Strategic Risk Management Maturity and Its Impact on the Competitive Position of the Financial Institutions Listed on EGX 2024: The Moderating Role of Information Technology Capability[1]

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ABSTRACT

Purpose: The purpose of this paper is to evaluate the maturity of strategic risk management according to three main approaches—enterprise risk management, strategic risk management, and the risk-balanced scorecard—and track their impact on the competitive position of the Egyptian financial institutions listed on EGX 2024, considering the moderating role of information technology capability.

Design/methodology/approach: A self-administered questionnaire was developed and administered to collect the required data from all the senior managers involved in risk management activities in the Egyptian financial institutions listed on EGX (2024) by adopting the census method. About 95 questionnaires were collected from sampled corporations and were valid for statistical analysis using SPSS 25.

Findings: Enterprise risk management, strategic risk management, and the risk-balanced scorecard have a positive impact on the competitive position of Egyptian financial institutions listed on EGX (2024). Furthermore, the results confirm the moderating role of information technology capability in strengthening the effect of the three main independent variables on competitive position in the sampled corporations.

Originality/Value: This paper adds to the body of knowledge in the fields of strategic management, financial management, and information technology management, since it is the first in the Arab world to present and test a model that emphasizes the evolution of strategic risk management according to three main approaches—enterprise risk management, strategic risk management, and the risk-balanced scorecard—and track their impact on the competitive position by moderating information technology capability.

Keywords: *Enterprise risk management, strategic risk management, the risk -balanced scorecard, competitive position, information technology capability.*

[1] Received in 6/1/2025, Accepted in 22/1/2025.

I. INTRODUCTION

The importance of the financial sector in economic growth has long been discussed and debated in the literature review. The financial system mobilizes and allocates savings, supports trade, helps in the diversification and hedging of risks, and allows access to investment opportunities (Poshakwale and Qian, 2011). In Egypt, the financial sector has high potential in financial services ranging from commercial banking, insurance, mortgage lending, and financial advisory services. A competitive and efficient financial sector is a prerequisite for economic development and growth, especially in developing countries like Egypt. Egyptian financial institutions have undergone substantial macroeconomic fluctuations, particularly over the last decade, marked by significant shifts in interest rates, foreign exchange rates, and the market dynamics influenced by the COVID-19 pandemic. These fluctuations have directed attention toward the importance of managing strategic risks associated with unexpected events (ElGaliy, 2022). The failure to manage strategic risk effectively is likely the major cause of most of the challenges these entities faced, leading to negative impact on firm performance in different areas such as operational efficiency, service quality, and competitiveness (Saeidia, Saeidia, Sofiana, Saeidi, Nilashi, and Mardania, 2018; Kaplan , Leonard, and Mikes, 2020). According to Robert, Wallace, and McClure (2003), failing to recognize risks and properly manage them is a risk in and of itself. Furthermore, risk management functions, including risk identification, monitoring, control, and communication, have been highlighted as essential components of financial institutions' corporate governance, especially following the 2008 financial crisis (Berger, Imbierowicz, Rauch, 2016).

Risk management must be integrated throughout the entire business in order to enhance its potential benefits (e.g., Frigo and Anderson, 2011; McConnell, 2015; Andersen and Sax, 2020). This idea is further formalized by enterprise risk management (ERM), which promotes the inclusion of risk management in strategy formulation and its dissemination to all organizational levels (Woods, 2008; Dhlamini, 2022; Kaplan et al., 2020). Over the past ten years, enterprise risk management (ERM) has drawn more attention from academics, professionals, and corporate managers as an efficient and integrated way to handle a greater variety of risks that contemporary business organizations face and to support risk-aligned strategic decision-making (Grove and Clouse, 2016; Kaplan et al., 2020; Malelak and Andryscillia, 2020).

The literature provides mixed support for the idea that ERM contributes to the value of a firm and its performance. A few studies have shown a positive relationship between ERM and firm value (e.g., Hoyt and Liebenberg, 2011;

Gates, Nicolas, and Walker, 2012; Grace, Leverty, Phillips, and Shimpi, 2015), while others find no beneficial effects of ERM on firm performance (Pagach and Warr, 2010; Quon, Zeghal, and Maingot, 2012). In the financial sector, most studies concluded positive relationships between ERM and firm performance (e.g., Soliman and Adam, 2017; Malelak and Pryscillia, 2020; Odero, 2020).

In the Egyptian context, only Sharawi's (2017) study has looked into how applying the ERM model affects the financial performance of a sample of nonfinancial institutions listed on the EGX. It finds that the ERM model has a positive correlation with financial performance as measured by ROA. Abdelazem, Fekry, and Abdelmoniem's (2022) study sought to compare the Egyptian public and private sectors in order to examine the relationship between ERM disclosure and business value. According to the data, there was a substantial positive correlation between risk disclosure and ERM for the public sample, but not for the private sample (Abdelazem et al., 2022).

According to Beasley, Branson, and Pagach (2015), just 56% of big businesses reported having entire ERM processes in place, indicating that the deployment of ERM has not been as successful as anticipated, especially in the extremely volatile environment. The findings of Fraser, Quail, and Simkins (2024) shed light on a number of flaws that prevent ERM from producing the desired results, including treating risks as distinct entities, lacking sufficient alignment in decision-making procedures, and failing to establish an efficient integration between risk management and the organizations' objectives and strategies (Fraser et al., 2024). ERM systems have long been acknowledged as a controls-based approach to risk management that prioritizes rule-based compliance (Power, 2009). However, Power claims that these systems have not been able to handle systemic risk challenges that result from the interconnectedness of businesses.

These discrepancies in the impact of ERM on organizational performance highlighted the need to combine risk management with strategic management, particularly in light of the rise in strategic risk exposure. According to Frigo and Anderson (2011) and McConnell (2015), business organizations must emphasize the strategic perspective of ERM to maximize its potential benefits on an organization's performance. SRM entails assessing the impact of a broad range of potential occurrences on the strategy's formulation and implementation. Through the identification of strategic positioning risks, the alignment of risk management strategy with organizational objectives, the pursuit of riskier opportunities, the improvement of corporate performance, and the development of a resilient image, SRM assists business organizations in effectively managing the strategic risk exposure and then sustaining their competitive position (Elahi, 2013; Prewett and Terry, 2018; Zakaria, 2020).

In addition, Kaplan et al. (2020) suggested a more progressive and comprehensive view of managing strategic risks, capitalizing on BSC philosophy. The Balanced Scorecard can be a powerful mechanism for embedding SRM into strategy setting and execution by aligning performance measures with risk measures and providing a greater opportunity to measure risk from multiple perspectives, such as customer, internal processes, and learning, in addition to the traditional financial risks perspective, leading to a more sustainable competitive position (Kaplan et al., 2020).

The influence of strategic risk management on a company's competitive position must be seen from a different angle and in accordance with the contingency theory as a component of a larger causal system that includes a variety of mediators and moderating factors (Donaldson, 2001). In numerous earlier research studies examining the relationship between risk management practices and company performance, information technology capability was one of the most frequently identified moderators (Saeidi et al., 2018; Hoe, Thanh, Lam, and Thoa, 2021). By automating analysis, decreasing manual processing, and enhancing information capture, sharing, and control over data sources, information technology infrastructure enhances the ERM system (Anderson 2011; COSO, 2004; 2017). The potential advantages of the SRM system are increased when IT strategy aids in coordinating risk response activities with the company's goals and plans (McConnell, 2015; Centobelli, Cerchione, and Chiaroni, 2020). Also, risks can be categorized using analytics and operations IT according to the main perspectives of BSC human resources, financial, market, operational, and regulatory, as well as the probability of occurrence or financial impact. Furthermore, the leading and lagging performance and risk indicators that support the organization's competitive edge can be identified (Sen, Kotlarsky, and Budhwar, 2015; Lan et al., 2020).

Given the strategic risk exposure that many of the Egyptian financial institutions are currently facing as a result of the local and regional political and economic unrest and due to the importance of strategic risk management within financial institutions, it could be beneficial to recognize the level of maturity of SRM in the Egyptian financial institutions and its impact on competitive position by moderating the information technology capability, especially with the scarcity of applied research in this area. This study contributes to the body of knowledge on strategic risk management by first presenting a review of three main approaches underlying the SRM revolution: ERM, SRM, and RBSC; second, providing a theoretical framework that can be used to evaluate the level of maturity of the strategic risk management practices; and finally, assessing the impact of the three

main approaches of SRM on a firm's competitive position by moderating information technology capability.

The study is built on the Resource-Based View (RBV) and the Knowledge-Based View (KBV) of the firm, which emphasize resource portfolio, identification, deployment, and development to boost competitive advantage (Barney, 1991; Barney and Wright, 1998). According to this view, ERM, SMR, and risk - balanced scorecard could be characterized as strategic assets that enable business organizations to optimize their resources, particularly capital and fund resources, manage strategic risk exposure, and create a competitive advantage (Wade and Hulland, 2004; Rahman, Noor, and Ismail, 2013). Each organization has its unique system, which is valuable for its success and can not be replicated by competitors. Because of variables like market share, competitive strategy, and company environment, businesses use their systems in different ways than competitors (Saeidi et al., 2018).

The present paper is organized into five parts. Section 1 introduces the basic concepts of the study. Section 2 includes literature review and hypothesis development. In section 3, an explanation of the data and the methodology employed in the paper is provided. Section 4 presents and discusses the key results of the study. Section 5 concludes the paper, highlights some limits of the research, and discusses avenues for further research.

2. RESEARCH PROBLEM

Current political and economic upheavals at the local and regional levels provide several strategic risks to Egyptian financial institutions, which have a significant impact on their competitiveness and financial performance (ElGaliy, 2022). These difficulties highlight the need for strategic risk management (Saeidi et al., 2018; Kaplan et al., 2020). The conventional perspective of managing risks, which seeks to show compliance with the regulation and neglects to integrate risk management and strategic management, has a detrimental impact on an organization's capacity to accomplish its strategic objectives (Saeidi et al., 2018; Hoa et al., 2021). Managing risk strategically revolves around three main approaches: enterprise risk management, strategic risk management, and the risk-balanced scorecard. These approaches show how mature strategic risk management is in these organizations.

Prior research has yielded conflicting findings about the impact of ERM on businesses' performance. While some have found no impact, others have highlighted a positive impact of ERM on businesses' performance (Gates, Nicolas, and Walker, 2012; Grace, Leverty, Phillips, and Shimpi, 2015). Additionally, previous research has not yet adequately examined the effects of

strategic risk management and the risk-balanced scorecard on the organization's performance. The contingency theory states that numerous moderating and mediating factors may influence the relationships between ERM, SRM, RBSC, and firm performance, and at the top of it is information technology capability (Anderson, 2011; COSO, 2004; 2017). Evaluating the maturity of strategic risk management practices and their impact on the competitive position of Egyptian financial institutions listed on the stock exchange, while taking into account the moderating role of ITC, becomes essential given the significant role that financial institutions play in supporting the Egyptian national economy, the significance of the Egyptian Stock Exchange as a sustainable source of funding for Egyptian organizations, and the critical role it plays in achieving the 2030 vision for sustainable development.

3. RESEARCH OBJECTIVES

The main objective of this study is to fill the research gap by developing a model that depicts the impact of ERM, SRM, and RBSC as independent variables on the competitive position of the financial institutions listed on EGX 2024 as a dependent variable by moderating the ITC. The main objective can be achieved through addressing the following sub-objectives.

3.1 To identify the impact of enterprise risk management on the competitive position of the financial institutions listed on EGX 2024.

3.2 To identify the impact of strategic risk management on the competitive position of the financial institutions listed on the EGX 2024.

3.3 To identify the impact of the risk-balanced scorecard on the competitive position of the financial institutions listed on the EGX 2024.

3.4 To investigate the moderating effect of ITC on the relationship between enterprise risk management and the competitive position of the financial institutions listed on the EGX.

3.5 To investigate the moderating effect of ITC on the relationship between strategic risk management and the competitive position of the financial institutions listed on the EGX.

