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A study on the correlation between market risk and portfolio diversification

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ABSTRACT :

This research article investigates the relationship between market risk and portfolio diversification, specifically how diversification methods affect an investment portfolio's overall risk exposure. Market risk, also known as systemic risk, impacts all securities and cannot be mitigated through diversification. However, an optimised portfolio can lower unsystematic risk, resulting in higher risk-adjusted returns. This study uses theoretical frameworks such as Modern Portfolio Theory (MPT) to evaluate the efficiency of diversity in risk management in various market scenarios. Furthermore, the article analyses the limitations of diversity and the declining marginal advantages of adding assets to a portfolio.

Introduction :

Investors seek a balance between maximising earnings and minimising risks. Market risk, also known as systemic risk, is an inescapable part of investing that results from macroeconomic factors such as inflation, interest rate changes, global economic downturns, and political instability. Unlike unsystematic (firm-specific) risk, which can be reduced by portfolio diversification, market risk impacts all assets and cannot be completely removed.

Portfolio diversification, a fundamental principle in investment management, is spreading investments across asset classes, industries, and locations to limit exposure to a single risk source. This study looks at how diversification affects portfolio volatility and the limitations of diversification in addressing systematic risk.

Objectives of the Study :

The key objectives of this study are:

- To understand how market risk affects investment portfolios and overall financial stability.
- To investigate how diversification influences the risk-reward tradeoff.
- To evaluate the limitations of diversity and investigate alternative risk management strategies.

Literature Review :

Market risk refers to the probability of financial losses for investors as a result of market-wide causes. It is a risk that cannot be mitigated through diversification.

The main components of market risk are:

- Interest Rate Risk: Interest rate fluctuations affect bond prices, stock values, and borrowing costs.
- Inflation Risk: Rising inflation reduces purchasing power and can result in poorer actual returns.
- Currency Risk: Exchange rate swings have an influence on overseas investments.
- Geopolitical and economic risks: Wars, policy changes, recessions, and global financial crises all have an impact on market performance.

Portfolio diversification is based on Modern Portfolio Theory (MPT), which was presented by Harry Markowitz in 1952.

MPT emphasises:

- Asset allocation is critical for decreasing risk while maintaining returns.
- The concept of an efficient frontier, in which optimal portfolios provide the highest return for a given degree of risk.
- The impact of correlation on diversification benefits.
- Several studies support the benefits of diversification:
- According to studies, a well-diversified portfolio greatly minimises firm-specific risks while having little influence on systematic risk.

- According to research, 20-30 equities from various industries provide significant diversification, with further risk reduction being minor.
- Data from global financial crises (2008, the COVID-19 pandemic) show that even diversified portfolios suffer significant drawdowns amid extreme market conditions.

Research Methodology :

Secondary data sources, including journal articles, financial reports, and investment research papers, are reviewed.
Analytical Framework
To investigate the association between market risk and portfolio diversification, the following indicators are used:

- Standard deviation measures an investment's total volatility.
- Beta measures a portfolio's sensitivity to market changes.
- Value at Risk (VaR): Estimates probable portfolio losses over a certain time period.
- Sharpe Ratio: Measures risk-adjusted returns.
- Correlation analysis identifies the relationship between assets in a portfolio.

Findings and Discussion :

The effect of diversification on risk reduction:
Data study reveals that diversity considerably reduces unsystematic risk but has little effect on systematic risk. A diversified portfolio that includes assets from many businesses and geographies has lower volatility than a focused one.

Correlation and Asset Selection:
The effectiveness of diversification is determined by the correlation between assets.
Positively correlated assets move in the same direction, which reduces diversification benefits. Negatively linked investments offer more diversification because losses in one asset class can be offset by gains in another.
Alternative assets (gold, bonds, real estate, and cryptocurrencies) provide hedging opportunities during market downturns.

Limitations of Diversification:
Despite its benefits, diversification has some limitations,

- Systematic risk persists: No amount of diversity can mitigate the risks associated with macroeconomic developments.
- Decreasing marginal benefits: Beyond a given number of assets, more diversification does not considerably lower risk.
- High transaction fees: Managing a well-diversified portfolio can be costly due to higher trading fees and portfolio rebalancing.

Conclusion and Recommendation :

The study demonstrates that diversity is a good risk management strategy, but it does not remove market risk.
Investors should:

- Balance diversity with asset selection, concentrating on assets with low or negative correlations.
- Use alternate risk management strategies, such as hedging with options, futures, and bonds.
- Monitor macroeconomic trends to alter portfolio allocations based on market conditions.
- Consider global diversification, or investing in multiple markets, to mitigate regional economic risks.

Future studies can investigate:

- The influence of diversity on emerging markets.
- AI and machine learning play an important role in portfolio allocation optimisation.
- The effectiveness of hedging measures in reducing systematic risk

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