Moving Average Strategy – Performance Analysis Report

1. Strategy Overview

This project evaluates a systematic moving average–based trading strategy applied to a diversified basket of large-cap US equities (NVDA, MSFT, AAPL, GOOGL, AMZN, META, AVGO, TSLA, BRK-B, JPM).

The strategy generates binary long/flat signals by comparing each asset's latest price to its rolling moving average over a fixed window. Portfolio returns are computed as the equally weighted average of individual asset returns when signals are active.

The strategy is benchmarked against the S&P 500 index and evaluated across multiple investment horizons ranging from 3 months to 5 years.

2. Performance Summary

The results highlight a clear horizon-dependent behavior:

Short-term horizons (3–6 months):

- The strategy underperforms the benchmark and exhibits unstable risk-adjusted metrics. This behavior is expected, as moving average strategies are trend-following by nature and require sufficient time to capture persistent market trends.

Medium-term horizon (1 year):

- Performance becomes more competitive. While cumulative returns remain slightly below the benchmark, the strategy demonstrates lower volatility and drawdown, resulting in superior risk-adjusted metrics (Sharpe, Sortino, and Calmar ratios).

Long-term horizons (2–5 years):

- The strategy significantly outperforms the S&P 500 in both absolute and risk-adjusted terms. Over 3 to 5 years, cumulative returns are substantially higher, volatility remains lower, and maximum drawdowns are consistently reduced. This leads to strong Sharpe and Calmar ratios, indicating efficient risk-taking.

3. Risk Analysis

Across all horizons, the strategy shows:

Lower annualized volatility than the benchmark

Reduced maximum drawdowns

Improved downside risk management, as reflected by higher Sortino ratios over medium and long horizons

These characteristics suggest that the strategy acts as a trend-filtered equity exposure, reducing participation during adverse market regimes while remaining invested during sustained uptrends.

4. Interpretation and Limitations

The results are economically coherent and consistent with expectations for a simple trend-following strategy. Performance improves as the investment horizon increases, confirming that the strategy is not designed for short-term timing but for long-term trend capture.
Key limitations include the absence of transaction costs, turnover analysis, and robustness checks across alternative moving average windows. Consequently, reported performance should be interpreted as gross friction.

5. Conclusion

Overall, the moving average strategy demonstrates credible and robust long-term performance, outperforming the benchmark on a risk-adjusted basis while maintaining lower drawdowns. The results validate the effectiveness of simple trend-following rules when applied systematically and evaluated over sufficiently long horizons.