3.6 To investigate the moderating effect of ITC on the relationship between the risk- balanced scorecard and the competitive position of the financial institutions listed on the EGX.

4. RESEARCH IMPORTANCE

4.1 Scientific Importance

The scientific importance of the research lies in the following points:

- Reviewing the intellectual debate on the implications of enterprise risk management on the performance of the business organization, where there is a discrepancy in the inferential results between the positive for some and the lack of effect for others.
- Extending the interdisciplinary research by shedding light on the implications of both the strategic management theme and the information technology theme for the financial management discipline.
- The present study is regarded as the first in the Arabic world to examine the causal relationships between the three primary approaches to risk management—enterprise risk management, strategic risk management, and the risk-balanced scorecard—and the dependent variable of business organizations' competitive position, while accounting for the moderating influence of information technology capability.

4.2 Practical Importance

The following are the main areas of this research's practical implications:

- Drawing the attention of decision makers to the significance of aligning risk management practices to the objectives and strategies of the organization in order to maximize its potential and, most importantly, to fortify the organization's competitive position.
- Assisting risk management decision-makers in differentiating between strategic risk management approaches, implementation methods, and their correlation with the performance of the organization.
- Enable risk management decision-makers in various corporate organizations to evaluate how well they are able to strategically manage the many risks they encounter in the workplace.
- Give all parties involved a fundamental grasp of how information technology capabilities could optimize their potential and offer significant contributions to strategic risk management.

5. LITERATURE REVIEW

5.1 Risk Concept and Categories

The term "risk" in the strategy literature is commonly used to describe the internal or external forces that may negatively affect the performance of the organization (Miller, 1992; Sax, 2015). These forces may impact the firm's competitive advantage (Fiegenbaum and Thomas, 2004; Kaplan et al., 2020),

long-term strategy (Andersen, 2011; Beasley et al., 2015), and survival (COSO, 2004; Dhlamini, 2022). Furthermore, the most widely held belief is that risk reflects variance in the distribution of potential outcomes, their subjective values, and their likelihoods. Similarly, risk has been defined as the unpredictable nature of business outcome factors (Miller 1992; and Frigo and Anderson, 2011). Risks can be divided into three groups according to their degree of management, predictability, and controllability, as well as—most importantly—the severity of their effects on the business (Kaplan, 2009; Kaplan et al., 2020; Dhlamini, 2022). The lowest level, Level 3, includes project risk as well as regular operating and regulatory concerns. Strategy risks are represented at Level 2, whereas global enterprise risks are included at Level 1 (Kaplan, 2009; Kaplan et al., 2020). Level 1: The operational and compliance risks include mistakes in regular practices that can cause a business to suffer large losses (Weeserik and Spruit, 2018). For instance, it covers internal control processes, tax systems, asset protection, and financial accounting (Moosa, 2007; McConnell, 2015). In the financial services sector, operational risk is defined by Moosa (2007) as any risk exposure that does not fall within the categories of credit or market risk. Operational risk management aims to prevent significant losses and assist organizations in better identifying, measuring, and managing risks. Project risks refer to an occurrence that has the potential to influence or impact any of the project components (Mentis, 2014). The main causes of project risks are insufficient project oversight, a lack of a project plan that explains the goals, budget, and timeline, ineffective project management, and a lack of risk management (Mentis, 2015). According to Robert, Wallace, and McClure (2003), Sax (2015), and McConnell (2015), strategic risk is the term used to describe possible threats that could have a major impact on an organization's ability to survive. It can be divided into several categories, including competitor, economic, political, regulatory and compliance, and technological risks (Emblemsvåg and Endre Kjølstad, 2002; Frigo and Anderson, 2011; Dhlamini, 2022). Andersen and Sax (2020), define regulatory and compliance risks as those that result from failure to adhere to established regulatory standards or regulations, self-managed codes of conduct, and the related compliance obligations. The number of regulations that organizations must comply with has undoubtedly expanded due to greater globalization, and the process of compliance has become much more complex. Competitor risks are actions or attitudes of an organization's competitors that have a significant impact on its ability to achieve its goals (Dhlamini, 2022). Economic risks are those that arise from more general macroeconomic circumstances that impair the organization's capacity to achieve its strategic goals. These include, for instance, the country's interest rate, inflation, unemployment rate, foreign exchange rate, monetary policy, and fiscal policy (Francis, 2019). As stated by Zegart and Rice

(2018), political risk addresses the unpredictability of shifts in foreign policy, geopolitics, and public policies. Transfer risk and confiscation risk are blatant examples of these kinds of risks. Technology risk is defined by Ernawati and Nugroho (2012) as the effect of unpredictable events pertaining to the adoption/use of timely and appropriate technology and the organization's ability to address cybersecurity risks emerging from the ever-increasing use of technology in the fourth industrial revolution. According to Bromiley, Mcshane, Nair and Rustambekov (2015) and Schwab (2017), some examples of these technological advancements include virtual reality (VR), augmented reality (AR), 3D printing, blockchain technology, artificial intelligence, and cloud computing solutions. Kaplan (2009) and Kaplan et al. (2020) argue that unforeseeable risks are those that cannot be detected since no amount of information or analysis would have allowed for their discovery. Interdependent risks, or those that arise from a cascade of other risks, are included in this category of unforeseen/unforeseeable risk. The fact that these are nearly impossible to detect before they occur makes them harmful (Roberts et al., 2003; Kaplan et al., 2020).To manage these three levels of risk, organizations must determine their risk appetite and build capabilities to respond to these uncertain events (Bromiley et al., 2015; Kaplan et al., 2020). Also, they should identify and mitigate risks, monitor risk exposure, and earn superior returns (Frigo and Anderson, 2011; Francis, 2019; Dhlamini, 2022).

Battiston, Dafermos, and Monasterolo (2021) and Bello, Folorunso, Onwuchekwa, and Ejiofor (2023) contend that financial institutions face a variety of risks that can affect their stability and performance (Battiston et al., 2021; Bello et al., 2023). These key types of risks include credit risk, market risk, operational risk, liquidity risk, and compliance risk. Credit risk is the risk of loss due to a borrower's failure to repay a loan or meet contractual obligations. Managing credit risk involves assessing the creditworthiness of borrowers, setting appropriate credit limits, and maintaining adequate provisions for potential losses (Yoshino and Taghizadeh-Hesary, ,2014). Market risk arises from fluctuations in market prices, such as interest rates, foreign exchange rates, and equity prices (Adejugbe and Adejugbe, 2019). Financial institutions manage market risk through strategies such as hedging, diversification, and the use of financial derivatives (Eziefule, Adelakun, Okoye, and Attieku, 2022; Bello et al., 2023). Operational risk results from failures in internal processes, systems, or people, or from external events. This includes risks such as fraud, system failures, and human errors. Effective operational risk management involves implementing robust internal controls, disaster recovery plans, and regular audits (Scandizzo, 2005). Liquidity risk is the risk that an institution will not be able to meet its short-term financial obligations due to a lack of liquid assets (Abdel Megeid,

2017). Managing liquidity risk involves maintaining sufficient liquid reserves, conducting stress testing, and establishing liquidity contingency plans. Compliance risk is the risk of legal or regulatory sanctions, financial loss, or reputational damage resulting from non-compliance with laws, regulations, or internal policies (Adanma and Ogunbiyi, 2024).

5.2 Maturity of Strategic Risk Management

5.2.1 Enterprise-wide risk management

ERM was defined by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in 2004 as "a process, effected by an entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives "(Frigo and Anderson, 2011). ERM's overarching goal is to guarantee that organizations are able to recognize, evaluate, and control risks. Any successful ERM approach should ultimately enable the integration of risk management practices with the organization's goals and strategies (COSO, 2004; Kotze, Vermaak, and Kirsten, 2015 ; Dhlamini, 2022). ERM evolved from traditional risk management (TRM) (Bromiley et al., 2015; McShane, 2018). Initially, TRM was used for operational actions pertaining to safety concerns and insurance management for hazards (Bromiley et al., 2015 ; Przetacznik, 2022). TRM grew to include financial risk management once the options pricing model was introduced in the early 1970s, but this field evolved independently of hazard management (Dionne, 2013). TRM gave rise to the idea of ERM in the late 1990s. Two key characteristics set ERM apart from TRM. First, the company should manage all risks under ERM, including operational and strategic risks in addition to financial and hazard risks. Second, the company should view these risks as portfolios that cross organizational or functional divisions rather than silos where various sections manage distinct risks on their own (Bernstein, 1996; COSO, 2004; Przetacznik, 2022). Consolidated across departments and organizational units, the management of "all" risks under ERM inevitably includes strategic hazards, with a tendency toward risk management at the strategic level of the organization. Managing strategic risks has been mentioned both overtly and implicitly in ERM discourse (Hunziker, 2019).

What exactly constitutes ERM is debated, as there are multiple definitions available, and managers should not assume that ERM provides a defined set of practices (Bromiley et al., 2014). Despite disagreement on the actual definition, consensus has been emerging about the main features of ERM (Bromiley et al.,

2015). Bromiley et al. (2015) highlight the following core elements. Risks should be assessed in a portfolio at the corporate level in an integrated manner to understand interdependencies between them. In addition to traditional risks, strategic risks are considered. Finally, risk is also considered an opportunity that a company can manage based on its competitive advantage (Bromiley et al., 2015).

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) proposed the first comprehensive framework of an ERM system that all business organizations can capitalize on to strategically manage all types of risk (COSO, 2004; Bromiley et al., 2015). The recent financial crisis has prompted the growth of enterprise risk management (ERM) frameworks, most of which aim to handle risks holistically, building on the original COSO framework (Gates, Nicolas, and Walker, 2012; Mensah and Gottwald, 2015). The COSO (2017) updated version has become a best practice template for ERM, as it represents an integrated approach to managing total risk with more emphasis on its strategic perspective. According to the COSO framework (2004; 2017), high-level risk management entails (i) risk identification, (ii) risk assessment and analysis, and (iii) risk management (Frigo and Anderson, 2011; Przetacznik, 2022).

First, risk identification, as proposed by COSO (2004:2017), should be built on analysis of business context seeking to define risk appetite and risk tolerance. Determining the organization's risk appetite is a necessary step in the risk assessment and management process (COSO, 2017; Francis, 2019). It helps the organization to effectively determine the level of risk it can tolerate given its current resources and skills. Also, the internal environment analysis as outlined by COSO (2004; 2017) forms the foundation of ERM, encompassing ethical values, personnel development, risk management philosophy, and authority and responsibility assignment (COSO, 2004; 2017). In addition, formulating strategic objectives and strategies is a critical component of the risk identification phase, as it helps to identify and understand the potential risks associated with each objective and strategy (COSO 2004; 2017; Frigo and Anderson, 2011). An entity's mission outlines its aims and objectives, which are typically set by management with board oversight. The four main objectives are strategic, operations, reporting, and compliance. These objectives reflect management's choice to create value for stakeholders, ensure efficient resource use, maintain reliability of reporting, and comply with laws and regulations (Prewett and Terry, 2018). Finally, event identification involves identifying incidents or occurrences that influence strategy execution or goal achievement, originating from internal or external sources (COSO, 2017; Silva, Silva, and Chan, 2019). Management acknowledges uncertainty in event identification but initially considers various

possible occurrences without focusing on favorable or unfavorable impacts (COSO, 2004; 2017).

Second, after recognizing the potential risks, an organization could advance to assessing and prioritizing risks based on their likelihood and impact on the company's ability to achieve objectives (Hunziker, 2019; Kaplan et al., 2020). It involves various approaches like benchmarking, probabilistic models, and gathering general opinions to evaluate the possibility and impact of risks.

