011). The Determinants of Enterprise Risk Management (ERM) Practices in Malaysian Public Listed Companies. *Journal Of Social And Development Sciences*, 1(5), 202-207. doi: 10.5539/ibr.v5n1p80.
- Return on Investment (ROI). (2019), from <https://www.ionos.com/startupguide/grow-your-business/return-on-investment-roi/>
- Rogers, W. (1993). Regression standard errors in clustered samples. *Stata technical bulletin*, 13, 19-23.
- Rousseeuw, P.J & Leroy, A.M., 1987. Robust Regression and Outlier Detection. 1st ed, New York, Wiley. 13, Robust Standard Errors for Panel Regressions with Cross Sectional Dependence / Daniel Hoehle.
- Rubino, M., 2018. A Comparison of the Main ERM Frameworks: How Limitations and Weaknesses can be Overcome Implementing IT Governance. *International Journal of Business and Management*, 13(12), p.203.
- Rukmini, F., & Hadi, D. (2020). THE INFLUENCE OF LIQUIDITY, SOLVABILITY AND PROFITABILITY TO STOCK PRICE ON SECTOR FOOD AND BEVERAGE LISTED ON THE INDONESIA STOCK EXCHANGE PERIOD 2015-2019 (Master Degree Lecturer). Indonesian College of Economics.
- Ruwanti, G., Chandrarin, G., & Assih, P. (2019). The Influence of Corporate Governance in The Relationship of Firm Size and Leverage on Earnings Management. *International Journal Of Innovative Science And Research Technology*, 4(8), ISSN No:-2456-2165.
- Sangster, A. (2009). ERP implementations and their impact upon management accountants. *JISTEM Journal Of Information Systems And Technology Management*, 6(2, ISSN Online: 1807-1775), 125-142. doi: 10.4301/s1807-17752009000200001.
- Schmider, E., Ziegler, M., Danay, E., Beyer, L. & amp: Buhner, M (2010) Is it really robust ? *Methodology*.
- Serhan, A., & Hajj, W. (2019). Impact of ERPS on Organizations' Financial Performance. *Proceedings Of The International Conference On Business Excellence*, 13(1), 361-372. DOI: 10.2478/picbe-2019-0032, ISSN 2558-9652.

- Shaheen, R., Ağa, M., Rjoub, H., & Abualrub, A. (2020). Investigation of the Pillars of Sustainability Risk Management as an Extension of Enterprise Risk Management on Palestinian Insurance Firms' Profitability. *Sustainability*, 12(11), 4709. doi: 10.3390/su12114709.
- Shannak, H. (2010) 'the Impact of Enterprise Risk Management on Performance: The Case of Jordanian Industrial Corporations. Unpublished thesis. Jordan University.
- Sithipolvanichgul, J. (2016). Enterprise Risk Management and Firm Performance: Developing Risk Management Measurement in Accounting Practice (Doctor of Philosophy). The University of Edinburgh.
- S, S., Abdullah, M., & Obie, M. (2020). The Effect of Current Ratio and Debt to Asset Ratio on Net Profit Margin and Stock Prices: A Study of Basic Industry and Chemicals Companies. *International Journal Of Scientific Research In Science And Technology*, 7(5), 282-294. doi: 10.32628/ijrst207561.
- Stair, G. Enterprise Risk Management. Impact Of E-Business Technologies On Public And Private Organizations. doi: 10.4018/978-1-60960-501-8.ch008.
- Szymanski, D., Bharadwaj, S., & Varadarajan, P. (1993). An Analysis of the Market Share-Profitability Relationship. *Journal Of Marketing*, 57(3), 1-18. doi: 10.1177/002224299305700301.
- Tan, J. (2003). Curvilinear Relationship Between Organizational Slack and Firm Performance:. *European Management Journal*, 21(6), 740-749. doi: 10.1016/j.emj.2003.09.010.
- Thakur, M. Capital Turnover. from <https://www.wallstreetmojo.com/capital-turnover/>.
- TROTT, P., & HOECHT, A. (2013). ENTERPRISE RESOURCE PLANNING (ERP) AND ITS IMPACT ON THE INNOVATIVE CAPABILITY OF THE FIRM. *International Journal of Innovation Management*, 08(04), 381-398. doi: 10.1142/s1363919604001118.
- Uddin, M., Alam, M., Mamun, A., Khan, T., & Akter, A. (2019). A Study of the Adoption and Implementation of Enterprise Resource Planning (ERP): Identification of Moderators and Mediator. *Journal Of Open Innovation: Technology, Market, And Complexity*, 6(1), 2. doi: 10.3390/joitmc6010002
- Uddin, M., Khan, M., & Hosen, M. (2019). Does Corporate Governance Influence Leverage Structure in Bangladesh?. *International Journal Of Financial Studies*, 7(3), 50. doi: 10.3390/ijfs7030050.
- Union of Palestinian Pharmaceutical Manufacturers, 2010, available at:<http://www.uppm.org/flash.html>
- Wang, J., Fu, G., & Luo, C. (2013). Accounting Information and Stock Price Reaction of Listed Companies — Empirical Evidence from 60 Listed Companies

in Shanghai Stock Exchange. *Journal Of Business & Management*, 2(2), 11-21. doi: 10.12735/jbm.v2i2p11.

