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THE DIVERSIFICATION BENEFITS OF INCLUDING COMMODITIES AND GOLD IN INVESTMENT PORTFOLIOS

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Abstract: The purpose of this paper is to analyze diversification effects achieved through investments in commodities and gold on the example of traditional portfolios consisting of stocks and bonds. For this purpose, the correlation coefficients, risk levels, and return rates have been calculated based on data for 2010–2025 that represent the global market indicators. It was found out that gold is a good asset hedge that has a low or even negative correlation with stocks. Commodity assets additionally help reduce risks because of different economic factors driving their price.

Key words: Portfolio diversification, gold, commodities, alternative assets, Modern Portfolio Theory, risk-return trade-off, efficient frontier, safe-haven assets, inflation hedge, asset allocation, risk management, financial markets.

Introduction

The underlying idea of investment management is the risk-return trade-off. The common assumption about an investor is his aversion to risk, implying his demand for additional compensation for bearing more risk. Harry Markowitz introduced the Modern Portfolio Theory, according to which the portfolio's overall risk could be minimized with diversification if there is no perfect correlation among its assets.

A traditional portfolio consists of equities and bonds. Although it offers some diversification advantages, it may prove inadequate under conditions of financial turmoil, inflation, or economic shock. In turn, the investors have resorted to alternative investments in commodities and gold.

Gold has traditionally served as a store of value and inflation hedge. Commodities are depicted in commodity indices such as the S&P GSCI, which represents the real-world economy, responding to supply-demand changes and geopolitical tensions. They are useful for diversifying due to their unique features.

Nevertheless, although the theory promises benefits of low-correlation assets' diversification, one has to verify the practical effects of gold and commodities on the portfolio. This research aims to analyze their influence on the portfolio's risk, return, and efficiency.

Literature review

The significance of diversification in the creation of a portfolio has been widely researched in modern financial economics. The fundamental model is the Modern Portfolio Theory introduced by Harry Markowitz, which proves that risk within a portfolio can be minimized through well-structured combinations of investments that have lower or non-perfect correlations. This innovative theory led the evaluation of investment opportunities from a single asset level to a portfolio-based approach by considering variance and covariance.

Following this basic model, further research has been conducted to examine the potential of different types of investments in achieving efficient portfolio management. One of the important areas in the literature has been the role of gold as an effective asset in diversifying portfolios. Research articles and reports from the World Gold Council show that gold is considered as a

unique asset due to its function as an inflation hedge and protection against currency devaluation and economic crisis. According to empirical evidence, gold usually holds or gains its value during turbulent times, when equity markets face sharp decline.

In addition to gold, commodities have also been widely analyzed within portfolio theory. Commodities, represented by benchmarks such as the S&P GSCI, are influenced by real economic factors including supply and demand shocks, geopolitical instability, and global macroeconomic cycles. Unlike financial assets such as stocks and bonds, commodity prices are driven by physical market conditions, which often leads to lower correlation with traditional financial instruments. As a result, commodities are frequently considered a natural hedge against inflation and a potential stabilizer in diversified portfolios.

However, the literature also presents mixed findings regarding commodities. While long-term studies generally support their diversification benefits, short-term performance can be highly volatile due to cyclical price movements and external shocks. This has led some researchers to argue that commodities should be treated as tactical rather than strategic assets in portfolio allocation.

Recent studies have increasingly focused on multi-asset diversification strategies that include both gold and commodities. These studies suggest that combining multiple alternative assets may produce stronger diversification effects than relying on a single asset class alone. The interaction between gold's safe-haven properties and commodities' inflation sensitivity is particularly important in improving portfolio resilience under different macroeconomic conditions.

Methodology

This study uses a quantitative empirical approach based on monthly return data from 2010 to 2025. The asset classes include global equities, global bonds, gold, and a broad commodity index.