Finally, managing risk includes selecting and deploying the relevant risk responses. According to COSO (2004; 2017), risk responses include avoidance, reduction, sharing, and acceptance. Avoidance involves refusing dangerous activities, reduction reduces impact, sharing decreases impact, and acceptance does not alter risk impact (COSO, 2004; 2017; Dhlamini, 2022). Also, control activities are a powerful component in this phase, as they ensure management's risk responses are executed correctly and on schedule, with overlap and some focusing on one category: strategic, operations, reporting, or compliance (Saeidi, Sofian, and Abdul Rasid, 2014; Yang , Ishtiaq, and Anwar, 2018). Information and communication are crucial for detecting, evaluating, and addressing risks and managing businesses. Information systems collect, process, analyze, and report data, but effective communication with internal and external parties is essential (COSO, 2004; 2017). Internal communication should clearly communicate the entity's goals, risk appetite, ERM significance, and staff roles (Tan and Lee, 2022). ERM evolves over time, requiring management to assess its effectiveness (Aven, 2013). COSO (2004; 2017) suggests continuous operations or independent assessments for monitoring, with continuous monitoring increasing in scope and efficacy, reducing the need for independent assessments (Prewett and Terry, 2018; Kaplan et al., 2020).

According to Frigo and Anderson (2014), the most successful and efficient application of the framework's concepts and principles will depend on a number of factors, including an entity's size, complexity, industry, culture, management style, and others. Even similar organizations implement enterprise risk management differently due to the variety of options and approaches available, whether they are evaluating the effectiveness of their current enterprise risk management process, which may have been developed ad hoc over time, or applying the framework's concepts and principles for the first time (Frigo and Anderson, 2014).

Many studies have been conducted on the impact of ERM on a firm's value and performance and have considered the characteristics of adopters (e.g., Liebenberg and Hoyt, 2003; Beasley, Pagach, and Warr, 2008; Hoyt and Liebenberg, 2011). Firms with higher financial leverage are more likely to adopt ERM, as they face a

higher likelihood of financial distress (Pagach and Warr, 2007). Beasley et al. (2008) argue using an appointed chief risk officer (CRO) as a proxy to gauge the extent of ERM implementation. Previous research has determined that organizations with an appointed CRO are likely to be further along in terms of implementing ERM. This is ascribed to the presence of a person to advance the risk management agenda at the senior management level (Beasly et al., 2008). Other studies suggest that a firm's size and the presence of a CRO are significant antecedents to ERM adoption.

However, the literature on ERM and its relationship with firm value and performance shows mixed findings, with inconsistent methods used to measure ERM and outcome variables (Beasley, Clune, and Hermanson, 2005). Fraser, Quail, and Simkins (2024) believe that the majority of ERM risk professionals consider risks as discrete items and ERM as a static process, not a dynamic ecosystem. Risks are identified by brainstorming or are taken from a registry, risk universe, or another source. They are ranked after being evaluated separately based on a set of criteria (Fraser et al., 2024). The organization might have a roll-up of some sort, or there might be risk assessments or workshops with the top management and executive team. In any case, the risks are ranked. Moreover, Alawattegama (2024) concludes that complexities in risk measurement, not linking the risk information properly to strategic decision-making, ambiguity in roles and responsibilities in risk management, and lack of embodiment of ERM in organizational culture are the most common shortcomings that prevent organizations from maximizing the potential benefits of ERM.

5.2.2 Strategic Risk Management

Frigo and Anderson (2011) defined strategic risk management as a process for identifying, assessing, and managing risks and uncertainties that could inhibit an organization’s ability to achieve its strategy and strategic objectives with the ultimate goal of creating and protecting stakeholder value (Frigo, 2009; Frigo and Anderson, 2011).McConnell(2015) suggests that SRM is the process of developing insight into the potential risks that could affect the achievement of a firm strategy and determining the appropriate mitigation actions to deal with them (McConnell, 2015). It involves addressing two types of risks: (i) strategic positioning risks, which look at whether the organization’s strategic direction is still the right one, and (ii) strategic execution risks, which look at the relevance of the strategic plan and assess if they are still on track to achieve set objectives (McConnell, 2015).

Andersen and Sax (2020) believe that there are no commonly agreed definitions of SRM or of strategic risks, and that, in practice, definitions depend on the

person's background, professional orientation, and managerial perspective. Therefore, SRM is a multidisciplinary practice that has progressed beyond just insurance and financial management to an overall managerial discipline/practice (Andersen and Sax, 2020). The ultimate objective of SRM is to increase the likelihood that strategic objectives are realized and that value is preserved and enhanced. It is important to manage all risks effectively to ensure that the net impact of risk exposure does not affect the survival of the organization (Roberts et al., 2003; Kaplan et al., 2020).

Although SRM is thought to be far older than ERM, it has been referred to as a subset of ERM according to Bromiley et al. (2015). It is a necessary foundation of enterprise risk management (Andersen, 2011). SRM requires a strategic view of how external and internal events will affect the ability of the organization to fulfill its objectives (Anderson and Frigo, 2020). Boards of directors, management, and others must be involved in this aspect of ERM (Boella et al., 2013).

Frigo and Anderson (2011) provided a framework for SRM that highlights the essential elements of the process and makes it clear that everyone involved in the SRM process has to understand the organization's business environment and strategy. To identify the strategic risks, the first step of Frigo and Anderson's (2011) methodology—developing mission and values—could be incorporated into a strategic risk assessment. Translating the strategy is the second element. The creation of strategy maps, strategic themes, objectives, measurements, targets, and initiatives are all part of this stage. Creating performance metrics and risk-based objectives is a necessity during this phase (Kaplan et al., 2020). Aligning business units, support units, staff, and boards of directors is the third element. In order to align risk and control units toward more effective and efficient risk management and governance, the Strategic Risk Management Alignment Guide would be helpful during this phase (Grove and Clouse, 2016; Kaplan et al., 2020). The creation of the operating plan, budgeting, resource capacity planning, sales planning, and major process enhancements are all included in the fourth step (Frigo and Anderson 2011; Mentis, 2015). At this point, the operating plan and dashboards, including risk dashboards, can show the strategic risk management action plan. Step five is to observe and learn: Operational and strategy reviews are part of this phase (Frigo and Anderson, 2011). The continuous, closed-loop method required for successful strategy risk assessment is reinforced by the inclusion of strategic execution (Kaplan, 2009; Kaplan et al., 2020). Lastly, test and adapt: this phase covers new strategies and profitability assessments. At this point, emerging risks might be viewed as a component of the continuous strategic risk assessment (Frigo and Anderson,

2011). An organization's strategy-execution procedures can benefit from the strategic risk assessment, which can enhance risk governance and management (Grove and Clouse, 2016).

The building blocks of Frigo and Anderson's model (2011) have been strengthened by different studies; for example, according to McConnell (2015), Grove, and Clouse (2016), SRM is a practice that helps to enhance governance and maintain the alignment between risk management and strategic management. As part of the strategic planning process, it would be beneficial to undertake a strategic risk assessment to determine the strategic risks that could impact the planned strategy and then establish the mitigation actions to bring any associated risk within the strategic risk appetite of the organization (Pargendler, 2016; Andersen and Sax, 2020).

Du Toit (2016) advocates that a thorough comprehension of the business environment is required in order to get insight into the factors that may influence the strategy's implementation and, thus, give rise to strategic risks (Du Toit, 2016). Using a variety of measurements and graphical presentations, such as probability and impact metrics, heat maps, and scenario planning, enables the enhancement of the effectiveness of identifying, analyzing, and managing strategic risks (Cardoso and Emes, 2014; Hoffmann, 2017; Schwarze & Taylor, 2017). This would enable the organization to identify the various events/challenges as they materialize for each of the scenarios and to respond to scenario planning (Cardoso and Emes, 2014).

Kaplan et al. (2020) confirm the importance of tracking the performance indicators of the company to make sure that strategic objectives are implemented effectively. This evaluation must be extended to track and report the strategic risk-performance indicators (KPIs) in order to enhance the firm's awareness of the direction and intensity of strategic risk (Kaplan, 2009; Kaplan et al., 2020).

From a different angle, Calandro (2015) argues that the scope of the SRM process should include the following components: exposure concentrations, periphery monitoring, ambiguous threat analysis, risk mitigation, risk tracking, and preserving the integrity of the business model (Calandro, 2015). This will allow an organization to be able to handle the risks that could endanger its survival. Exposure concentrations are a single exposure or group of exposures with the potential to produce losses large enough (relative to capital, total assets, or overall risk level) to threaten a financial institution's health or ability to maintain its core operations (Calandro 2015; Dhlamini, 2022). Periphery monitoring involves the process of evaluating data on occurrences or actions that are not directly related to the organization's primary business operations but may have a significant effect on the organization in the future. Therefore, careful observation of the

faint signals linked to these actions is necessary (Calandro 2015 ; Du Toit, 2016). Ambiguous threat analysis is the process of identifying and analyzing possible risk events that the organization may not fully comprehend due to a lack of knowledge or because the risks seem insignificant and unconnected (Calandro, 2015; Zakaria, 2020; Kaplan et al., 2020). Risk mitigation refers to the strategies that an organization can use to mitigate a risk, such as risk avoidance, risk transfer, risk reduction, and risk retention (Aven, 2013; Dhlamini, 2022). Risk tracking is the process of routinely monitoring, reevaluating, and analyzing all hazards that have been recognized in order to ascertain whether the suggested mitigation measure is still suitable for effectively addressing the risk (Calandro , 2015). Maintaining the integrity of the business model is about modifying the business model in order to mitigate some of the risks or to better position the organization to withstand the danger that the risks provide (Centobelli et al. 2020).

5.2.3 The Risk - Balanced Scorecard

In contrast to the conventional method of measuring performance, the balanced scorecard (BSC) offered a fresh perspective on performance evaluation by including non-financial metrics in addition to traditional financial measures. The four main perspectives—the financial, customer, internal business processes, and learning and growth—offer a highly balanced visualization of the organization's performance (Kaplan, 1996; 2009; Kaplan et al., 2020; Priliska et al., 2023). Every perspective consists of a set of performance metrics that ought to represent the organization's performance from that particular angle (Cronje and Maritz, 2007; Kaplan, 2009). Learning and growth metrics represent the foundation for enhancing the innovation and creativity of employees. According to Nugroho and Pangeran (2021), human capital that is talented is more inclined to improve internal processes, which results in high - quality goods and services, satisfied customer, and more profits.

Given the amazing speed at which new changes and threats can materialize, some have suggested that the BSC does not respond to outside events that could jeopardize a strategy's successful execution (Nørreklit, 2003). Therefore, the original BSC framework has been criticized for not taking risk into consideration (Nørreklit, 2003). Including risk in the BSC may help at least to raise risk awareness throughout the organization (Woods, 2008). To meet its established strategic goals, the organization and its associated business units must function inside the organized framework that ERM offers (Monica and Pangeran, 2020).

Various authors have examined the integration of BSC and ERM to determine the precise functions of BSC in risk management and the ways in which BSC and

ERM can work together. BSC has the potential to leverage risk control (Papalexandris,Ioannou, and Prastacos, 2005; Scholey, 2005), risk assessment (Calandro and Lane, 2006; Monica et al.,2020), and risk awareness (Cheng, Humphreys and Zhang , 2018). The combination of BSC and ERM has also been the subject of a few case studies that provide beneficial information on the mechanism of incorporating risk measures with performance measures (e.g., Elkhouly, Ibrahim, Frargy, and Kotb, 2015 ; Asmarawati, and Pangeran, 2021; Safitri and Pangeran, 2020; Ratri and Pangeran, 2020). Cheng et al. (2018) believe that BSC has the potential to provide a thorough profile of information required to make managerial judgments based on strategy risks.

Nugroho and Pangeran (2021) studied the integration of BSC and ERM and tried to identify the different types of risks that could be included in BSC by using the ISO 31000 RM framework. Based on their case study, the authors have been successful in determining several types of risks, such as financial risk, operational risk, technology risk, business ethics risk, health and safety risk, economic risk, legal risk, political risk, market risk, and project risk, that could be effectively incorporated and managed through the four main perspectives of the BSC (Nugroho and Pangeran, 2021).