- Wibowo, A., & Widya Sari, M. (2018). Measuring Enterprise Resource Planning (ERP) Systems Effectiveness in Indonesia. *TELKOMNIKA (Telecommunication Computing Electronics And Control)*, 16(1, ISSN: 1693-6930, accredited A by DIKTI, Decree No: 58/DIKTI/Kep/2013), 343-351. doi: 10.12928/telkomnika.v16i1.5895.
- Wooldridge, J.M. (2010). *Econometric Analysis of Cross Section and Panel Data*. MIT Press.
- USAID, ICO (2013), WTO and the Palestinian Pharmaceutical Sector.
- Yamin, I. (2018). The Impact of the Application of Enterprise Resource Planning System on Banks Financial Performance (A Case Study of Arab bank and Islamic Bank of Jordan). *Zarqa Journal For Research And Studies In Humanities*, Volume 18(No 1,). doi: 10.12816/0054737
- Yaseen, H., & Al-Amarneh, A. (2013). Corporate Governance and Leverage: Evidence from the Jordanian Stock Market. *Research Journal Of Finance And Accounting*, 4(19), ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online).
- Yazid, A. S. (2001). Perceptions and practices of financial Risk Management in Malaysia. (Unpublished PhD thesis). UK.: Glasgow Caledonian University (GCU), Glasgow, Scotland.
- Zarqa Journal for Research and Studies in Humanities, 2020. The Impact of the Application of Enterprise Resource Planning System on Banks Financial Performance (A Case Study of Arab bank and Islamic Bank of Jordan). Volume 18, No 1.
- Zedan, H., & Abu Nassar, M. (2014). The effect of Corporate Governance on Operating Performance of Jordanian Manufacturing Companies: Evidence from Amman Stock Exchange. *Dirasat*, 41(2), 662-671. doi: 10.12816/0007843.

List of Appendices

Appendix 1

Appendix 1 The Normal Distribution Table of Study Variables for the study period pf (2016 - 2020)

Variables		2016	2017	2018	2019	2020
MB Ratio	Mean	1.325	1.278	1.270	1.170	1.147
	Standard deviation	0.310	0.209	0.239	0.268	0.364
Opaque Ratio	Mean	1.443	1.460	1.780	1.961	1.159
	Standard deviation	2.315	2.173	2.050	2.394	2.252
Slack	Mean	0.070	0.084	0.044	0.033	0.017
	Standard deviation	0.064	0.078	0.044	0.027	0.010
Capital Turnover Ratio	Mean	0.722	0.644	0.605	0.607	0.579
	Standard deviation	0.178	0.106	0.097	0.121	0.122
Assets Turnover Ratio	Mean	0.414	0.402	0.345	0.361	0.335
	Standard deviation	0.133	0.166	0.158	0.133	0.139
Inventory Turnover Ratio	Mean	2.005	1.958	1.665	1.631	1.697
	Standard deviation	0.713	0.547	0.600	0.517	0.615
Return on Equity	Mean	10.950	12.130	9.378	9.438	7.818
	Standard deviation	4.760	3.236	1.935	3.071	2.024
Return on Average Assets	Mean	8.358	9.565	6.803	7.313	5.735
	Standard deviation	4.877	4.139	2.593	2.996	1.351
Price Earnings Ratio	Mean	12.796	10.475	14.113	12.718	15.010
	Standard deviation	4.622	1.768	5.183	3.987	6.457
Financial Leverage	Mean	1.101	1.013	2.410	1.069	1.095
	Standard deviation	0.285	0.091	2.677	0.153	0.034
Debit to Asset Ratio	Mean	0.522	0.463	0.398	0.411	0.391
	Standard deviation	0.479	0.419	0.264	0.223	0.186
Leverage	Mean	0.290	0.267	0.268	0.279	0.272
	Standard deviation	0.146	0.142	0.119	0.101	0.091
Market Share	Mean	0.130	0.250	0.250	0.250	0.250
	Standard deviation	0.282	0.140	0.146	0.141	0.150
Growth	Mean	0.123	0.169	-0.049	0.091	0.040
	Standard deviation	0.082	0.113	0.184	0.021	0.040
Corporate Governance	Mean	43.62	43.29	43.37	41.75	44.05
	Standard deviation	29.41	29.69	29.94	31.55	29.61

Appendix 2

Appendix 2: Breusch and Pagan LM test for models that study The effect of the ERM framework on operating profitability and business & financial risk ratios

	Study Models	χ^2	Sig.
H_4	Effect of adoption of ERM Framework on Return on Equity	0.00	1.00
H_5	Effect of adoption of ERM Framework on Return on Average Assets	0.00	1.00
H_6	Effect of adoption of ERM Framework on Price Earnings Ratio	0.00	1.00
H_7	Effect of adoption of ERM Framework on Financial Leverage	0.00	1.00
H_8	Effect of adoption of ERM Framework on Leverage	0.00	1.00
H_9	Effect of adoption of ERM Framework on Debit to Asset Ratio	0.00	1.00

Note: ***, ** and * represents statistical significance at 1%, 5% and 10% levels respectively