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Investment Portfolio Management System: A Survey

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Abstract: ***An investment portfolio management system is a highly sophisticated software application meticulously crafted to assist investors in the management of their investment portfolios. This innovative system provides investors with a centralized platform that empowers them to track their investments meticulously, closely monitor their performance, and judiciously make informed investment decisions. The system encompasses several advanced features such as portfolio analysis, risk management tools, asset allocation strategies, and performance reporting, that provide investors with a comprehensive overview of their portfolio's performance. Additionally, this cutting-edge platform offers investors the opportunity to diversify their portfolio by investing across multiple asset classes such as stocks, bonds, and mutual funds. This paper delves into the various techniques and methods employed to identify the optimal strategy to maximize gains from the investment. The fusion of algorithms and investments has revolutionized the investment landscape, enabling investors to obtain insightful data and make data-driven decisions. Several research studies have been conducted in the investment field, bolstered by machine learning models and algorithms, resulting in exceptional gains for investors.***
Keywords: Investment, Diversification, Portfolio, Risk, Management

I. INTRODUCTION

An investment portfolio management system (IPMS) is a software platform or tool that assists investors in more effectively managing their investment portfolios. It gives investors a comprehensive view of their investments, including asset allocation, performance, risk exposure, and other key metrics. This data enables investors to make informed decisions about their investment strategy, such as when to buy, sell, or rebalance investments. Individual investors, asset managers, wealth managers, and financial advisors can all benefit from investment portfolio management systems. They provide a variety of features that assist investors in tracking their investments, such as real-time market data and analysis tools. Some IPMSs also provide automated trading and rebalancing features, allowing investors to put their investment strategies into action more efficiently. One of the primary advantages of an IPMS is that it allows investors to monitor and manage their investments in real time, allowing them to respond to market changes more quickly. Furthermore, IPMSs can assist investors in identifying and managing investment risks such as concentration risk and market risk. Overall, an investment portfolio management system can be a useful tool for investors who want to take a more strategic approach to managing their investments and meeting their financial objectives.

II. RELATED WORK

The process of effective portfolio management include continual study and monitoring of the state of portfolios and the securities market, as well as portfolio rebalancing. Diversification and rebalancing, which are immediately reflected in structural changes in the portfolio, have a substantial impact on portfolio management quality. According to [1], the findings of an assessment approach for the quality of security portfolio rebalancing and the use of different structural factors for analysing dynamic changes in security portfolios. The portfolio management process often comprises investment monitoring and analysing portfolio efficiency in comparison to benchmarks. In most situations, monitoring and analysing the investor risk-reward profile is a continual operation in the portfolio management process, with analysis and rebalancing performed quarterly or yearly. When planning and implementing investments, several decision characteristics must be considered. In [2] we have discussed, an example of how to build a collection of decision qualities based on the goals of distinct beneficiaries and boundaries. Portfolio investment improves the precision, transparency, and breadth of asset management. The simulation and sensitivity analysis results, which are studied through risk-return tradeoff, offer comparison and recommendation of an optimal portfolio management of R&D investment projects. It has proposed a quantitative model to evaluate portfolio management of R&D investment using the real options approach. The research aims to study risk behavior that affects the R&D process.

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The relationship between R&D investment and the market and technical risk is analyzed through portfolio analysis and the risk-return tradeoff. Uncertainties of R&D projects are represented by two dimensions of stochastic evolutions: the investment cost involving technical uncertainty and the future payoff involving market uncertainty. The study focuses on the two critical stages of investment and constructs a portfolio valuation model to analyze tradeoff from investing in each type of options characterized by different levels of market and technical uncertainty. A sensitivity analysis is performed on the risk-return tradeoff, and different patterns of portfolio allocation are analyzed. The simulation results provide comparison and recommendation on an efficient portfolio management of R&D investment projects.

