Final Project
FIN7032 Quantitative Equity Investing
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Strategic Quality-Momentum Fund

Overview

Strategic Quality-Momentum Fund is a long-only, value-weighted U.S. equity factor fund that systematically integrates multiple proven return signals together.
The fund selects large-cap stocks each quarter based on three strategic signals: **Volatility-** based on daily returns in the most recent month, **Momentum-**past 12-to-2-month cumulative return, and **Return on Equity-**based on the most recent announced quarterly earnings report.

These signals were chosen based on academic research and practical investment evidence:

- **Low Volatility**: Studies such as Ang et al. (2006) show that stocks with lower return volatility often outperform higher-risk stocks on a risk-adjusted basis, a phenomenon known as the low-volatility anomaly. Incorporating a low volatility filter helps the fund maintain portfolio stability without greatly sacrificing return potential.
- **High Momentum**: The momentum effect, originally documented by Jegadeesh and Titman (1993), demonstrates that stocks with strong returns over the past 6–12 months tend to continue outperforming. Using 11-month returns allows the fund to efficiently capture positive price trends.
- **Profitability**: High return-on-equity companies have been shown (Novy-Marx, 2013) to generate superior long-term returns, as they combine strong earnings power with disciplined capital management.

The Strategic Quality-Momentum Fund is focused on delivering superior risk-adjusted returns relative to the S&P 500, offering investors a systematic and thoughtfully constructed alternative to traditional market-cap-weighted equity strategies. The fund's core objective is to consistently compound capital over the long term by combining exposures to low volatility, strong momentum, and high profitability signals. Through this disciplined multi-factor approach, the fund seeks to capture sustainable growth opportunities while maintaining resilience across varying market environments.

Methodology

The Strategic Quality-Momentum Fund follows a systematic, rules-based investment process designed to ensure consistency, transparency, and scalability. At the end of each quarter, the fund begins by shortlisting the U.S. equity universe to stocks that meet liquidity and price thresholds: only those trading above $5 per share and ranking among the top 1,000 U.S. stocks by both market capitalization and dollar trading volume are considered. This ensures that all holdings are large, liquid, and suitable for institutional implementation.

From this eligible universe, each stock is ranked based on three predictive signals:

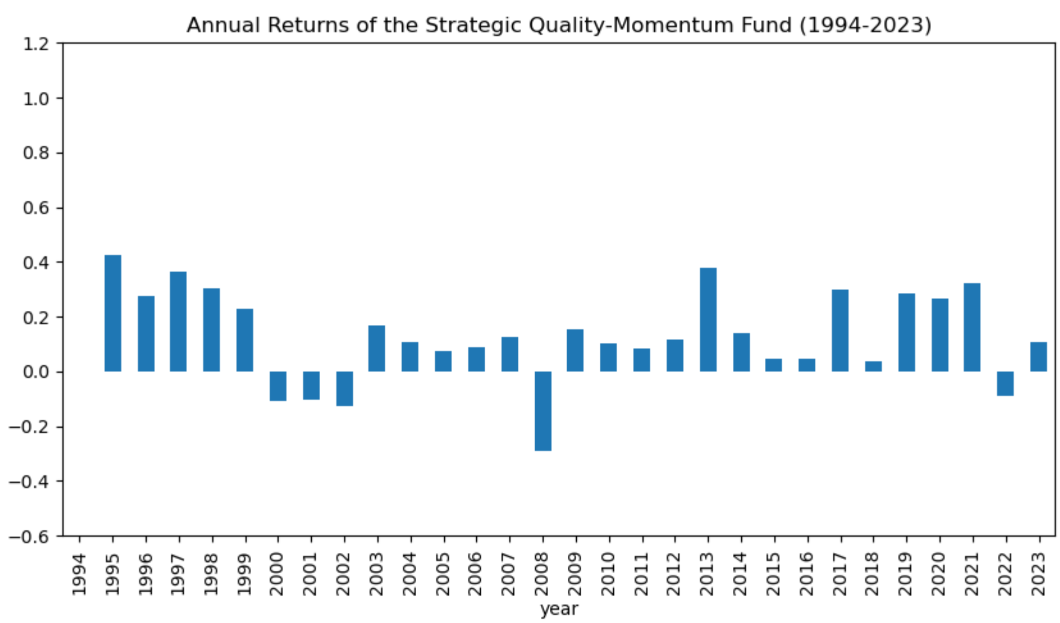
- Volatility (vol): Measured as recent return variability, ranked in ascending order to favor more stable stocks.
- Momentum (R11): The 11-month trailing return (excluding the most recent month), ranked in descending order to capture positive price trends.
- Profitability (ROE): Return on equity, ranked in descending order to identify firms with strong financial performance.

Each signal is independently ranked within its quarter-end cross-section, and an average composite score is calculated across the three dimensions. The top 100 stocks with the best combined scores are selected to form the portfolio. These stocks are then value-weighted based on beginning-of-month market capitalization, and the portfolio is held for one quarter before being rebalanced using updated signal data.