Scandizzo (2005) advocates that whereas the BSC relies on key performance indicators, risk management can rely on key risk indicators. This perspective can provide a practical method for the integration of risk management in the BSC. Business process indicators can be associated with risk indicators that threaten the organization's progress (Scandizzo, 2005). Risk measures can also be classified as being either leading, current, or lagging.

Papalexandris et al. (2005) state that BSC is useful for assessing risks, which starts with identifying potential risks and uncertainties, then examining and prioritizing them, and finally planning for contingency and mitigation measures (Papalexandris et al., 2005).

(Palermo, 2017) argue that adding risk measures to the face of the scorecard may lead to an overly complex scorecard. Also, the BSC is meant to present a meaningful overview of the performance information of an organization at a single glance and should therefore not convey too much information (Palermo, 2017).

Scholey (2005) supports the idea of adding a single aggregated risk measure to the internal business process perspective to overcome the problem of complexity. This approach may have the advantage of keeping the face of the scorecard cleaner and less complex than it would be if an organization were merely to add risk measures to the face of the BSC. In some cases, especially where risks are

more complex on the operational side, this approach could enable an organization to include it in a concise manner. Also, a separate risk perspective could be added to the BSC's original four perspectives so that there are five perspectives in total. Individual risk perspective is especially recommended for risk management in banks, according to Bessis (2002). In that risk perspective, risk-related objectives are displayed and operationalized by measures, targets, and initiatives to combat the risks.

According to Kaplan (2009), ERM processes vary depending on the specific type of risk. The BSC and strategy map help identify, manage, and integrate strategic risks with a company's strategic objectives. Organizations should formulate metrics for each objective, set targets, and implement strategic initiatives to close the gap between the target and current performance (Calandro and Lane, 2006). Building a risk scorecard involves identifying primary risk events and selecting early warning or leading indicators for each risk event (Scandizzo, 2005; Kaplan, 2009; Kotze et al., 2015). Therefore, it seems more sensible to create a separate risk- balanced scorecard based on an organization's main strategic objectives (Kaplan, 2009; Kaplan et al., 2020).

Calandro and Lane (2006) advocate the idea of developing a separate risk-balanced scorecard rather than adding risk measures to the face of BSC. The risk-balanced scorecard must include financial perspective risk, customer perspective risk, internal process risk, and learning and growth risks. Financial perspective risks represent the volatility in capital markets, affecting a company's financial stability. This risk can be quantified using the capital asset pricing model and weighted average cost of capital. Debt financing can raise concerns about a company's solvency, while less-than-ideal tax planning can be analyzed using value-at-risk and debt-to-equity ratios. Customer perspective risk involves the risk of giving up customer satisfaction. It is crucial for a company's success, as it affects its overall customer base. Metrics like complaints, surveys, and shopping frequency deviation can quantify the risk of missing customers (Calandro and Lane, 2006). The internal risks perspective refers to threats that could interrupt the organization's value chain, affecting its ability to execute its strategic plan. These risks include technological, human resources, process, and organizational risks. System security is the primary concern of technological risk. Human resources risk involves unnecessary personnel turnover. Process risk refers to inadequate implementation of processes and methods, as measured by unsatisfactory internal audit findings. Organizational risk can be measured by tracking the number of administrative complaints received over time (Calandro and Lane, 2006). Finally , learning risk perspective reflects the potential for a company's learning incentives to not have the maximum impact, measured by

employee productivity and promotion proportion, impacting other perspectives such as law compliance (Calandro and Lane, 2006).

5.3 Information Technology Capability

Information technology capability is defined as the ability to use and implement IT-based resources in conjunction with other organizational resources through organizational processes (Bharadwaj, 2000 ; Stoel and Muhanna,2009 ; Chakravarty, Grewal, and Sambamurthy, 2013; Lejla and Nijaz, 2015). Numerous studies have identified different essential factors of IT capability, for instance, IT infrastructure (Bhatt and Grover, 2005; Kim, 2016), IT resources (Mithas, Ramasubbu,and Sambamurthy, 2011), IT investment (Zhang, Huang, and Xu, 2012), and IT acquisition (Tippins and Sohi, 2003). Chakravarty et al. (2013) state that IT capability encompasses human IT resources, including technical and management IT skills; IT-enabled intangibles, such as knowledge assets, customer orientation, and synergy; and IT infrastructure, which includes hardware, software, and communication technologies (Chakravarty et al. ,2013).

Bergerona, Raymondb, and Rivardc (2004) divide IT capabilities into two categories: IT strategy and IT structure. IT strategy encompasses both strategic IT use and IT environmental scanning. On the other hand, IT structure refers to the ability of a company to process information. It includes two main aspects. The first is organizational design, which depicts the decentralization level for an IT organizational structure, as well as the degree of accountability for IT functions. The second is technological architecture, which is comprised of hardware deployment, data integration, application levels, and technology standardization (Bergerona et al. 2004).

The impact of IT on company performance has been the subject of numerous theories that have been created and validated. According to Subriadi, Hadiwidjojo, Djumahir, Rahayu, and Sarno (2013), the resource-based theory is the one that researchers utilize the most to explain the connection between IT capabilities and company success. Barney (1991) asserts that a firm's resources will contribute to its competitive advantage if they are valuable, rare, and non-substitutable. By utilizing this view, businesses may be able to create a long-term competitive edge if they have the resources with these traits. The idea of complementarity was then introduced by Brown and Magill (1994) to better clarify the function of resources and how they affect business value. Accordingly, the existence of more complementary resources will raise the value of firm resources (Bharadwaj, 2000; Bhatt and Grover, 2005). Competitors will find it challenging to replicate the significant impact of complementary resources.

Aydiner, Tatoglu, Bayraktar, and Zaim (2019) highlight the potential benefits that organizations could extract from the effective deployment of operational IT, which is separated into transactional apps and technological infrastructure. Transactional applications automate tasks, generate information, and enhance business management. Technological infrastructure connects companies, enables information sharing, and reduces IT costs (Melville, Kraemer, and Gurbaxani, 2004; Appiahene, Ussiph, and Missah, 2018).

The substantial contribution of several IT categories in enhancing organizational performance is promoted by Wang, Kung, and Byrd (2018). Analytical IT aids in tactical and strategic decision-making by providing data and systemic knowledge for organizational processes. Tactical IT enhances information quality, planning, execution, and control of activities (Davenport, Harris, and Shapiro, 2010; Chen, Wang, Nevo, Benitez, and Kou, 2015). Strategic IT contributes to competitive advantage development and market share by aligning with a firm's core business and customer needs, enabling a firm to achieve objectives and targets (Xiaoying, Qianqian, and Dezhi, 2008).

5.4 Competitive Position

The competitive position of an enterprise is the result of the market evaluation (especially by customers) of what it offers (Ryszard, 2012; Mohammed, 2016). Possessing a competitive advantage determines if a desired competitive position is attained. Competitive advantage is defined as the ability of an organization to create a position to withstand its competitors (Tseng and Lin, 2008; Hoopes and Madsen, 2008). There are two basic types of competitive advantage a firm can possess: low cost or differentiation. The two basic types of competitive advantage, combined with the scope of activities for which a firm seeks to achieve them, lead to three generic strategies for achieving above-average performance in an industry: cost leadership, differentiation, and focus (Porter 1985).

The resource-based view explores the idea that a firm's resource endowments must be diverse in order to have a sustainable competitive advantage (Barney, 1991; Barney and Wright, 1997). It also emphasizes the importance of developing valuable and scarce resources and capabilities (Grant, 1996). The Knowledge-Based View of the Firm (KBV), like the RBV, highlights knowledge as a firm's most valuable strategic asset. RBV, which argues that knowledge is the firm's primary productive resource, naturally leads to the KBV. One of the main disadvantages of both the KBV and the RBV is that they seem to ignore the dynamics of market rivalry. Hortovanyi (2016) emphasizes the dynamic nature of competition and the interaction between competitiveness and the economic,

social, and political factors of the situation of the country or individual producers in domestic and foreign markets (Hortovanyi , 2016).

The previous studies showed a variety of dimensions to competitive advantage, but most of them emphasized the three main components shaping competitive advantage: cost leadership, differentiation, and focus (Fatkhutdinov, 2005; Sigalas, Economou, and Georgopoulos, 2013; Diab, 2014; Mohammad, 2016). Additionally, a number of earlier studies that were applied to financial institutions looked at competitive advantage from a variety of dimensions, including cost effectiveness (Sahile, Kipkirong, Tarus, Kimeli, and Cheruiyot, 2015), innovative ideas and creative product development (Epetimehin, 2011; Majeed, 2011; Barrett, Davidson, and Vargo, 2015), responsiveness to customers (Manti, 2022), and big data (Prescott, 2014). Other studies measured competitive advantage by using financial measures such as Return on Equity (ROE) and Return on Assets (ROA) (Barney and Hesterly, 2019). According to Ade, Akanbi and Tubosun (2017), the most basic and synthetic measures of the competitive position of each enterprise are its market share and achieved financial results (Ade et al., 2017). The most common captured antecedents of competitive advantages in previous literature are innovation (Abou-Moghli, Abdallah, and Muala, 2012; Noorani, 2014), enterprise risk management (Saeidi et al., 2018), and entrepreneurial orientation (Gitau, Mukulu, and Kihoro, 2016; Kiyabo and Isaga, 2020).

Kasasbeh, Harada, and Mdnoor (2017) argue that the competitiveness scale of financial institutions' services, including banking services, should use the quality of services in terms of their basic types, such as the variety of services offered, speed of service delivery, and forms of promotion services, to reflect how appealing the service is to the consumer in comparison to competing services (Kasasbeh et al., 2017). In the same vein, the study of Klimontowicz (2016) uses the scale established and validated by Deshpandé, Farley, and Webster (1993) and later used by Derevyanko (2015) to measure the competitiveness of the commercial banks. The original scale has five components: the organization's market share, growth, earnings, innovativeness, and overall success versus its competitors.

6. HYPOTHESES DEVELOPMENT

6.1 Enterprise Risk Management and Competitive Position

The Resource-Based View (RBV) and the Knowledge-Based View (KBV) of the Firm emphasize resource portfolio, identification, deployment, and development to boost competitive advantage (Barney, 1991; Barney and Wright, 1998). ERM is a strategic asset that enables business organizations to optimize their resources, particularly capital and fund resources, and creates a competitive advantage (Wade, Hulland, 2004; Rahman et al., 2013). Due to the differences in business type, size, and objectives, every corporation has a different ERM system that is essential to its success and that rivals cannot imitate. Therefore, ERM can create benefits for organizations that implement it in a way that is different from competitors(Cagliano,Grimaldi, and Rafele, 2015).Remarkable studies concluded that ERM adoption significantly reduces capital costs, generating value and boosting an organization's wealth (Berry- Stölzle and Xu, 2014; Farrell and Gallagher, 2018; Florio and Leoni, 2018).

According to Elahi (2010), ERM is crucial for businesses to attain long-term competitive advantages due to its nature and function, which allow integrated risk management and enhance risk management over competitors. Saeidi et al. (2018) and Anderson and Frigo (2020) argue that ERM helps to cultivate a risk awareness culture and reduce the sensitivity of the organization to risks, which leads to a stronger competitive position in the market (Saeidi et al., 2018; Anderson and Frigo, 2020). Nocco and Stulz (2006) prove that with proper management, ERM can give businesses a sustained competitive edge. For instance, it is different from ad hoc risk management in that it involves a methodical approach to risk identification and analysis, as well as a company-wide decision-making process for risk responses (Nocco and Stulz ,2006 ; Callahan and Soileau, 2017).

Furthermore, the findings of a study by Grace et al. (2015) argued that companies that prioritized a variety of ERM-related tasks—such as giving weight to a basic economic capital model, having a dedicated risk manager or risk management team, and having risk managers report to the board—experience increases in cost and revenue efficiency. Also, the study of Chatterjee et al. (2003) advocates that businesses can benefit from greater capital efficiency by making ERM a core competency since it improves the ability to manage corporate resources based on a well-informed risk-reward trade-off.

