

# Implementation Analysis of Enterprise Risk Management (ERM) and Risk Mitigation Strategies in Securities Companies in the Digital Era

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## Abstract

This study aims to analyze the effectiveness of implementing Enterprise Risk Management (ERM) and operational risk mitigation strategies in securities companies in the digital era. Amid the high dependence on technology, disruptions to trading systems have become a serious threat to business stability. The research method uses a descriptive qualitative approach with primary data obtained through interviews and observations, as well as secondary data in the form of financial reports and capital market statistics. Risk analysis is carried out using a likelihood–impact matrix based on Financial Services Authority regulations. The results show that operational risks in the form of technical disruptions (glitches) in online trading applications and reputation risk occupy the highest risk level (high risk). System reliability, including the Sharia Online Trading System (SOTS), is proven to be a fundamental factor in maintaining investor confidence. In addition, disciplined risk management implementation contributes positively to net profit growth and long-term business sustainability. The study concludes that mitigation priorities must be focused on strengthening information technology infrastructure and enforcing credit risk control procedures in order to minimize financial losses.

**Keywords:** Risk Management, Enterprise Risk Management, Online Trading, Operational Risk, Securities Companies.

## INTRODUCTION

In the dynamics of the modern economy, the capital market plays a strategic role as an investment vehicle and a source of financing for the business sector. However, investment activities in the capital market are inseparable from the uncertainty and risks that accompany them. Investment risk can be defined as the possibility of a discrepancy between the expected rate of return and the actual rate of return, which includes market price fluctuations, global economic conditions, and regulatory changes (Situmorang et al., 2025). Therefore, an understanding of risk and return becomes fundamental for every market participant, where investors tend to expect maximum gains at a certain level of risk (Permadi & Putra, 2024).

Securities companies, as central entities in this ecosystem, perform vital functions as Broker-Dealers, Underwriters, and Investment Managers. Behind these strategic roles, securities companies are exposed to a complex range of risks, from market risk, credit risk, and liquidity risk to operational and legal risks. Moreover, in the current digital era, the application of technology in stock trading systems, such as the Sharia Online Trading System (SOTS), has become the operational backbone that facilitates investors to conduct transactions in real time (Putri et al., 2023). However, this dependence on technology also brings new risks, such as system disruptions (glitches) that can hinder transactions and affect investor interest and confidence (Mauliza & Canggih, 2023).

Given the magnitude of potential losses that may arise, the Financial Services Authority (OJK) requires the implementation of stringent risk management. This is explicitly regulated in Financial Services Authority Regulation Number 6/POJK.04/2021, which mandates securities companies to implement effective risk management that includes active oversight by the board of directors, adequate policies, as well as processes for risk identification and control (Financial Services Authority, 2021). The main objective is not only to minimize losses, but also to maintain the stability of the financial system and protect customer interests.

One comprehensive approach adopted to address these challenges is Enterprise Risk Management (ERM). ERM enables companies to manage risks in an integrated and holistic manner, no longer in separate silos. The implementation of effective risk management has been proven to play a positive role in improving company performance, where sound risk management serves as a basis for optimizing resources to generate the expected profitability (Asir et al., 2023). Furthermore, operational efficiency and consistent implementation of risk management have a significant impact on the long-term business sustainability of non-bank financial service institutions (Anggraini & Purnama, 2018).

The relevance of risk management implementation is also reflected in the performance of securities companies in Indonesia. Data on the growth of customer accounts, operating income, and net profit from several leading securities firms such as Mirae Asset Sekuritas, Mandiri Sekuritas, and Indo Premier Sekuritas show interesting dynamics. Fluctuations in the number of customers and in financial performance indicate a correlation between investor confidence and the company's ability to manage operational risk and maintain service quality amid intense competition in the digital securities industry.

Based on this background, this study aims to analyze the implementation of Enterprise Risk Management (ERM) and risk mitigation strategies in securities companies. The focus of the analysis includes the effectiveness of operational risk control, particularly related to the reliability of online trading systems, as well as its impact on the company's performance and business sustainability. This study is expected to provide a comprehensive overview of the urgency of risk management in maintaining the competitiveness of securities companies in the digital era.

## **LITERATURE REVIEW**

### **1. The Concept of Investment Risk and Enterprise Risk Management (ERM)**

In the context of investment, risk is defined as the possibility of a discrepancy between the expected rate of return and the actual rate of return received (Situmorang et al., 2025). Investment risk is generally divided into two main categories: systematic risk, which is influenced by macroeconomic factors and cannot be avoided, and unsystematic risk, which is specific to a company and can be minimized through diversification (Permadi & Putra, 2024). The relationship between risk and return is linear, in which investors who expect higher returns must be willing to bear a higher level of risk as well (high risk, high return) (Permadi & Putra, 2024).