It is also stated in [3], the two crucial phases of investing and builds a portfolio valuation model to analyse tradeoffs from choosing between investing in various options types with varying degrees of market and technical uncertainty. The risk-return tradeoff is subjected to a sensitivity analysis, and various portfolio allocation patterns are examined. The simulation findings provide comparisons and suggestions for effective R&D investment project portfolio management. Investment risk may be effectively spread out via a portfolio. One of the important findings is that, in order to minimise investment risk and maximise return on investment, an investor should spread their money among a variety of securities rather than just one kind of security. Although equal weight portfolio investments are often not the best investments, this work has found several sufficient and necessary circumstances that, according to matrix theory, make equal weight portfolio investments the best investments. These findings are crucial to the conceptual study of equal weight portfolio investing can be found in [4]. The decision-makers for the project make choices that are arbitrary and prone to subjectivity since there is no universally effective method to assess project investment and project selection. It is stated in [5] that The revenue of projects is often not taken into account at the strategic level, and the balance between short-term and long-term initiatives is frequently overlooked. F.Warren.Mcfarian chose and managed IT project portfolios using a risk-based methodology up to 1981. After then, in the middle of the 1990s, PPM started to get more and more notice. The problem of selecting the appropriate (number of) projects was particularly underlined among the first academics to concentrate on PPM. Thus, these academics provided advice on how to use mathematical models to create the ideal project portfolio. John Thorp employed PPM in 1998 to optimise profit while managing risk along a variety of parameters. John Thorp asserts that PPM strategies are essential for maximising the value of IT projects. To be completely honest, have just presented a framework for the use of PPM in government investment projects. A lot of work to do, including figuring out how to assess the portfolio and how to monitor a collection of government-funded projects. The possible impacts of portfolio management governance concerns on portfolio innovativeness, and therefore on innovation management outcomes like business performance, have largely gone unresearched in the past. Hypothesis of portfolio management governance improves company performance by permitting greater degrees of portfolio innovativeness via market and technology elements, building on the dynamic capabilities approach. Results confirm the importance of taking portfolio management governance into account when attempting to explain improved innovation outcomes. Demonstration of formality and explicitness, information support, as well as the frequency of partial reviews, all have a significant influence on how creative the company's product range is. Increased technical and commercial innovation hence fuels business performance.

Drawn conclusions that have consequences for managers and researchers

Portfolio management (PM) techniques are being used by businesses more often to give a comprehensive view and align the portfolio with strategy, ensuring that worthwhile and well-balanced projects are undertaken to maximise long-term return on investment. Discussed the theoretical notion of PM governance before using the idea of dynamic capacities to create a conceptual model. The study strategy is then described, and the analysis's results are then presented. Came to a conclusion by drawing conclusions for theory and practise, talking about our limits, and outlining potential directions for further study [6]. The main components of an investor's securities investment in today's securities markets are return on investment and risk. The contemporary investment theory's basis was built by H.M.M. Markowitz's securities portfolio theory. According to this idea, the variance of a security's return may be used to calculate how much investment risk there is. The Markowitz mean-variance model, whose fundamental tenet is that one aim should be fixed in order to optimise another target, is the preferred investment proportion model. Investors want a return that is as high as feasible while assuming the least amount of risk imaginable. This issue is not taken into account by this idea. The Markowitz model also makes the assumption that there is no mechanism for short sales, despite the fact that most securities markets now allow short sales. Based on the investment in utility theory, we split the securities market in this work into permit short sales and ban short sales. In the meanwhile, this work builds the investment utility function using the linear weighted sums approach while fully accounting for the pursuit of "the maximal expected return and the minimal uncertainly risk." The article analyses the portfolio solution process to identify the investment percentage vector and serve as a guide for the investment choice after making the first derivation of the investment utility function using the Lagrange multiplier approach. The findings suggest that, in the event of a short sale, investors should choose the stock with the highest investment percentage vector.

Investors should omit this investment if there are no short positions and then eliminate the component with the highest absolute value in the negative component can be found in [7]. Lastly in [8], the issue of internal resource allocation and sustainable growth is one that every firm must deal with. It is simultaneously impacted by the outside environment. Making solid investment decisions for the organisation is one method to find a solution. All investors want to get the biggest returns possible, yet high returns are often associated with considerable risk. Investor invests in a portfolio to spread risk.