On the other hand, Beasley, Pagach, and Warr (2007) measured ERM adoption by the level of risk assessment reported in annual reports and financial statements and did not find an effect on performance. Furthermore, Slywotzky

and Drzik (2005) believe that although ERM promotes a more strategic consideration of risk, many of these early adopters treat their enterprise risk management as an extension of their audit or regulatory compliance processes. Compliance-driven risk management can hardly play a strategic role or lead to a competitive advantage. Drawing on the above conflicting results, we formulate the following hypothesis:

H1. Enterprise risk management does not have a significant impact on a firm's competitive position.

6.2 Strategic Risk Management and Competitive Position

The research conducted by McKinsey suggests that businesses with effective strategic risk management practices are more likely to outperform their competitors in terms of revenue growth and shareholder returns (Khan, Hussain, and Mehmood, 2016). Also, the study of Francis (2019) states that under strategic risk management, business organizations become more able to identify and rank the strategic risks according to how they affect the organization's KPI, followed by probability estimation and the creation of risk matrices—a visual representation of risks based on their frequency and severity is developed. Accordingly, the risk response tactics are being selected in light of and aligned to the company's strategic priorities and, on top of them, its sustained competitive position (Meidell and Kaarboe, 2017).

Strategic risk management, according to Prewett and Terry (2018), enhances a business's competitive advantage when risk mitigation strategies are developed in line with the organization's vision, mission, and goals. Risk-avoidance strategies like credit signalizing, credit monitoring, and strong partnerships; risk-transferring strategies like loan trading and credit derivatives insurance; and risk-absorbing strategies like loss reserves and special capital allocation can all have an impact on competitive advantage in a variety of ways, such as increased returns, cost-effectiveness, customer satisfaction, and product uniqueness (Prewett and Terry, 2018).

Zakaria (2020) advocates that strategic risk management makes it possible to match risk response plans to business strategic goals while taking the environmental threats and opportunities into account. Four risk response tactics are used in the banking industry to maintain a bank's competitive edge. The first is the operational efficiency strategy, which emphasizes reducing operational bottlenecks, increasing productivity, and lowering errors by capitalizing on new technology or process improvements. The second is maintaining a regulatory compliance strategy through internal controls, frequent audits, and training staff on industry-specific laws (Waithaka, 2021). The third is growth strategy, which is

driven by thorough diligence on possible acquisition targets, assessing organizational culture fit, and foreseeing integration challenges after the acquisition (Frigo, 2011). The fourth is a cybersecurity strategy that calls for ensuring that employees invest in state-of-the-art security measures and receive regular cybersecurity training (Zakaria, 2020).

The study by Elahi (2013) argues that effective strategic risk management systems that build on external, internal, environmental, and competitive intelligence provide four competitive advantages: enabling organizations to serve when others cannot, seeking riskier opportunities, enhancing corporate performance, and building a resilient image. These advantages help to attract more business, lower risk transfer costs, and offer credible guarantees, allowing companies to negotiate premium prices. Resilient companies perform better in the stock market, as lack of proper risk management negatively impacts long-term shareholders' value (Elahi, 2013). So the following hypothesis will be developed.

H2: There is a significant positive impact of strategic risk management on a firm's competitive position.

6.3 The Risk - Balanced Scorecard and Competitive Position

Because of variables like market share, competitive strategy, and company environment, businesses use the risk-balanced scorecard in different ways than competitors (Elkhouly et al., 2015). Therefore, the risk-balanced score is a source of competitive advantage according to the source-based and knowledge-based theory (Barney, 1991; Barney and Wright, 1998).

According to Kaplan (2009) and Kaplan et al. (2020), the risk-balanced scorecard helps organizations identify and manage risks related to learning, growth, internal processes, customer perspectives, and financial aspects, enhancing strategic performance measurement and promoting awareness of risks and their management. Each perspective may illustrate all types of risk that keep the company from outperforming competitors. Process and project risks fall under the internal process perspective, financial risks fall under the shareholder perspective, customer risk (including brands) falls under the customer perspective, and learning and growth risks fall under the knowledge, people, culture, and infrastructure categories (Kaplan et al.,2020).Through the elimination or reduction of risk exposures inside critical business processes, a more robust approach to risk management issues should eventually result in enhanced internal business processes. Consequently, both financial performance and customer satisfaction should increase, leading to a stronger competitive position.

The results of the study of Oliveira (2014) confirmed the thoughts of Kaplan by stating that the framework of BSC enables the company to identify its significant perspectives and define areas where relevant risks can be considered. This helps the company define more reliable strategies and allocate resources based on priorities. By focusing on risk management initiatives that address risks that pose a serious threat to the achievement of the organization's strategic goals, like maintaining competitive advantage and increasing market share, the business can ensure that resources are used effectively to minimize potential risks and exploit opportunities in a more distinguished way than rivals (Oliveira, 2014).

Moreover, the Safitri and Pangeran (2020) study concluded that a risk-balanced scorecard guarantees a balance in evaluating and controlling the risks from all perspectives, which is done quantitatively by using clear financial and non-financial data, internal and external risk indicators, and causal indicators, which aid in identifying the most important risks and taking proactive measures to address them in a way that outperforms rivals (Safitri and Pangeran, 2020).

Using the balanced scorecard to strategically manage risk, according to Elkhouly et al. (2015), allows the competitive strategy, cost leadership, or differentiation to be translated into four main perspectives using the strategy map. This is crucial for strategic risk analysis because it identifies the cause-effect linkages between different types of risks and sheds light on the best response tactics to deal with them.

The study of Frigo and Anderson (2009) suggests that incorporating a strategic risk theme into the strategy map highlights risk management as a key component of the company's competitive strategy and makes it visible for resource allocation, monitoring, and discussion at strategy review meetings. One or more risk metrics would be included for each strategic objective on the strategy map, serving as an early warning system for when performance toward that goal is at risk. Even one observation above a predetermined control limit or a rising trend in a risk metric would trigger a management alarm that needs to be addressed right away (Kotze et al., 2015). Drawing on the above argument, we can develop the following hypothesis:

H.3: There is a significant positive impact of the risk-balanced scorecard on a firm's competitive position.

6.4 The Moderating Effect of Information Technology Capability on the Relationships between the Independent Variables and the Dependent Variable

6.4.1 The moderating effect of information technology capability on the relationship between ERM and competitive position.

One of the essential components of ERM, according to the COSO model, is information and communication. All levels of an organization require information technology, according to Anderson (2011), in order to recognize, evaluate, and address risks and accomplish the organization's objectives. Web service-based information strategies improve information capture, control over data sources, reduce manual processing, automate analysis, and report in real-time. Also, technologies like XBRL help in data aggregation, transmission, and connectivity across systems and Web services transfer data between apps, enabling automatic sharing of corporate information across multiple platforms, hence building and maintaining a coherent, informed decision- making process, which is a key driver of competitive position (Anderson, 2011; Cohen and Olsen, 2013).

Ranong and Wariya (2009) carried out a study on critical success factors for effective risk management procedures in financial industries. The key factor identified in the study was Information Technology (IT) as a critical factor in the face of increasing competition, higher performance levels, globalization, and liberalization. Information Technology (IT) plays a key role in achieving an organization's objectives, enhances business processes, and enables shared infrastructure such as knowledge, human assets, core competencies, and communication support (Ranong and Wariya, 2009).

Advanced technology plays a crucial role in enhancing risk management capabilities. These systems automate risk identification, assessment, and reporting processes, improving efficiency and accuracy (Patterson, 2015; Munawar et al., 2022; Okatta, Ajayi, and Olawale, 2024). They also provide real-time risk monitoring and alerts. Regulatory technology (RegTech) solutions help institutions manage compliance more effectively by automating regulatory reporting, monitoring compliance with regulatory changes, and conducting risk assessments. Data analytics is essential for effective risk assessment and management (Pillitteri, 2019). Predictive analytics tools analyze historical data to identify patterns and predict future risks. This helps institutions anticipate potential issues and take proactive measures. Advanced risk modeling techniques, such as stress testing and scenario analysis, provide insights into the potential impact of different risk scenarios on the institution's financial health. With

increasing digitalization, cybersecurity is a critical component of enterprise risk management. Regular assessments of cyber risks help identify vulnerabilities and potential threats to the institution's digital infrastructure. Implementing a robust cybersecurity framework, including policies,procedures, and technologies, ensures that the institution is protected against cyber threats.

Risk management has stages of identifying risks, assessing risks, addressing and controlling them, and finally reviewing and reporting risks. In any stage, IT can facilitate flexibility, compatibility, and integration of processes (Ernawati and Nugroho, 2012). Talet, Mat-Zin, and Houari (2014) pointed out that organizations should be aware that generating and distributing information may threaten their profits, so IT tool implementation can create a more secure situation, which improves the firm's competitive position .So it is hypothesized that:

H.4: Information technology capability has a significant moderating effect on the relationship between ERM and a firm's competitive position.

6.4.2 The moderating effect of information technology capability on the relationship between strategic risk management and competitive position.

Ashoori M and Teymouri (2010) conclude that information technology strategy is a critical driver of SRM success. Aligning risk response strategies with business strategy and business model allows for the mitigation of some risks or the improvement of the organization's ability to withstand the danger that the risks present, which in turn enables businesses to boost shareholder value, enhance organizational performance, and obtain a competitive edge in the marketplace (McConnell, 2015; Kim, 2016).

Grace et al. (2015) and Francis (2019) claim that rich IT infrastructure encourages stakeholders to participate in the SRM process, enabling them to exchange information and foster learning about strategic risks that could impact the organization's competitive position and the most effective response strategies to address them in comparison to competitors.

According to Bergerona, Raymondb, and Rivardc (2004), IT structure aids in the modernization of SRM systems, enabling them to detect, evaluate, react, and track events more efficiently than their competitors do. Business organizations could increase the potential of the SRM system relative to competitors by extending the scope of risk-measuring tools beyond the traditional graphical presentations and heat maps to include more advanced capabilities like AI intelligence. Effective hardware deployment, data integration, application levels, processes, and capabilities all contribute to the effectiveness of strategic risk

analysis and the early detection of potential risks that could jeopardize the company's competitive position and survival (Amuna et al., 2017).

Furthermore, Analytics IT allows identifying, classifying, and tracking the strategic risk metrics, comparing them to those of competitors, and following the most relevant risk response strategies to eliminate their effect on the organization's competitive position (Du Toit, 2016). As a result, the following hypothesis will be developed.

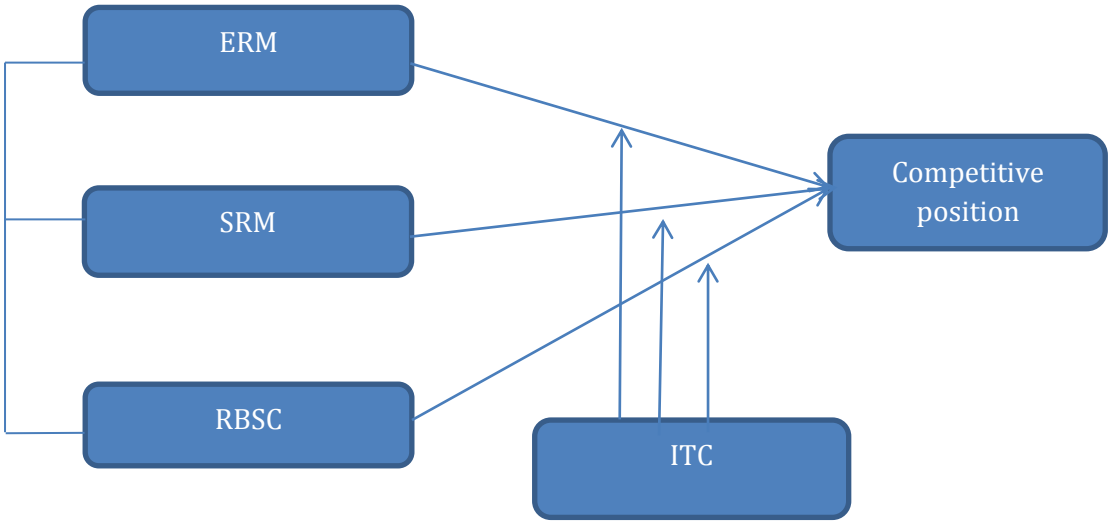
H.5: Information technology capability has a significant moderating effect on the relationship between SRM and a firm's competitive position.