To manage such uncertainty, companies implement Enterprise Risk Management (ERM). ERM is a set of systematic methodologies and procedures used to identify, measure, monitor, and control risks arising from all business activities (Asir et al., 2023). The effective implementation of ERM not only serves as a shield to protect firm value, but has also been proven to significantly influence the improvement of company performance and the business sustainability of non-bank financial institutions, as it is able to maintain a balance between business growth and profitability stability (Anggraini & Purnama, 2018).

### **2. Regulatory Framework for Risk Management of Securities Companies**

In Indonesia, the implementation of risk management for securities companies is strictly regulated through Financial Services Authority Regulation Number 6/POJK.04/2021. This regulation requires securities companies that conduct business activities as Underwriters and Broker-Dealers to implement effective risk management (Financial Services Authority, 2021). The implementation includes active supervision by the Board of Directors and Board of Commissioners, the adequacy of policies and procedures, as well as a comprehensive internal control system (Financial Services Authority, 2021).

Based on this regulation, there are eight main types of risk that must be managed by securities companies, namely Operational Risk, Credit Risk, Market Risk, Liquidity Risk, Compliance Risk, Legal Risk, Reputation Risk, and Strategic Risk (Financial Services Authority, 2021). This obligation emphasizes that risk management is not merely an administrative formality, but a crucial element in maintaining business continuity amid the complexity of the capital market.

### **3. Dynamics of Online Trading Systems and Operational Risk**

Technological developments have transformed the landscape of stock transactions through the emergence of online trading systems. These systems, including variants such as the Sharia Online Trading System (SOTS), enable investors to carry out transactions independently, in real time, and efficiently without physical intermediaries (Putri et al., 2023).

The reliability of online trading systems is a determining factor for investment interest; ease of use and system stability have a positive effect on investors' decisions to trade (Mauliza & Cangih, 2023). However, dependence on technology increases exposure to Operational Risk. This risk is defined as the risk arising from inadequate or failed internal processes, human error, system failures, or external events (Financial Services Authority, 2021). Technical disruptions (glitches) in trading applications can hinder the execution of client orders, which in turn negatively affect the reputation of securities companies.

### **4. Mechanism of Margin Trading and Credit Risk**

One of the facilities offered by securities companies to increase transaction volume is margin trading. Margin trading allows investors to buy shares with a value exceeding their own capital through financing provided by the securities company (Kiandi, n.d.). Although it has the potential to multiply profits (capital gains), this type of transaction carries a high level of risk. The main risk in margin trading is Credit Risk, namely the customer's inability to fulfill their obligations (default) when stock prices drop sharply. If the customer's collateral ratio falls below the minimum threshold (according to the securities company's policy), the securities company is required to carry out a forced sell of the customer's assets to cover the losses (Kiandi, n.d.). Failure to manage this credit risk may disrupt the liquidity of the securities company itself.

### **5. Legal Protection for Investors in Digital Transactions**

Legal protection for investors, who also hold the position of financial service consumers, is guaranteed under Law Number 8 of 1999 concerning Consumer Protection and Law Number 21 of 2011 concerning the Financial Services Authority (OJK) (Aryani et al., 2020). In online stock transactions, investors are entitled to correct, clear, and honest information regarding product conditions as well as assurance of the security of the systems used. OJK has the authority to take

preventive measures in the form of education and repressive measures in the form of legal advocacy or the imposition of sanctions if there are violations that harm investors (Aryani et al., 2020). This legal protection serves as the last line of defense to maintain investor confidence in the integrity of the capital market, especially in dealing with potential disputes arising from online trading system failures or illegal investment practices.

A number of studies have examined the significance of risk management in the financial industry. Asir et al. (2023) found that risk management has a significant positive role in company performance, where risk management serves as a reference for optimizing resources to generate profitability. This finding is supported by Anggraini and Purnama (2018), who demonstrated that operational efficiency and the implementation of risk management have a significant effect on the business sustainability of non-bank financial institutions. In the context of technology, the presence of the Sharia Online Trading System (SOTS) has been proven to facilitate stock transaction mechanisms, although investors' understanding of this system still varies (Putri et al., 2023). The relevance of this technology is reinforced by Mauliza and Canggih (2023), who concluded that online trading systems have a positive and significant effect on investment interest, with ease of use being the main determining factor.

