

## Stock Investment Risk Analysis Using the Value at Risk (VaR) Method

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### Abstract

*This study aims to analyze stock investment risk using the Value at Risk (VaR) method with a qualitative approach. The main focus of the study is to understand how investors interpret risk and how the VaR concept is understood and applied in investment decision-making practices. The research method used is a descriptive qualitative approach with data collection techniques through in-depth interviews, observation, and documentation. Informants in this study were selected through purposive sampling, namely stock investors who have experience in investment activities and a basic understanding of risk. Data analysis was conducted using an interactive analysis model that includes data reduction, data presentation, and conclusion drawing, with data validity maintained through triangulation and member checks. The results show that most investors have recognized the importance of risk in stock investment, but understanding of the Value at Risk (VaR) method is still uneven. Investors with a financial background tend to better understand and utilize VaR in determining risk tolerance limits and investment strategies, while other investors rely more on an intuitive approach. There is a gap between the theoretical concept of VaR and its implementation in the field, caused by the complexity of the calculation, limited financial literacy, and psychological factors such as emotions and speculative behavior. Nevertheless, VaR still holds significant potential as a risk management tool if supported by adequate understanding and the use of financial technology. In conclusion, the application of the Value at Risk (VaR) method in stock investment is still suboptimal, but it has high relevance in helping investors manage risk more measurably. This research contributes to the understanding of risk management practices from an investor behavioral perspective and emphasizes the importance of integrating technical and psychological approaches in investment decision-making.*

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## INTRODUCTION

Stock investment is a financial instrument that is increasingly popular among both individual and institutional investors. Advances in information technology and easier access to capital markets have significantly increased the number of investors in recent years. This phenomenon demonstrates a shift in people's financial management behavior, shifting from a preference for saving to a more active investment approach (Setiani et al., 2021). However, despite the potential for high returns, stock investment also carries significant risks. Stock price fluctuations are influenced by various factors, both internal and macroeconomic, making this investment fraught with uncertainty (Somantri et al., 2013).

Risk in stock investing is unavoidable but must be managed properly. Investors often face uncertainties caused by changes in interest rates, inflation, political conditions, and global market sentiment. In this context, the ability to measure and understand risk is crucial for making rational

and informed decisions (Ambarsari et al., 2016). Without proper risk assessment, investors can potentially experience significant losses, especially in volatile market conditions.

One widely used approach to measuring investment risk is the Value at Risk (VaR) method. This method provides an overview of the maximum potential loss that may occur within a given time period with a certain level of confidence. VaR is an important tool in risk management because it simplifies risk into a single, easily understood number (Taruna et al., 2023). Thus, investors and portfolio managers can use VaR as a basis for designing investment strategies and managing risk exposure. Although the VaR method is generally used in quantitative approaches, qualitative studies of its use also play a significant role (Ridha & Khoiruddin, 2018). A qualitative approach allows researchers to understand investors' perceptions, understanding, and practices in using the VaR concept in investment decision-making. Furthermore, this approach can also uncover various non-technical factors such as experience, intuition, and financial literacy levels that influence the effectiveness of the VaR method (Haryanti, 2019).

In practice, not all investors have an adequate understanding of the concept of risk and its measurement methods. Many investors still rely on speculation, market rumors, or short-term trends without considering in-depth risk analysis. This indicates a gap between risk management theory and actual practice (Nurhaliza et al., 2025). Therefore, it is important to examine how the VaR method is understood and applied by investors, as well as the factors that influence its use in real-world contexts. Furthermore, the ever-changing dynamics of capital markets also demand an adaptive approach to risk management (Seru et al., 2024). The global economic crisis, pandemic, and developments in financial technology have significantly impacted stock market volatility. This situation further emphasizes the importance of risk measurement tools that are not only mathematically accurate but also contextually relevant. The qualitative approach in this study is expected to provide a more comprehensive picture of how VaR is used in dynamic and uncertain situations (Dharmawan, 2023).