6.4.3 The moderating effect of information technology capability on the relationship between the risk-balanced scorecard and competitive position

Undoubtedly, IT gives managers the ability to take advantage of risk management models like the risk-balanced scorecard, risk strategic maps, risk dashboards, cockpits, and performance reports in order to create dynamic capabilities that allow them to react to external changes more effectively than their competitors (O'Brien and Marakas, 2007; Kaplan et al., 2020). Additionally, analytics, operations, and strategy IT make it possible to classify risk based on the primary perspectives of BSC, which include human resources, finance, market, operations, and regulations, allowing for the tracking of leading and lagging indicators that contribute to the competitive advantage of the organization (Sen et al., 2015). Employing sophisticated graphics to organize and highlight pertinent data or distinguish cause-and-effect relationships between the risk measures enables the detection of the early warning signals of the future events that may hit the organization's competitive position (Kaplan et al., 2020). So, we propose the following hypothesis.

H.6: Information technology capability has a significant moderating effect on the relationship between RBSC and a firm's competitive position.

Drawing on the above literature, we can formulate the following model, which depicts the main variables of the study and the relationships between them.



7.METHODOLOGY

7.1 Sample and Data Collection

The aforementioned hypotheses and the study framework were tested using a quantitative methodology. The study's population consisted of 45 Egyptian financial institutions listed on the EGX 2024, in light of the growing challenges that require them to move aggressively toward the strategic approach of risk management (see table 1). Using critical case sampling seems more pertinent to collect required data because it helps identify managers who are responsible for creating and carrying out all activities related to risk management, including "the chief risk officer," "executive risk manager," "senior risk manager," "head of risk manager," and "vice president of risk management." An online questionnaire-based survey was sent to each participant using the census sampling technique. Of the 120 questionnaires sent to all managers involved in risk management, approximately 95 were retrieved and judged appropriate for inclusion in the statistical analysis. The average time to complete the questionnaire over the three-month data collection period (September 2024–December 2024) was fifteen minutes.

Table 1: Financial Institutions listed on EGX (2024)

Banks	Financial Institutions		
Abu Dhabi Islamic Bank-Egypt	Act Financial	Aspire Capital Holding For Financial Investments	Egyptian Arabian (For Securities & Bonds Brok.
Al Baraka Bank Egypt	Al Tawfeek Leasing Company	B Investments Holding	Egyptian Kuwaiti Holding
Banque Du Cair	Alexandria National Company for Financial Investment	Beltone Holding	El Ahli Investment and Development
Commercial International Bank-Egypt (CIB)	Arab Moltaka Investments	CI Capital Holding For Financial Investments	International Company For Leasing (IncoLEASE)
Credit Agricole Egypt	Arabia Investments Holding	Catalyst Parteners Middle East –CPME	Osool ESB Securities Brokerage
Egyptian Gulf Bank	Delta Insurance	Certificates Of Odin Egyptian Equity Investment Fund-KASAB	QALA For Financial Investments - Preferred Shares
Export Development Bank of Egypt	EFG Holding	Contact Financial Holding	Saudi Egyptian Investment & Finance
Faisal Islamic Bank of Egypt	Egyptians Real Estate Fund Certificates	Egyptian Kuwaiti Holding-EGP	Saudi Egyptian Investment & Finance $
Housing & Development Bank	El Orouba Securities Brokerage	El Kahera El Watania Investment	Raya Holding For Financial Investments
Qatar National Bank	Mohandes Insurance	Grand Investment Capital	Prime Holding
Societe Arabe Internationale De Banque S.A.E.	Naeem Holding	Orascom Financial Holding	QALA For Financial Investments
Suez Canal Bank			

Source :https://www.african-markets.com/en/stock-markets/egx/listed-companies

7.2 Variables Measurement

In order to measure and cover all eight components of ERM—internal environment, objective setting, event identification, risk assessment, risk response, control activity, information and communication, and monitoring—the scale proposed by COSO (2004; 2017) and validated in a number of studies has been utilized (e.g., Frigo and Anderson, 2011; Gates et al., 2012; Mensah and Gottwald, 2015; Przetacznik, 2022). To measure the strategic risk management, the scale of Frigo and Anderson (2011) has been adapted, including eight components as follows: the development of mission and values, translating the strategy into actions, aligning risk and control units toward more effective and

efficient risk management, the creation of the operating plan, observing and learning, continuous improvement, and testing and adapting. Also, the developments of Calandro (2015) have been recognized as a measure of SRM, including exposure concentrations, periphery monitoring, ambiguous threat analysis, risk mitigation, risk tracking, and preserving the integrity of the business model. The risk-balanced scorecard has been measured by utilizing the literature review of Kaplan (2009), Kaplan et al. (2020), and Nugroho and Pangeran (2021), which highlights the following items as key indications of applying the risk-balanced score: identifying primary risky events, selecting early warning indicators for each risky event, identifying financial perspective risk measures, identifying customer perspective risk measures, identifying internal process risk measures, identifying learning and growth risk measures, and emphasizing the cause-and-effect relationship between the four main perspectives of risk measures. To measure the moderating variable, information technology capability, the scale of Bergerona et al. (2004), which highlights two main categories of IT capability, including IT strategy and IT structure, has been adapted, supported by the literature of O'Brien and Marakas (2007) and Davenport et al. (2010). The scale used in measuring the dependent variable, competitive position, was adapted from the scale developed and validated by Deshpandé et al. (1993) and then utilized by Derevyanko (2015) and Klimontowicz (2016) along with the literature review of Barney and Hesterly (2019); Sahile, Kipkirong, Tarus, and Kimeli Cheruiyot (2015); Barrett, Davidson, and Vargo (2015); and Manti (2022), which figured out the quality of services, market share, growth, profitability, and innovativeness as measures of the competitiveness of financial institutions versus their competitors. The Likert seven-point scale, with 7 denoting "strongly agree" and 1 for "strongly disagree," was used to measure each variable.

7.3 Data Analysis Techniques

The mean and standard deviation have been used to get the descriptive statistics for the sample data. The reliability and internal consistency of the measurement scales were evaluated using the Cronbach alpha test. Confirmatory factor analysis has been used to assess the measuring scales' convergent and discriminant validity. To assess the multivariate collinearity between variables, we used the Variance Inflation Factor (VIF). The direct effect of the independent variables on the dependent variable has been investigated using simple regression analysis, and the correlation between the variables has been measured using the Pearson correlation coefficient. Finally, we tested the moderating effect of information technology capability in the relationships between enterprise risk management,

strategic risk management, and the risk-balanced scorecard using the PROCESS macro (model 1) in SPSS, which was developed by Hayes (2017).

7.4 Data Analysis

7.4.1 Reliability and Validity

According to Podsakoff, MacKenzie, Lee, and Podsakoff (2003), the following actions were taken to prevent measurement errors brought on by common method bias (CMB): (1) The survey's questions were placed adjacent to one another to create a psychological separation of measures; (2) to ensure that respondents provided honest answers, they were informed that the study was for academic research purposes, their participation would remain anonymous, and there were no right or wrong answers. Twenty-five seniors participating in risk management activities took a pretest to evaluate the face and content validity of the items used in the study, as well as the clarity of the questionnaire items, in an effort to lessen biases related to item ambiguity. Several terms were reworded in the scale items after the pretest.

The maximum variance explained by a single factor in this study was 20.8%, which is less than the 50% threshold value, indicating that there is no risk of CMB. Cronbach's coefficient alpha, which is used to quantify scale reliability, is higher than 0.7 for all of the instruments (ranging from 0.845 to 0.934), as Table 2 demonstrates. Experts in the fields of financial and strategic management have evaluated the scale's content, and we conduct structural validity analysis to see whether each item set is a reliable indication of the construct. Every item in each scale loads on a single factor, and Table 2 demonstrates that each item's factor load is more than 0.5, indicating that each factor is valid as a construct (Hair, Sarstedt, Hopkins, and Kuppelwieser, 2014). Convergent and discriminant validity are also evaluated in the study using AVE (Fornell and Larcker, 1981). If a construct's square root of the AVE is higher than the correlations between it and the other constructs, it is considered to have appropriate discriminative validity. The correlations between each of the constructs in Table 2 and the other constructs are less than the AVE square root of each construct. Consequently, the discriminant validity of the measurement is acceptable. Next, a construct's convergent validity is sufficient if its AVE is more than 0.5. The AVEs for the five constructions are 0.772, 0.758, 0.789, 0.791, and 0.805, all of which are higher than 0.5, as shown in Table 2. Consequently, the measurement's convergent validity is adequate.

Table 2: Factor loadings and Cronbach's alpha.

Constructs	Factor loadings	Cronbach's alpha	AVE	The Square Root of AVE
Enterprise risk management		0.868	0.772	0.856
ERM1	.856			
ERM 2	.889			
ERM 3	.889			
ERM 4	. 837			
ERM 5	.823			
ERM 6	.887			
ERM 7	.899			
ERM 8	.887			
ERM 9	. 845			
ERM 10	.824			
ERM 11	.878			
Strategic risk management		0.845	0.758	0.832
SEM 1	0.858			
SEM 2	0.887			
SEM 3	0.822			
SEM 4	0.889			
SEM 5	0.856			
SEM 6	0.845			
SEM 7	0.832			
SEM 8	0.845			
SEM 9	0.867			
SEM 10	0.889			
SEM 11	0.876			
SEM 12	0.889			
Risk - balanced scorecard		0.869	0.789	0.859
RBSC1	.856			
RBSC 2	.849			
RBSC 3	.843			
RBSC 4	.831			
RBSC 5	.820			
RBSC 6	.867			
RBSC 7	.870			
RBSC 8	.865			
Information technology capability		0.891	0.791	0.796
ITC1	.887			
ITC 2	.876			
ITC 3	.855			
ITC C4	.921			
ITC 5	.844			

Constructs	Factor loadings	Cronbach's alpha	AVE	The Square Root of AVE
ITC 6	.910			
ITC 7	.923			
Competitive position		0.934	0.805	0.854
EVP1	.943			
EVP2	.927			
EVP3	.895			
EVP4	.918			
EVP5	.941			
EVP6	.911			
EVP7	.914			

Spss output

7.4.2 Descriptive Statistics and Correlational Analysis

Table 3 presents the descriptive statistical results of the study using the mean and standard deviation. On a seven-point Likert scale, a mean score of less than 3.5 is considered low, four to five is considered moderate, and more than five is considered high (Dolnicar and Grün, 2013). The risk-balanced scorecard has the lowest mean (3.51) among the independent variables, whereas the enterprise risk management has the greatest mean (4.92). The dependent variable, competitive position, has a mean of 4.64, while the moderating variable, information technology capability, is 4.71. The results show that the participants' tendency toward all the study constructs is at a moderate level. Also, the results show a substantial relationship between competitive position and all independent variables, including ERM, SRM, and RBSC, with r = 0.591 for ERM, r = 0.542 for SRM, and r = 0.607 for RBSC at P = 0.05. Additionally, the statistical findings indicate that the moderating variable, information technology capability, has a positive and significant relationship with each of the independent variables. The RBSC and ERM have the highest and lowest correlations, respectively, at 0.553** and 0.498** at P = 0.05. The relationship between competitive performance and the moderating variable (information technology capability) has been demonstrated to be 0.597** at P = 0.05.