However, the implementation of technology and stock transactions is not free from risk. Permadi and Putra (2024) emphasize the linear relationship between risk and return, where stocks with high volatility carry a greater risk of loss. This risk becomes increasingly complex in margin trading transactions, which are prone to forced sell, thereby requiring preventive legal protection through clear agreements (Kiandi, n.d.). Aryani et al. (2020) also highlight that the main obstacles in current investor protection are the rise of illegal investments and the lack of financial literacy, thus requiring more specific regulations for online transactions. Different from previous studies that tend to discuss risk variables and technology separately, this study integrates an analysis of the implementation of Enterprise Risk Management (ERM) with a specific focus on operational risks arising from application technology and their impact on the business sustainability of securities firms in the digital era.

## METHODS

This study uses a descriptive qualitative approach to analyze the implementation of risk management in securities companies. This approach was chosen to obtain an in-depth understanding of the phenomena of operational risk, mitigation strategies, and the effectiveness of internal control systems implemented by the company in facing the dynamics of the capital market.

### Data Sources

The data used in this study are divided into two types, namely:

1. **Primary Data:** Obtained through direct observation and in-depth interviews with resource persons from the Investment Specialist division at one of the securities companies in Indonesia. The focus of data collection includes the identification of operational, technological, human resource, and corporate governance (Good Corporate Governance) risks.
2. **Secondary Data:** Obtained from documentation studies in the form of annual reports, published data from the Indonesia Stock Exchange (IDX), and the Financial Services Authority (OJK) related to the number of customers, transaction frequency, and financial performance of securities companies for the 2020–2024 period.

### Data Analysis Technique

The data analysis technique refers to the Enterprise Risk Management (ERM) framework. The analysis process is carried out through the stages of risk identification, risk assessment, and risk control. To measure the level of risk significance, this study uses a Likelihood–Impact Matrix. Risks are mapped based on two dimensions: frequency of occurrence (how often the risk occurs) and loss impact (how great the resulting loss is). The classification of risk levels is presented in Table 1 below:

**Table 1. Risk Assessment Matrix**

Frequency / Impact	1 (Insignificant)	2 (Minor)	3 (Moderate)	4 (Major)	5 (Very Major)
5 (Always)	Low	Medium	High	High	High
4 (Often)	Low	Medium	High	High	High
3 (Sometimes)	Low	Medium	Medium	High	High
2 (Rarely)	Low	Low	Medium	Medium	Medium
1 (Almost Never)	Low	Low	Low	Low	Low

**Source: Processed from Research Data (2025)**

Each identified risk will be assigned a score based on the table above to determine mitigation priorities.

## RESULTS AND DISCUSSION

### I. Risk Identification and Assessment (Risk Assessment)

Based on observations and analysis of the securities company’s business processes, this study identifies various potential risks classified into eight main categories in accordance with OJK regulations. These risks are then assessed based on their frequency of occurrence and loss impact to determine the risk level. A summary of the risk assessment results is presented in Table 2 below:

**Table 2. Risk Level Assessment**

Code	Type of Risk	Risk Event Description	Risk Level
A1	Operational	Disruptions in the application system (glitches, errors, bugs) that hinder customer transactions.	High
A2	Operational	Failure of customer service to properly handle customer complaints.	Medium
A3	Operational	Ineffectiveness of the application’s user interface (UI/UX) features for new users.	High
B1	Strategic	Failure to anticipate changes in market and technology trends.	Low
B2	Strategic	Decline in competitiveness due to ineffective business strategies.	Medium
C1	Market	Decrease in revenue due to weakening stock trading activity.	Low
C2	Market	High market volatility causing unstable revenues.	Low
D1	Liquidity	Delays in the customer fund withdrawal process.	Medium
E1	Compliance	Potential violations of OJK regulations related to promotional and marketing activities.	Low
E2	Compliance	Risk of sanctions due to non-compliance with internal policies and GCG principles.	Low
E3	Compliance	Breach of customer privacy or data security due to system errors.	Low
F1	Legal	Legal disputes with customers.	Medium

F2	Legal	Violations of capital market regulations.	Medium
G1	Reputation	Public complaints or negative sentiment on social media related to services/systems.	High
G2	Reputation	Decline in investor confidence due to recurring technical issues.	High
H1	Credit	Customer default on margin trading facilities.	Medium

Source: Processed Data (2025)

Based on Table 2, it is found that risks in the High Risk category are dominated by technology-related issues (application systems) and their impact on reputation. This indicates that in the digital securities ecosystem, the stability of technological infrastructure becomes a critical point.