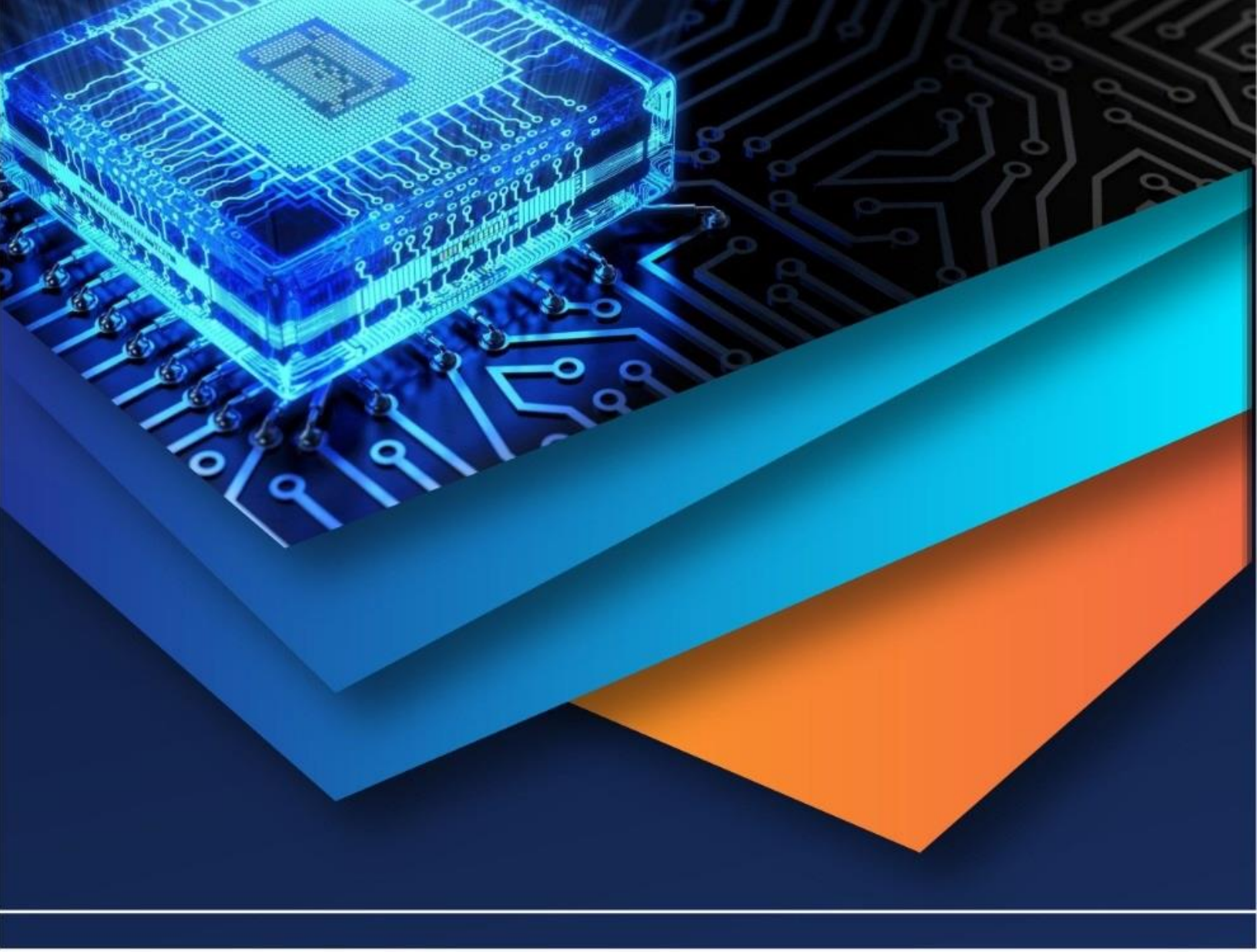
III. CONCLUSION

Causal Productions permits the distribution and revision of these templates on the condition that Causal Productions is credited in the revised template as follows: "original version of this template was provided by courtesy of Causal Productions (www.causalproductions.com)".The article on investment portfolio management systems has underscored the paramount importance of these software programs in empowering investors to manage their portfolios proactively. The study delved into the various features and functionalities that these systems typically offer, including portfolio analysis, risk management tools, asset allocation strategies, and performance reporting. Moreover, it stressed the significance of portfolio diversification and how these cutting-edge tools allow investors to make investments across multiple asset classes.Furthermore, the report examined the intricate relationship between machine learning algorithms and investment portfolio management systems. It demonstrated how the utilization of advanced machine learning models can furnish investors with insightful information and facilitate data-driven investment decisions, culminating in outstanding investment returns.In conclusion, it is evident from the research that investment portfolio management systems are invaluable tools that enable investors to optimize their investment strategies and achieve their financial objectives. As technology continues to evolve, it is expected that these systems will continue to improve, becoming even more powerful and indispensable to investors.

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