Table 3: Descriptive Statistics and Correlation Analysis

No	Variables	Mean	St.D	1	2	3	4	5
1	ERM	4.92	87.0	1				
2	SRM	4.56	84.5	0.454**	1			
3	RBSC	3.51	91.1	0.510**	0.580**	.1		
4	ITC	4.71	84.5	0.498**	0.527**	0.553**	1	
5	CP	4.64	82.1	0.591**	0.542**	0.607**	0.597**	1

Spss output

Table 4: Types and Frequency of Risks

Types of risks	Frequency	%
Credit risk	95	100%
market risk	95	100%
liquidity risk	95	100%
Financial risk	95	100%
Strategic risk	8	8%
Operational risk	20	21%
climate risk-	10	10%
Health risk	7	7%
Customers perspective risks	18	18%
Learning perspective risks	3	3%

Spss output

According to the tendencies of the respondents, the most important risks that are prioritized in risk management operations are credit, market, liquidity, and financial risks (Table 4). The least important risks are those related to learning, strategy, and health.

Table 5: Types and Frequency of Strategic Risks

Types of Risks	Frequency	%
Competitors risks	75	78%
Political risks	95	100%
Economical risks	95	100%
Compliance risks	95	100%
Technological risks	52	54%
Unforeseeable risks	20	21%

Spss output

Table 5 indicates that, based on respondents' replies, political, economic, compliance, and competitor risks are the most significant strategic risks that are given priority in risk management operations. Technological and unpredictable risks are ranked lowest.

Table 6 :Types and Frequency of Risk Assessment Tools

Types of analysis	Frequency	%
Stress testing	95	100%
ICAAP	76	70%
rating model risk	95	100%
Health risk metrics	17	10%
scenario planning	5	18%
derivative and non-derivative financial instruments	95	100%
Credit scores	95	100%
Expected Loss Model	95	100
Probability of default	95	100
Exposure at default	95	100
loss given default	95%	100
Sensitivity Analysis	80	84%
value at risk' methodology (VAR)	95	100
external credit rating agencies models	86	90%

Spss output

Table 6 indicates that stress testing, rating model risk, credit ratings, and probability of default are the most often-used risk analysis techniques in the studied organizations, while health risk measures and scenario planning are the least frequently used.

7.4.3 The direct effect of independent variables on dependent variable by using Simple regression analysis

We first verify that the data is normal by looking at the normal probability plot. The data points appear to be regularly distributed since they roughly follow a straight line. We employed the Variance Inflation Factor (VIF) to evaluate the multivariate collinearity between variables. Multivariate collinearity between variables does not exist when VIF is less than 5 (Malhotra, 1999). As can be seen in Table 7, multicollinearity has no effect on the least squares estimates because all of the VIFs fall within the range of 5. The strength of the relationships among the three independent variables—ERM, SRM, RBSC, and competitive position—has been validated, as indicated in Table 7, with standardized

coefficients (Beta) of 0.523, 0.552, and 0.589, respectively, by using simple regression analysis. The results are significant at the 0.05 level, indicating that for a one-standard-deviation increase in the corresponding independent variable, the dependent variable increases by 0.523, 0.552, or 0.589 standard deviations.This offers empirical support for hypotheses H2 and H3 and rejects H1. Therefore, it can be said that the competitive position of the financial institutions in the sample corporations is positively impacted by ERM, SRM, and RBSC.

Table 7: Simple Regression Analysis

Independent variables	Dependent variable	R2	F	Sig.	VIF	Beta	t	Sig	Hypothesis	
ERM	Competitive position	0.424	127.527	0.000	2.11	0.523	9.917	0.000	H1	Rejected
SRM		0.421	126.414	0.000	2.34	0.582	7.234	0.000	H2	Accepted
RBSC		0.457	117.122	0.000	2.873	0.589	6.387	0.000	H3	Accepted

Spss output

7.4.4 The moderation effect of information technology capability

Using Hayes's (2017) Process Macro software and Model 1, we tested the moderating role of information technology capability on the relationships between ERM, SRM, RBSC, and the competitive position of the studied firms. After calculating the means of the independent and moderator variables, we first constructed centered values for each and subtracted these means from the corresponding variables. After creating the centered value of the independent variable and multiplying it by the centered moderator, we conducted the regression analysis. Results from Model 1 are shown in Tables 8,9,10,11,12, and 13.

7.4.4.1 The moderation effect of ITC on the relationship between ERM and competitive position

Table 8: Model Summary

Model	R	R-square	Std.Error of the estimates	Changes statistics				
				R square	F change	Df1	Df2	Significant of change
Model 1 ERM+ ITC	0.492	0.452	4.345	0.452	55.12	3	92	0.000
Model 2 (ERM * ITC)	0.521	0.511	2.765	**0.059**	18.25	2	13	0.000

Table 9: The Coefficients

Model 2	B	Se	T	P	LLCI	ULCI	
Constant	.6550	.2121	.4431	0.000	.1487	.2542	Hypothesis H4
Centered (ERM)	.5021	.1328	5.23	0.000	.4167	.1654	
Centered (ITC)	.1433	.3544	4.63	0.000	.8987	.6732	
Inter (ERM x ITC)	.2154	.2232	3.78	0.000	.0876	.08451	Accepted

a. Dependent variable; competitive position
b. Predictors; (constant), centered ITC centered ERM
C. Predictors; (constant), centered ITC, centered ERM, INT

As can be observed in table 8 above, the first regression model explained 0.452 of the variance of competitive position (R^2 = 0.452, F = 55.12, p < .001), including the centered independent variable (ERM) and the centered values of moderator information technology capability (ITC). With an F change of 18.25 (p < .001), the second model, which included the interaction term ERM x ITC, explained an extra 0.059 of the variance (additional R^2 = 0.059), increasing the overall variance to 0.511 (R^2 = 0.511). The coefficients of the second model, as shown in Table 9, indicated that ERM (B = 0.502, SE = 0.132, t = 5.23, p < .001) and information technology capability (B = 0.143, SE = 0.354, t = 4.63, p < .001) had a significant impact on competitive position. Also, the interaction term Inter (ERM x ITC) also predicted a significantly competitive position (B = 0.215, SE = 0.223, t = 3.78, p < .001), indicating that the information technology capability moderates the relationship between ERM and competitive position.

7.4.4.2 The moderation effect of ITC on the relation between SRM and competitive position

Table 10: Model Summary

Model	R	R-square	Std.Error of the estimates	Changes statistics				
				R square	F change	Df1	Df2	Significant of change
Model 1 SRM+ ITC	0.401	0.356	7.341	0.356	122.15	3	18	0.000
Model 2 (SRM * ITC)	0.434	0.401	5.692	**0.045**	19.46	2	15	0.000

Table 11: The Coefficients

Model 2	B	Se	T	p	LLCI	ULCI	
Constant	.7423	.2422	.6321	0.000	.1421	.2167	Hypothesis
Centered (SRM)	.3721	.1241	7.35	0.000	.4026	.1823	H5
Centered ITC	.1422	.3145	5.78	0.000	.9077	.6321	
Inter (SRM x ITC)	.1532	.1965	4.87	0.000	.0876	.0987	Accepted

a. Independent variable; competitive position
b. Predictors ;(constant),centered SRM , centered ITC
C. Predictors ; (constant), centered ITC ,centered SRM ,INT

Table 10 above illustrates that the first regression model, which incorporated the centered value of the moderator of information technology capability and the centered value of the independent variable, strategic risk management, explained 0.356 of the variance in competitive position (R^2 = 0.356, F = 122.15, p < .001). A further 0.045 of the variation was explained by the second model, which included the interaction term (SRM x ITC). This increased the total variance to 0.401, with R^2 = 0.401 and an F change of 19.46 p<.001. The second model's coefficient showed that information technology capability (B=0.142, SE=0.314, t=5.78, p<.001) and strategic risk management (B=0.372, SE=0.124, t=7.35, p<.001) significantly impacted competitive position, and the interaction term Inter (SRM x ITC) also predicted competitive position significantly (B=0.153, SE=0.196, t=4.87, p<.001) (see table 11), indicating that information technology capability moderates the relation between strategic risk management and competitive position.

7.4.4.3 The moderation effect of ITC on the relation between RBSC and competitive position

Table 12: Model Summary

Model	R	R-square	Std.Error of the estimates	Changes statistics				
				R square	F change	Df1	Df2	Significant of change
Model 1 **RBSC+ ITC**	0.422	0.399	6.231	0.422	56.16	3	92	0.000
Model 2 **(RBSC * ITC)**	0.442	0.453	3.987	**.054**	19.20	2	17	0.000

Table 13: The Coefficients

Model 2	B	Se	T	P	LLCI	ULCI	
Constant	.6221	.2654	.3498	0.000	.1523	.2678	Hypothesis H6
Centered (RBSC)	.5134	.1234	7.67	0.000	.4167	.1423	
Centered (ITC)	.1399	.3324	5.73	0.000	.8987	.7750	
Inter (RBSC x ITC)	.2451	.2034	4.31	0.000	.0727	.0865	Accepted

a. Dependent variable; competitive position
b. Predictors ;(constant), centered ITC centered RBSC
C. Predictors ; (constant), centered ITC, centered RBSC, INT

According to table 12 above, 0.399 of the variance in competitive position was explained by the first regression model, which contained the centered values of the independent variable (RBSC) and the moderator (information technology competence) ($R^2 = 0.399$, $F = 56.16$, $p < .001$).

The second model, which added the interaction term (RBSC x ITC), explained an additional .054 of the variance (additional $R^2 = 0.054$), bringing the total variance to 0.453 ($R^2 = 0.453$), with an F change of 19.20 ($p < .001$). The coefficients of the second model, as shown in table 13, indicated that RBSC ($B = 0.513$, $SE = 0.123$, $t = 7.67$, $p < .001$) and information technology capability ($B = 0.139$, $SE = 0.332$, $t = 5.73$, $p < .001$) had a significant effect on competitive position. Also, the interaction term Inter (RBSC x ITC) also predicted a significantly competitive position ($B = 0.245$, $SE = 0.203$, $t = 4.31$, $p < .001$), indicating the information technology capability moderates the relation between RBSC and competitive position.

8. DISCUSSION

Based on three primary approaches—enterprise risk management (ERM), strategic risk management (SRM), and risk-balanced scorecard (RMSC)—this study examines the maturity of strategic risk management and how it relates to competitive position in financial institutions listed on the EGX 2024, taking into account the moderating influence of information technology capability. ERM is considered a strategic asset and a unique system that is crucial to organizational performance and impossible for competitors to imitate, based on the findings of the statistical research. It also entails a company-wide decision-making process for risk detection, analysis, and response. This process prioritizes various risks according to their influence on strategic objectives and allows for proactive risk actions, which in turn improves market competitiveness. These findings align with the theories of Elahi (2010), Rahman et al. (2013), Saeidi et al. (2018), and Anderson and Frigo (2020).

Moreover, the study's results indicated that the SRM affected competitive position. SRM maintains a high level of emphasis on risk indicators that align with key performance indicators. Risk response strategies that align with an organization's vision, mission, and objectives also affect competitive advantage through enhanced returns, cost effectiveness, customer satisfaction, and product uniqueness. Numerous reviews of the literature (Frigo and Anderson, 2011; Calandro, 2015; Grove and Clouse, 2016) corroborate these conclusions.

The statistical results also provide empirical evidence for the enabling effect of risk-balanced scorecards on the competitive position of the sampled corporations. The risk-balanced scorecard assists organizations in identifying and classifying risk indicators related to the main perspectives of BSC, including learning, internal processes, customers, and finance, and recognizes the interrelated relationships among them. By leveraging this robust methodology, business organizations can better identify and monitor internal process risk indicators such as innovation risk indicators, efficiency risk indicators, productivity risk indicators, and social responsibility risk indicators and then take appropriate response strategies to contain their effect, improving financial and customer satisfaction metrics and maintaining their competitive edge. These findings are consistent with those of Safitri and Pangeran (2020), Chen (2015), Kaplan (2009), and Kaplan et al. (2020).