This research is also motivated by the importance of improving financial literacy among investors. A good understanding of risk and how to manage it is a crucial indicator in creating intelligent and responsible investors. By examining the use of the VaR method qualitatively, this research is expected to contribute to identifying obstacles, challenges, and opportunities in implementing more effective risk management. Furthermore, this research seeks to explore how investors interpret risk and how they integrate the VaR concept into their investment strategies. This is important because each investor has different characteristics, objectives, and risk tolerance. A qualitative approach allows researchers to explore a more in-depth and contextual perspective, allowing the research results to provide a more holistic understanding than a purely quantitative approach (Lestdwinanto, 2016).

Thus, research on stock investment risk analysis using the Value at Risk (VaR) method from a qualitative perspective is relevant. This research focuses not only on the technical aspects of risk measurement but also on how the method is understood, interpreted, and applied in practice by investors. The research findings are expected to contribute both academically and practically, particularly in developing more effective risk management strategies based on a deeper understanding of investor behavior.

## **METHODS**

This study uses a qualitative approach with a descriptive approach, aiming to deeply understand how investors interpret and apply the concept of risk in stock investment, specifically through the Value at Risk (VaR) approach. This approach was chosen because it can explore phenomena contextually based on the experiences, perceptions, and interpretations of the research subjects. The data used in this study are primary and secondary. Primary data were obtained through in-depth interviews with stock investors, both novice and experienced, as well as capital market practitioners. Meanwhile, secondary data were obtained from scientific literature, financial reports, journals, and related documents relevant to risk management and VaR. The informant selection technique was carried out using purposive sampling, with the criteria being individuals with experience in stock investment activities and a basic understanding of investment risk.

Data collection techniques were conducted through interviews, observation, and documentation to obtain comprehensive information. Data analysis in this study used an interactive analysis model, which includes the stages of data reduction, data presentation, and conclusion drawing. The analysis process was carried out iteratively to ensure the depth and accuracy of data interpretation. Data validity was maintained through triangulation of sources and methods, as well as member checks with informants to ensure the interpretations align with their experiences. With this method, the study is expected to provide an in-depth overview of the practice of using Value at Risk (VaR) in stock investment decision-making, as well as the factors that influence the effectiveness of its application in real-world contexts.

## RESULTS AND DISCUSSION

The results of this study reveal that investors' understanding of stock investment risk is generally quite developed, but this has not yet been fully accompanied by the technical ability to systematically measure risk. Most informants recognize that stock investments have the potential for high profits but also a significant risk of loss. This awareness drives them to undertake various risk management efforts, although not all of them are based on structured methods such as Value at Risk (VaR). Investors with educational backgrounds in economics, finance, or accounting tend to be more familiar with the VaR concept, and some have even tried applying it in their investment decisions (Simulasi & Carlo, 2025). They understand VaR as a tool to estimate the maximum potential loss under normal market conditions with a certain level of confidence, thus serving as a reference in determining risk tolerance limits.

On the other hand, investors without a financial background generally rely more on practical and experienced approaches to risk management. They tend to use simple indicators such as stock price trends, recommendations from the investment community, and information obtained from social media (Rizeki et al., 2023). Nevertheless, they indirectly apply basic principles aligned with the VaR concept, such as limiting the amount of funds invested, diversifying their portfolio, and avoiding stocks with excessive volatility. This suggests that, despite limited understanding of the term VaR, some investors already practice risk management intuitively (Wahidah et al., 2018).

Furthermore, this study found a significant gap between the theoretical concept of VaR and its implementation in everyday investment practice. Investors who understand VaR conceptually do not necessarily use it consistently in their decision-making. This is due to several factors, such as limited access to accurate historical data, a lack of understanding of calculation techniques, and the limited availability of user-friendly analysis tools. Furthermore, some informants stated that VaR calculations are considered too complex and time-consuming, making

them impractical for quick decision-making in a dynamic stock market.

In practice, VaR is often used in a simpler and more informal manner. Some investors use a rough estimate of potential losses by looking at historical stock price movements over a specific period. They also combine technical and fundamental analysis as a basis for measuring risk, without explicitly calculating VaR. This suggests that VaR is often understood more as a concept than as a mathematically implemented analytical tool. Nevertheless, investors with a better understanding of VaR tend to have more planned investment strategies and are disciplined in managing risk (Farkhati et al., 2014).