**Tabel 3. Likelihood-Impact Matrix**

<b>Opportunity</b>	5					
	4					
	3				A1, A3, G1	G2
	2		C2	B2, H1	A2, D1, F1	F2
	1					B1, C1, E1, E2, E3
		1	2	3	4	5
	<b>Impact</b>					

Risks in the High Risk category (red) become the top priority to be addressed immediately, followed by Medium Risk (yellow) and Low Risk (green).

## 2. Discussion of Operational and Reputation Risk Mitigation

The research findings indicate that disruptions to the application system (glitches) represent the highest operational risk (Code A1). In the digital era, the reliability of online trading systems is a fundamental factor. This is in line with the study by Mauliza and Canggih (2023), which states that online trading systems have a significant effect on investment interest; system convenience and stability are the main reasons investors continue to use a securities firm’s services. System failures not only hinder transactions but also have a direct impact on reputation risk (Codes G1 & G2). When the application goes down during trading hours, investors lose market momentum, which triggers complaints on social media and a decline in trust. Therefore, the mitigation strategies that must be implemented include strengthening server infrastructure to handle traffic spikes and enforcing strict Disaster Recovery Plan (DRP) protocols. Putri et al. (2023) emphasize that in systems such as the Sharia Online Trading System (SOTS), technological adequacy and reliability are absolute requirements for maintaining customer compliance and trust.

The research findings show that disruptions to the application system (glitches) are the highest operational risk. This is closely correlated with the high volume of trading activities that

the system has to handle. The high frequency of transactions demands robust server capacity. When the IT infrastructure is unable to accommodate traffic spikes, the risk of system failure increases significantly. The mitigation strategies that must be implemented are the strengthening of server infrastructure and the implementation of Disaster Recovery Plan (DRP) protocols. Putri et al. (2023) emphasize that in systems such as the Sharia Online Trading System (SOTS), technological reliability is an absolute requirement for maintaining customer trust.

### 3. Risk Control

Operational Risk (Codes A1, A2, and A3) includes system disruptions such as lag, errors, and order delays, as well as an application interface that is not beginner-friendly. These issues hinder transactions and reduce the user experience. Mitigation measures include strengthening server infrastructure, conducting system testing, providing a beginner mode, user manuals, and clear explanations of risks for features such as margin trading. Disruptions must also be communicated transparently.

### 4. Risk Classification

#### a) *Unintentional Risk*

Unexpected risk may arise when investors do not understand the use of margin facilities and the margin call mechanism, leading to losses and potential legal claims against the securities company even though the root cause is low investor literacy; additionally, Strategic Risk (Code B2) reflects a potential decline in competitiveness due to ineffective business strategies amid intense competition and macroeconomic conditions, which can be mitigated by using customer behavior analytics and transaction data to design more targeted, data-driven innovations; and Liquidity Risk (Code D1) concerns complaints about delays in fund withdrawals that can be reduced by strengthening back-office systems, increasing automation, and ensuring application stability so that withdrawals are processed faster and more consistently.

Legal Risk (Codes F1 and F2) includes potential legal disputes arising from differences in transaction perceptions and incomplete documentation, as well as the risk of regulatory violations indicated by warnings from the Indonesia Stock Exchange (IDX). Mitigation efforts include improving documentation, enhancing complaint handling, providing risk education to customers, and strengthening compliance through CDD (Customer Due Diligence) / EDD (Enhanced Due Diligence), daily monitoring, and periodic audits.

Reputational Risk (G1 and G2) is related to the company's reputation and the decline in investor confidence due to public complaints and recurring technical disruptions. The company needs to improve the quality of front- and back-office services, refine the account opening process, strengthen communication with regulators, and invest in IT infrastructure, system security, and real-time monitoring to prevent disruptions.

Credit Risk (Code H1) is identified at a Medium level, particularly in relation to margin trading facilities. This risk arises when customers fail to fulfill their obligations (default) as the share prices in their portfolios fall sharply below the collateral ratio. Kiandi (n.d.) explains that although margin trading offers the potential for double gains, the loss risk is also unlimited, making the forced sell mechanism the final legally sanctioned mitigation instrument to protect the capital

of securities companies. To mitigate this, companies need to tighten the Know Your Customer (KYC) process and creditworthiness analysis (credit scoring) before granting margin limits. Real-time monitoring of customers' collateral ratios must be carried out automatically by the risk management system to prevent delays in forced sell execution that could harm the company's liquidity.

b) Intentional Risk

Intentional risk is primarily related to system vulnerabilities and customer behavior. In securities companies, the use of technology and digital applications creates potential security gaps. Several incidents occur because customers share their passwords with other parties or become victims of phishing through links sent via private messages. However, public perception often places the blame on the securities company, even though the root cause lies in user negligence. This risk is an inherent part of using digital systems, as every technological application always carries the possibility of being misused if users do not apply proper security measures.