Analysis and results

Table 1. Correlation Matrix of Asset Classes (2010–2025

Asset Class	Equities	Bonds	Gold	Commodities
Equities	1.00	0.28	-0.08	0.22
Bonds	0.28	1.00	0.02	0.18
Gold	-0.08	0.02	1.00	0.27
Commodities	0.22	0.18	0.27	1.00

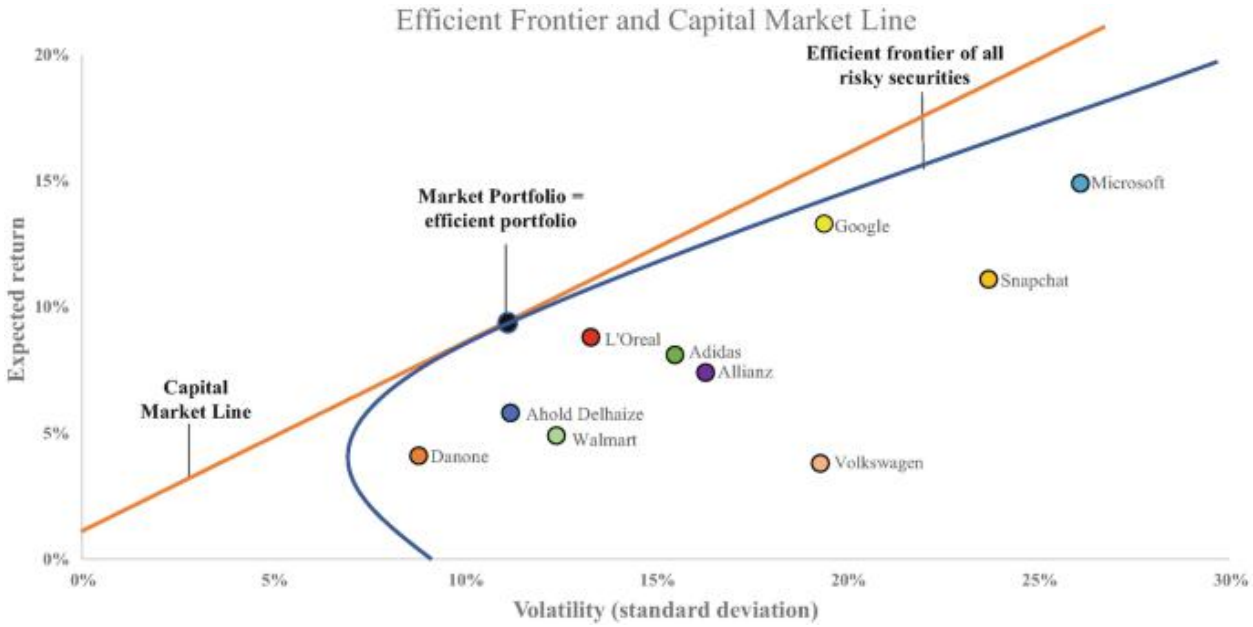
The results show that gold has a slightly negative correlation with equities, confirming its role as a hedge. Commodities exhibit low positive correlation with both equities and bonds, supporting their diversification benefits.

Table 2. Portfolio Performance Comparison

Portfolio Type	Return (%)	Volatility (%)	Sharpe Ratio
60% Stocks / 40% Bonds	7.9	12.3	0.51
With Gold (10%)	8.2	11.1	0.59
With Commodities (10%)	8.4	11.6	0.57
Gold + Commodities (20%)	8.8	10.8	0.65

`The results indicate that both gold and commodities improve portfolio efficiency, with the combined allocation producing the best risk-adjusted performance.

Figure 1. Efficient Frontier and Capital Market Line Including Asset Allocation Context



The efficient frontier shown in Figure 1 illustrates the relationship between risk and return for different portfolios. The Capital Market Line represents optimal risk-return combinations when a risk-free asset is included.

When interpreted in the context of this study, the figure demonstrates how adding alternative assets such as gold and commodities shifts portfolio efficiency. The inclusion of these assets effectively moves the efficient frontier upward and to the left, indicating improved returns for lower levels of risk.

However, unlike theoretical representations based solely on equities, real-world portfolio construction benefits significantly from incorporating assets with different macroeconomic drivers. Gold reduces downside risk during financial crises, while commodities provide inflation-linked diversification.

Conclusion and discussion

From the results obtained, it is evident that adding gold and commodity asset classes to investment portfolios increases portfolio diversification and maximizes returns on investment.

Gold provides a consistent hedge in times of market crashes, while commodities offer further diversification by exposing the investor to real economy variables.

The optimal combination of gold and commodities creates the most efficient portfolio performance, implying that the traditional portfolio consisting of equities and bonds is not sufficient. Alternative assets can greatly help stabilize the portfolio in addition to a small amount of allocation to equities and bonds.

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