Finally, the results show that information technology capability has a significant moderating effect on the relationship between ERM, SRM, and RBSC and competitive position. Information technology at all organizational levels is crucial for risk identification and risk management, according to the original ERM model. Also, a competitive advantage can be established and maintained by automatically sharing corporate data across multiple platforms, better information acquisition, control, and real-time reporting. These findings are supported by a large body of literature (e.g., Anderson et al., 2004; Ranong and Phuenngam, 2009; Helland, 2009). Stakeholders in the SRM process benefit from rich IT infrastructure since it promotes information learning and exchange about strategic risks that may affect an organization's competitive position. The modernization of SRM systems is also aided by IT strategy and structure, which allow them to identify, assess, monitor, and respond to events more effectively than their rivals. The effectiveness of strategic risk analysis is also increased by extending the scope of risk measurement beyond traditional graphical presentations to incorporate more advanced tools like AI intelligence, which in turn increases the potential of SRM. Numerous literature reviews, such as those by Bergerona et al. (2004), Grace et al. (2015), and Francis (2019), are in agreement with this conclusion. Finally, operational and analytics IT enables the

categorization of risk according to the main BSC perspectives—financial, customer, operational, regulatory, and learning—as well as the probability of occurrence or the financial impact of these on the competitive performance of the business. It also makes it possible to monitor leading and lagging indicators that support the organization's competitive edge. This conclusion is supported by the literature (e.g., O'Brien and Marakas, 2007; Sen et al., 2017; Kaplan et al., 2020).

According to the study's descriptive analysis, decision-makers in financial institutions should expand the scope of their risk analysis beyond the traditional financial risk metrics to include customer, learning, and sustainable risk metrics. This is because these metrics could improve their capacity to identify, assess, and react to various risk types that are closely linked to the competitive position of the organization. To fully harness the potential of the strategic risk management process, they must also employ more sophisticated risk analysis tools, such as scenario planning and health risk metrics.

9. CONTRIBUTION AND RECOMMENDATIONS

This study makes a substantial contribution to the body of knowledge on risk management, strategic management, and information technology management, especially in emerging countries like Egypt. Also, the findings of the study contribute to the conversation about the potential that the SM perspective could bring to the various aspects of organizational performance, including competitive position and governance, as well as the role that information technology capacity can play in effectively addressing these goals. It supports the theoretical principles of the knowledge-based and resource-based views, which present a strategic risk management approach as a dynamic capability that helps corporate organizations maintain their competitiveness. There are significant practical ramifications to this analysis as follows:

First, as financial institutions are under more pressure to comply with corporate governance standards, which include risk management functions, risk identification, management, and control, the trend towards strategic risk management has become unavoidable because it provides a more proactive approach to risk management and tools that support a more comprehensive and analytical assessment of hazards.

Second, Egyptian financial institutions listed in EGX 2024 should incorporate strategic risk management into traditional ERM practices, focusing on tracking, predicting, and managing increasing strategic risks due to dramatic economic, political, technological, and competitive changes taking place in the Egyptian business environment in the last decade. Therefore, these institutions need to

implement more proactive risk management strategies, aligning them with strategic objectives and competitive positions, to mitigate uncertainty and unpredictability in the face of uncertain changes. Advanced risk assessment tools and training programs can enhance strategic risk management potential in Egyptian financial institutions financial institutions.

Third, it is advised that individuals engaged in risk management activities adopt the risk-balanced scorecard since it helps to broaden the scope of risks that are subject to analysis and control beyond the conventional financial risks to include risks related to learning, processes, and customers. This gives a more thorough and balanced view of all the possible risks that could prevent an organization from achieving its strategic goals, as well as the cause-and-effect relationship between them. As a result, the company's capacity to identify, anticipate, and manage these risks will be maximized.

Last but not least, the senior managers and IT managers of the Egyptian financial institutions must put in more effort to synchronize the IT capability with the organization's strategy and goals and modernize the IT infrastructure in order to maximize their potential for risk management identification, assessment, and control. This will improve the company's competitive position.

10. LIMITATIONS

First, since the study's initial focus was on Egyptian financial companies listed on the EGX, it is recommended that it be expanded to include more thorough examinations of other industries. Second, a moderating or mediating variable such as competitive strategy type and risk-oriented culture may be used to further examine the relationship between SRM and competitive position. Lastly, the study used the questionnaire instrument to gather the information needed on the study's main constructs from the senior management of the sampled firms. As a result, it is advised to confirm the study's findings by using alternative methods to gather the necessary information, such as content analysis of the financial reports of the selected company, as this is a relevant source that shows the degree of ERM, SRM, and RBSC implementation in the sampled corporations.

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Appendix

The purpose of this survey is to assess the level of strategic risk management maturity at your organization and monitor how it affects its competitive position by moderating the information technology capabilities. Please select the response that best represents your level of agreement or disagreement with each of the following statements. The item scales are seven-point Likert type scales with 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4, either agree or disagree =, 5 somewhat agree, 6 somewhat agree, 7, strongly agree= strongly agree.

Enterprise risk management	Point
1. Our institution appoints a chief risk officer (CRO) to advance the risk management agenda at senior management level.	
2. The institution has determined the amount of risk it is willing to accept.	
3. Our institution has communicated its strategic objectives throughout the organization.	
4. Our institution has identified events that can affect implementation of its strategy or achievement of its objectives.	
5. Our institution evaluates potential events by likelihood, the possibility that the event will occur, and the effect of the event.	
6. Our institution uses both qualitative and quantitative techniques in assessing risks .	
7. Our institution has a process to determine the appropriate risk response (i.e., avoid, reduce, share, and accept).	
8. Our institution considers the costs and benefits of potential responses.	
9. Our institution develops control activities to help ensure that the risk responses are carried out properly and in a timely manner.	
10. Our institution has effectively designed and used fully integrated information systems to support its business strategy.	
11. Our institution has developed communication plans for dealing with expectations, responsibilities of individuals, and other matters both internal and external.	
Strategic risk management	**Point**
1. Our institution has a well-developed strategic management risk system as a key component of the ERM system.	
2. Our SRM involves a thorough examination of the strategy-setting procedure.	
3. Our SRM system includes a strategic view of risk and assessment of how external and internal events could affect the ability of the organization to fulfill its objectives .	
4. Our SRM system is built on the governance objectives and a well -defined risk appetite and tolerance levels.	
5. Our institution adopts a systemic process of the tracking and reporting of strategic risk-related key performance indicators (KPIs).	
6. Our institution policies ensure all stakeholders 'engagement in the SRM process .	
7. Our institution uses advanced risk assessment techniques such as scenario planning in identifying and managing strategic risks.	
8. Our institution regularly tracks the concentration exposure measure to identify the potential to produce losses large enough to threaten our financial health.	
9. Our institution regularly employs the peripheral monitoring process to assess data on non-primary business operations that may have a significant impact on the organization performance.	

10. Our institution regularly employs the ambiguous threat analysis to identify and analyze the potential risks that an organization may not have enough knowledge about.	
11. Our institution has a regular monitoring to determine the effectiveness of mitigation measures in addressing the identified risks.	
12. Our institution considers the modifications to the business model to mitigate or better position the organization to withstand the potential threats.	
The Risk - balanced scorecard	**Point**
1. Our institution integrates the risk metrics with balanced scorecard metrics.	
2. Our institution has an independent risk balanced scorecard.	
3. Our institution incorporates an independent risk theme in the strategy map in addition to the financial, customer, internal processes and learning and growth perspective .	
4. Our institution identifies the potential primary risk events and selecting early warning or leading indicators for each risk event.	
5. Our institution has financial perspective risk metrics , which indicate the volatility in capital markets, affecting a company's financial stability.	
6. Our institution identifies customer perspective risk metrics like complaint rate and surveys score in order to maintain customer satisfaction.	
7. Our institution identifies the internal process risk metrics like efficiency rate and innovation rate in order to track the optimization of the value creation chain.	
8. Our institution identifies learning risk metrics such as employee productivity and promotion proportion, seeking to enhance employee satisfaction and loyalty.	
Information technology capability	**Point**
1. Our institution 's choice of information technology is aligned to our strategy and objectives.	
2. Our institution has enough knowledge about how our competitors leverage the information technology to sustain their competitive position.	
3. Our institution is concerned with using the information technologies that will permit a rapid reaction to environmental pressure.	
4. Our institution exerts remarkable effort in developing the required technological culture among employees.	
5. Our institution has the required human and organizational resources to effectively manage the information systems.	
6. Our institution has the ability to effectively integrate information technology with risk management functions.	
7. Our institution dedicates enough budget to upgrade the hard and software according to the strategic priorities.	
Competitive position	**Point**
1. Our institution is more cost-effective than its rivals.	
2. The products and services provided by our organization are of higher quality than those provided by competitors.	
3. Compared to its rivals, our institution is better competent of R&D and innovation	
4. Our responsiveness to customers is better than our competitors	
5. Our institution's profitability surpasses that of its rivals.	
6. In terms of risks identification and management , our organization is far more effective than its rivals	
7. Our market share surpasses that of our main rivals.	

مستوي نضج الإدارة الإستراتيجية للمخاطر و تأثيرها علي الوضع التنافسي للمؤسسات المالية المدرجة بالبورصة المصرية 2024: الدور المعدل لقدرة تكنولوجيا المعلومات

د.جيهان أحمد عمر

ملخص البحث باللغة العربية

هدف الدراسة – تهدف الدراسة إلي تقييم مستوي نضج الإدارة الاستراتيجية للمخاطر في ضوء ثلاث مداخل رئيسة وهي ; إدارة المخاطر المؤسسية، الإدارة الإستراتيجية للمخاطر، بطاقة الأداء المتوازن للمخاطر وتتبع تأثيرها علي الوضع التنافسي للمؤسسات المالية المدرجة بالبورصة المصرية 2024 في ضوء الدور المعدل لقدرة تكنولوجيا المعلومات.

منهجية البحث – تم جمع البيانات اللازمة لإختبار فروض الدراسة بإستخدام قائمة استقصاء موجهة لجميع المديرين المختصين بأنشطة إدارة المخاطر بالمؤسسات المالية المدرجة بالبورصة المصرية لعام 2024، بلغ عدد القوائم المجمعة والصالحة للتحليل الإحصائى الدراسة 95 وتم التحليل الإحصائي باستخدام برنامج SPSS 25

النتائج: توصلت نتائج الدراسة الي أن المتغيرات المستقلة الثلاثة ؛ إدارة المخاطر المؤسسية، الإدارة الإستراتيجية للمخاطر، بطاقة الأداء المتوازن للمخاطر لهم تأثير ايجابي علي الوضع التنافسي للمؤسسات المالية محل الدراسة. وكما أكدت نتائج الدراسة علي الدور المعدل لقدرة تكنولوجيا المعلومات في تعظيم تأثير المتغيرات المستقلة الثلاثة علي المتغير التابع.

قيمة البحث: يقدم البحث قيمة مضافة الي ادبيات الإدارة الإستراتيجية والإدارة المالية و إدارة تكنولوجيا المعلومات وذلك في ضوء تقديم واختبار نموذج يتضمن تأثير الإدارة الإستراتيجية للمخاطر في ضوء ثلاث مداخل اساسية وهي ; ادارة المخاطرالمؤسسية، الإدارة الإستراتيجية للمخاطر، بطاقة الأداء المتوازن للمخاطر علي الوضع التنافسي للمؤسسات المالية المصرية المدرجة بالبورصة المصرية 2024 في ضوء الدور المعدل لقدرة تكنولوجيا المعلومات في البيئة المصرية.

الكلمات الدالة : إدارة المخاطر المؤسسية - الإدارة الإستراتيجية للمخاطر – بطاقة الأداء المتوازن للمخاطر- قدرة تكنولوجيا المعلومات- الوضع التنافسي.

Suggested Citation according to the APA Style

Omar, G.A. (2025). Strategic Risk Management Maturity and Its Impact on the Competitive Position of The Financial Institutions Listed on EGX 2024: The Moderating Role of Information Technology Capability. *Journal of Alexandria University for Administrative Sciences*, *62*(5), 1-62.