**5. Implications of Risk Management for Business Sustainability**

The implementation of comprehensive risk management, ranging from IT disruption mitigation to credit risk control, has been proven to contribute to company performance. Asir et al. (2023) found that effective risk management can minimize the cost of unexpected losses, thereby increasing capital efficiency and profitability. Furthermore, Anggraini and Purnama (2018) concluded that there is a positive correlation between risk management compliance and the business sustainability of non-bank financial institutions.

In this context, a securities company's ability to maintain the stability of its application systems and safeguard client funds will create long-term loyalty, which is a key asset in ensuring business continuity amid intense industry competition. The effective implementation of risk management has been shown to help maintain the stability of the company's financial performance. Despite facing operational and market risks, the company is able to sustain a positive profitability trend. This is reflected in the growth of the company's net profit, as presented in Figure 1.

**Figure 1. Net Profit Growth Trend of Securities Companies (2020–2024)**

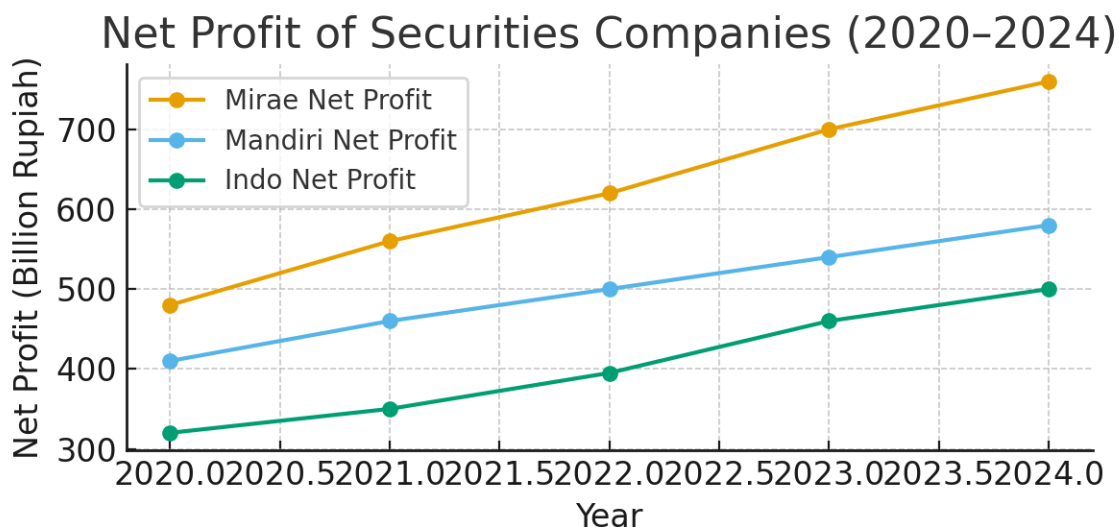


Figure 1 shows that, despite market volatility, companies that implement sound risk management (upward trend line) are able to minimize unexpected losses. Asir et al. (2023) assert that effective risk management increases capital efficiency and profitability. Anggraini and Purnama (2018) also conclude that risk management compliance is positively correlated with long-term business sustainability.

## CONCLUSION

Based on the results of the analysis and discussion, it can be concluded that:

1. The implementation of Enterprise Risk Management (ERM) in securities companies is already in place; however, it still faces major challenges in Operational Risk (application system disruptions) and Reputation Risk, both of which are at a High Risk level.
2. The reliability of online trading systems (including SOTS) is a crucial factor. The high frequency of transactions demands the strengthening of technological infrastructure to prevent system failures that could erode investor confidence.
3. Risk management has been proven to have a positive impact on financial performance and business sustainability. Companies that consistently implement risk mitigation—such as strict margin control and IT system improvements—are able to record stable profit growth amid intense industry competition.

Securities companies are advised to prioritize investment in IT infrastructure renewal and data security systems to mitigate operational risks. In addition, investor education on the risks of margin trading needs to be enhanced to reduce the potential for default.

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