MACPHAIL QUANTITATIVE INVESTMENT FIRM

Investment Strategy

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The MacPhail Quantitative Investment Firm (MQIF) is focused on combining optimal long-term growth with risk-adjusted returns over the next five years. MQIF is the ideal firm for the low-risk investor seeking a quantitative approach to investing. We'll break down MQIF's investment strategy below, showing you how you can still make money over five years without risking too much.

Asset Selection & Allocation

To meet the goals of investors seeking long-term growth with risk-adjusted returns, MQIF focuses on ETFs. Given the goal of minimizing risk, ETFs allow for easier diversification by avoiding concentration in individual assets. They also provide a level of liquidity and transparency that can't be found in options, futures, and cryptocurrencies. ETFs also allow for more cost-efficient spending, as the expense ratios for most ETFs are very low. It's also easy to diversify our investments, as ETFs provide exposure to multiple asset classes, including equities, bonds, real assets such as gold, commodities, or real estate, and alternatives like managed futures or volatility hedges.

To determine which ETFs to invest in, MQIF uses a quantitative approach based on a comprehensive list of all ETFs according to polygon.io. The list of ETFs is filtered down to only active ETFs with at least 5 years of data and a daily volume of at least 100,000 shares. The ETFs are segmented into equities, fixed income, alternatives, and liquidity. To decide which other ETFs to filter out, the Sharpe Ratio is calculated for each ETF. Given the focus on minimizing risk, the Sharpe Ratio is prioritized as the metric to use for evaluating which ETFs to invest in, rather than average annual returns. A rolling 12-month Sharpe Ratio is used for diagnostics and visualization, but to rank and select ETFs for the portfolio, the Sharpe Ratio will be calculated over the entire five-year period.

To help maintain diversification, a minimum of 20 and a maximum of 40 assets are selected from the curated ETF list. Each asset is classified into one of the following categories: Equities, Fixed Income, Alternatives, Liquidity, and Blended/Multi-Asset, based on information retrieved from the ticker API in the Yahoo Finance package using Python. The assets are distributed among each segment accordingly:

- Equities: 30-40%
- Fixed Income: 30-40%
- Alternatives 10-15%
- Liquidity: 15%
- Blended / Multi-Asset (10% optional)

The asset class percentages are optimized based on the Sharpe Ratios for each asset, but a minimum threshold is established for each class. Rather than treating each ETF the same, once the number of assets is selected, their weights are optimized for the highest aggregate portfolio Sharpe Ratio; however, no individual ETF's weight can exceed 5% unless they are in the top 3 Sharpe Ratios. The top 3 ETFs by Sharpe Ratio are allowed to contribute up to 8%.

Performance Evaluation

To evaluate the performance of the portfolio, backtesting is applied over different periods to assess how the methodology would perform in various scenarios. Performance can be evaluated in various market environments or during extreme scenarios to determine how resilient the portfolio is in terms of risk. Because the ETFs and their associated weights are dynamically chosen, the portfolio methodology can be tested over any time period. The portfolio can also be evaluated across various metrics, including returns, volatility, the Sharpe ratio, Beta, and Alpha. However, given the goals of long-term growth and risk-adjusted returns, it makes sense to compare the portfolio against similar strategies. A 60/40 split of the S&P 500 (SPY) and the US Aggregate Bond ETF (AGG) over the same periods provides a good benchmark of a portfolio that's heavily focused on equities and bonds. The portfolio is also compared against the iShares Core Moderate Allocation ETFs (AOM).

Compensation

Given that the portfolio's focus is on long-term growth, risk-adjusted returns, and minimizing risk over a five-year period, compensation is derived from a combination of management fees and performance fees. The management fee is low and transparent, given that we're managing a systematic ETF portfolio. MQIF charges 0.50% annually. Since MQIF optimizes for risk-adjusted returns, performance fees are tailored around our performance against the 60/40 SPY + AGG benchmark or the AOM. MQIF charges 15% of the excess alpha above the SPY + AGG or AOM. MQIF is compensated when it outperforms realistic alternatives for clients seeking a similar investment approach. MQIF is also compensated 15% of returns that are above a 1.0 Sharpe Ratio. This ensures that MQIFs' incentives are the same as those of its investors in terms of protecting capital and compounding smartly.