**Executive Summary**

The document presents a comprehensive analysis of portfolio construction for a client seeking to maximize returns within a 12-month timeframe. The focus is on selecting stocks from the small and mid-cap sectors, drawing insights from high-performing mutual fund portfolios. A total of 48 stocks were selected based on their past 12-month returns and diversification potential.

**Key Aspects:**

Client Objective: Maximizing short-term wealth with a focus on a 12-month investment horizon.

Stock Selection: Chosen from small and mid-cap sectors for rapid growth potential.

Number of Stocks: A diverse portfolio of 48 stocks are taken out of which 25 potential stocks are identified based on the Sharpe ratio.

Stock Analysis: Each stock is evaluated based on past performance and sector representation.

**Methodology:**

Various portfolio construction methods were employed including Equal Weighted Portfolio, Minimum Variance Portfolio, Global Minimum Variance Portfolio (GMVP), Minimum Variance Portfolio with Target Return, Efficient Portfolio with Target Returns, Tangency Portfolio, Maximum Return Portfolio with Target Risk Level, Efficient Frontier Portfolio, ETL (Expected Tail Loss) Portfolio, and Quadratic Utility Portfolio.

Each method is thoroughly explained with a focus on its approach, how it's utilized in portfolio building, the weight output of stocks, and a brief conclusion.

**Backtesting**: The portfolios were backtested to evaluate their performance using historical data, giving insights into their performance, risk, volatility associated, and other relevant information which can guide future investment decisions.

The analysis offers a detailed look into the different methods of portfolio construction, each suited to different investor profiles based on risk tolerance and return expectations. The document meticulously explores the rationale behind stock selection and portfolio construction methods, providing a robust foundation for short-term investment strategies.

**Contribution and Motivation**

This document makes a significant contribution to financial analytics by detailing a robust methodology for constructing a diversified investment portfolio. The motivation for this research stems from a practical need: assisting a client in maximizing returns over a 12-month period through investments in small and mid-cap stocks. These stock categories are chosen for their potential for rapid growth, aligning with the client's objective of short-term wealth generation. This practical approach is underpinned by a strong theoretical foundation, blending empirical evidence with advanced financial modelling techniques.

**Summary of Literature**

The methodology builds on insights from mutual fund portfolios that have demonstrated substantial returns over a similar timeframe. This literature review serves as a foundation, providing empirical support and guiding principles for the selection and analysis of stocks. The review encompasses a range of financial models and investment strategies, offering a comprehensive understanding of current best practices in portfolio management.

**Key Results**

The core result of this methodology is the selection of 48 stocks, chosen for their performance in the past year and their potential to contribute to a diversified portfolio. The methodology employs a variety of portfolio construction methods, each with unique attributes:

Equal Weighted Portfolio: A method that assigns equal weight to each stock, ensuring a balanced distribution of investment.

Minimum Variance Portfolio: Focuses on minimizing risk by selecting stocks with lower historical volatility.

Global Minimum Variance Portfolio (GMVP): Aims to achieve the lowest possible portfolio variance.

Minimum Variance Portfolio with Target Return: Balances the objective of a specific return with the minimization of risk.

Efficient Portfolio with Target Returns: Seeks to optimize returns for a given level of risk.

Tangency Portfolio: Maximizes the Sharpe Ratio, offering the best risk-adjusted return.

Maximum Return Portfolio with Target Risk Level: Pursues the highest returns for a predetermined level of risk.

Efficient Frontier Portfolio: Utilizes the concept of the efficient frontier to balance risk and return.

ETL (Expected Tail Loss) Portfolio: Focuses on managing extreme risks in the portfolio.

Quadratic Utility Portfolio: Applies a quadratic utility function to balance risk aversion and return objectives.

Each method is analysed in terms of its application, stock weight distribution, and effectiveness, providing a thorough understanding of various investment strategies.