This study also identified that psychological factors have a significant influence on the effectiveness of risk management implementation, including the use of VaR. Many informants admitted that in volatile market conditions, they often disregarded previously conducted risk analysis (Amanda & Hulu, 2025). Fear of greater losses or the desire for quick profits drove investors to make decisions emotionally. This situation suggests that although risk measurement tools like VaR are available, their success depends heavily on investors' ability to control their emotions and maintain consistency in implementing their investment strategies (Rapang et al., 2024).

Besides psychological factors, financial literacy is also a significant factor influencing VaR use. Investors with high levels of financial literacy tend to be better able to comprehensively understand risk concepts and utilize various analytical tools to support investment decisions. Conversely, investors with low financial literacy tend to have difficulty understanding the VaR concept and rely more on external information that may not be accurate. This highlights the need for more intensive educational efforts to improve investor understanding of risk management, particularly regarding the use of the VaR method.

Another finding in this study indicates that developments in financial technology present both opportunities and challenges in the application of VaR. On the one hand, various digital investment platforms have provided analytical features that can help investors more easily assess risk. However, on the other hand, not all investors utilize these features optimally. Several informants revealed that they focus more on the potential profits displayed by the platform, rather than the risk information provided (Adrianto et al., 2018). This suggests that despite technological advancements, investor awareness and understanding remain key factors in risk management (Aisah et al., 2026).

In the context of investment decision-making, VaR plays a crucial role as a tool in determining strategies appropriate to an investor's risk profile. Investors who understand and utilize VaR tend to be more cautious in selecting stocks and more disciplined in setting loss limits. They are also better able to manage portfolios effectively by considering the balance between risk and return. Conversely, investors who do not utilize VaR tend to be more speculative and vulnerable to significant losses, especially in volatile market conditions.

This research also shows that VaR implementation cannot be separated from the dynamic market context. Changes in economic conditions, government policies, and global sentiment can significantly impact the risk level of stock investments. Therefore, VaR use must be adapted to actual market conditions and not solely rely on historical data. Several informants suggested that VaR should be combined with other analyses, such as stress testing and scenario analysis, to obtain a more comprehensive risk picture (Nugrahaeni et al., 2024).

Overall, the results of this study indicate that the Value at Risk (VaR) method has high relevance in stock investment risk management, but its implementation still faces various

obstacles. Limited understanding, calculation complexity, psychological factors, and low financial literacy are the main challenges to optimal VaR use. Nevertheless, this study also demonstrates significant potential to increase VaR use through education, simplified analytical tools, and the use of financial technology (Jatnika et al., 2022).

Thus, this study illustrates that managing stock investment risk depends not only on the use of analytical methods such as VaR, but also on human factors, including investor understanding, experience, and behavior. The qualitative approach used in this study successfully uncovered various dynamics that cannot be explained solely through statistics. Therefore, integrating quantitative and qualitative approaches is crucial for developing more effective and sustainable risk management strategies in the future.

## CONCLUSION

Based on the research results, it can be concluded that investors' understanding of stock investment risk is generally quite good, but it is not yet fully supported by the technical ability to systematically measure risk using the Value at Risk (VaR) method. Some investors, particularly those with educational backgrounds and experience in finance, have understood and utilized VaR as a tool to estimate potential losses and determine risk tolerance limits. However, most other investors still use intuitive and simple approaches to risk management, such as portfolio diversification and investment fund limitations, without formally applying VaR.

This research also reveals a gap between the theoretical concept of VaR and its practical implementation. Calculation complexity, limited financial literacy, and lack of access to analytical tools are major obstacles to implementing this method. Furthermore, psychological factors such as emotions, risk perception, and speculative behavior influence investment decision-making, often reducing the effectiveness of VaR. In volatile market conditions, investors tend to ignore their risk analysis and make impulsive decisions.

Overall, the Value at Risk (VaR) method holds significant potential as a risk management tool for stock investments, yet its use among individual investors remains suboptimal. Therefore, increased financial literacy, simplified analysis methods, and the use of financial technology are needed to support broader understanding and application of VaR. Furthermore, it is crucial for investors to integrate technical approaches with psychological controls to ensure more rational, measurable, and sustainable investment decision-making.

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