**Plan of the Paper**

The paper is structured methodically to cover the following aspects:

Client Expectations and Stock Selection: The document begins by defining the client's investment objectives and the criteria for stock selection, emphasizing the importance of aligning portfolio construction with client goals.

Portfolio Construction Methods: A detailed exploration of the various methods used for building portfolios is provided. This section delves into the rationale behind each method and their practical implementation.

Back testing: The performance of these portfolios is evaluated using historical data. This analysis is crucial in assessing the effectiveness of the chosen methods and in making informed investment decisions.

Portfolio Selection Rationale: The final section focuses on selecting the optimal portfolio based on the Sharpe Ratio. This involves a careful consideration of the balance between risk and return, ensuring that the portfolio aligns with the client's risk tolerance and return expectations.

**Literature Review**

The document presents an extensive literature review that underpins the methodology for constructing a diversified investment portfolio. This review is integral to understanding the foundational theories and current practices in financial portfolio management, particularly in the context of short-term investments in small and mid-cap stocks.

**Key Elements of the Literature Review:**

Empirical Basis: The methodology is informed by empirical evidence, particularly insights derived from the performance of high-return mutual fund portfolios. This empirical basis ensures that the selected strategies are grounded in real-world data and have demonstrated efficacy.

Financial Models and Theories: The review incorporates various financial models and investment theories, providing a theoretical framework for portfolio construction. These models include Modern Portfolio Theory, the Capital Asset Pricing Model, and others, which are essential for understanding risk-return trade-offs and portfolio optimization.

Risk-Return Analysis: Central to the literature review is the concept of balancing risk and return. This includes discussions on risk measures like volatility, the Sharpe Ratio, and portfolio diversification strategies. The review emphasizes the importance of understanding and managing risk, especially in the context of short-term investments where market volatility can significantly impact returns.

Portfolio Construction Techniques: Various portfolio construction methods are explored, each with its unique approach to balancing risk and return. These methods include the Equal Weighted Portfolio, Minimum Variance Portfolio, Global Minimum Variance Portfolio, and others, each offering different perspectives on portfolio optimization.

Back testing and Historical Performance: The literature review also highlights the importance of back testing, a method of evaluating the effectiveness of a portfolio by testing it against historical data. This approach is crucial for assessing the potential performance of investment strategies in real market conditions.

Investor Profiles and Objectives: Different investment strategies are suitable for different types of investors, and the literature review addresses this by discussing how various portfolio construction methods align with different investor profiles and objectives. This includes considerations for risk tolerance, investment horizon, and return expectations.

Current Trends and Best Practices: The review stays abreast of current trends and best practices in portfolio management. This includes insights into the latest techniques in financial analytics, the impact of technological advancements on portfolio management, and the evolving nature of financial markets.

**Abstract**

The document delineates a comprehensive methodology for constructing a diversified investment portfolio, specifically targeting short-term wealth maximization through investments in small and mid-cap stocks. This methodology is informed by a detailed literature review that integrates empirical insights from high-return mutual fund portfolios and foundational theories in financial portfolio management, such as Modern Portfolio Theory and the Capital Asset Pricing Model.

Central to this methodology is the selection of 50 stocks based on their past 12-month performance and diversification potential. The document meticulously explores various portfolio construction methods including Equal Weighted, Minimum Variance, Global Minimum Variance, and Quadratic Utility portfolios, among others. Each method is evaluated in terms of its approach to balancing risk and return, suitability for different investor profiles, and potential for achieving the client's investment objectives.

A key feature of the methodology is the extensive use of backtesting, applying historical data to assess the viability and performance of the constructed portfolios. This approach provides valuable insights into how these portfolios might perform in real market conditions.

In essence, this document offers a holistic and empirically grounded approach to portfolio construction, tailored for investors seeking to optimize returns over a short-term investment horizon. It stands as a valuable resource for financial professionals and investors, combining theoretical models with practical applications in portfolio management.