This quarterly ranking and rebalancing process allows the fund to dynamically adapt to evolving market conditions while maintaining its core exposure to quality, momentum, and low-risk characteristics. The final portfolio is broadly diversified, but with an intentional tilt toward stocks exhibiting a strong blend of performance, stability, and fundamental strength.

Back-testing

Annual Returns of SQMF



This bar chart displays the annual calendar-year returns of the Strategic Quality-Momentum Fund (SQMF) from 1994 to 2023.

The fund delivered positive annual returns in 25 out of 30 years, demonstrating strong resilience across market cycles. Notably, SQMF performed exceptionally well during bullish environments like 1995–1999 and post-2010, with peak annual returns exceeding 40%. While the fund experienced negative returns in market crises such as 2008 and 2022, its losses were generally less severe than the S&P500, reflecting the stabilizing effect of the low-volatility signal.

Performance Metrics

Metric	*SQFM*	*S&P-500*
Annual Excess Return	*10.44%*	*9.52%*
Annual Excess Return Volatility	*16.82%*	*18.23%*
Annual Sharpe Ratio	*0.62*	*0.52*
1- Year CAGR	10.57%	26.27%
3- Year CAGR	29.35%	27.50%
5- Year CAGR	16.70%	15.69%
10- Year CAGR	8.03%	7.56%
30- Year CAGR	11.43%	10.15%

Over the 30-year backtest period, the Strategic Quality-Momentum Fund (SQMF) consistently outperformed the S&P 500 in both absolute and risk-adjusted terms. While the fund delivered an average annual excess return of 10.44% compared to 9.52% for the benchmark, it did so with slightly lower volatility. This resulted in a higher Sharpe ratio of 0.62, indicating that SQMF generated more return per unit of risk taken. Although the fund lagged the S&P 500 in the most recent year (10.57% vs. 26.27%), it performed notably better over the 3- and 5-year horizons, with compound annual returns of 29.35% and 16.70%, respectively. Even over longer periods, the fund maintained its edge: 8.03% over 10 years and 11.43% over the full 30-year span, compared to 7.56% and 10.15% for the S&P 500.

Model Regression Analysis vs Factor Models

CAPM Results:

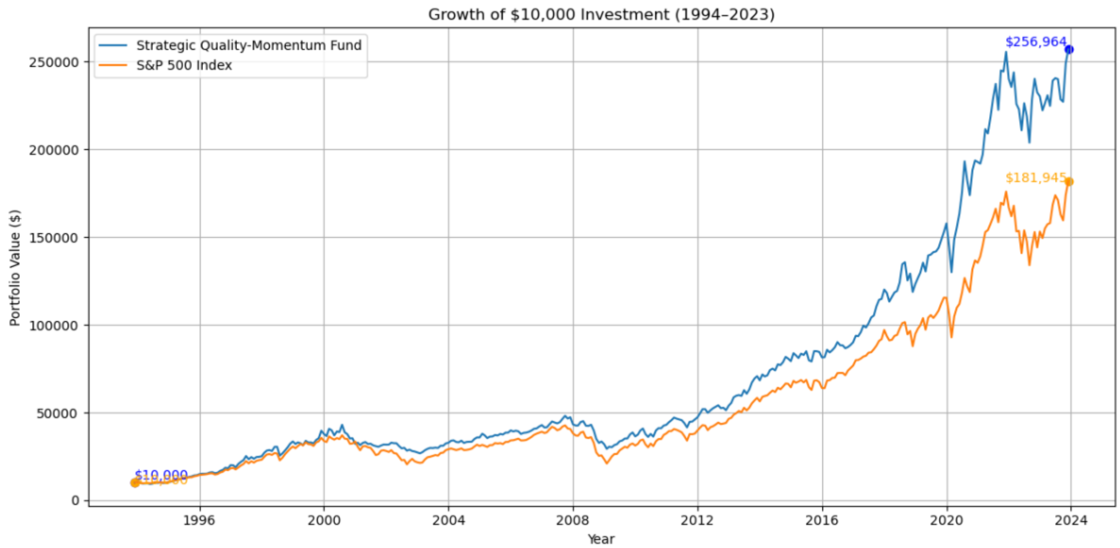
- **Alpha (Intercept):** 0.27% per month (significant at 5%)
- **Market Beta:** 0.80

Fama-French 3-Factor Results:

- **Alpha:** 0.27% per month
- **MKT Coefficient:** 0.84 (positive market exposure)
- **SMB Coefficient:** -0.27 (large-cap tilt)
- **HML Coefficient:** -0.09 (slight anti-value tilt)

The fund delivers a statistically significant **positive alpha** under both the CAPM and FF3 models, indicating that returns cannot be fully explained by traditional risk factors. The negative SMB coefficient confirms the large-cap dominance in stocks, and the slightly negative HML coefficient demonstrates the preference for growth/profitable stocks versus deep value.

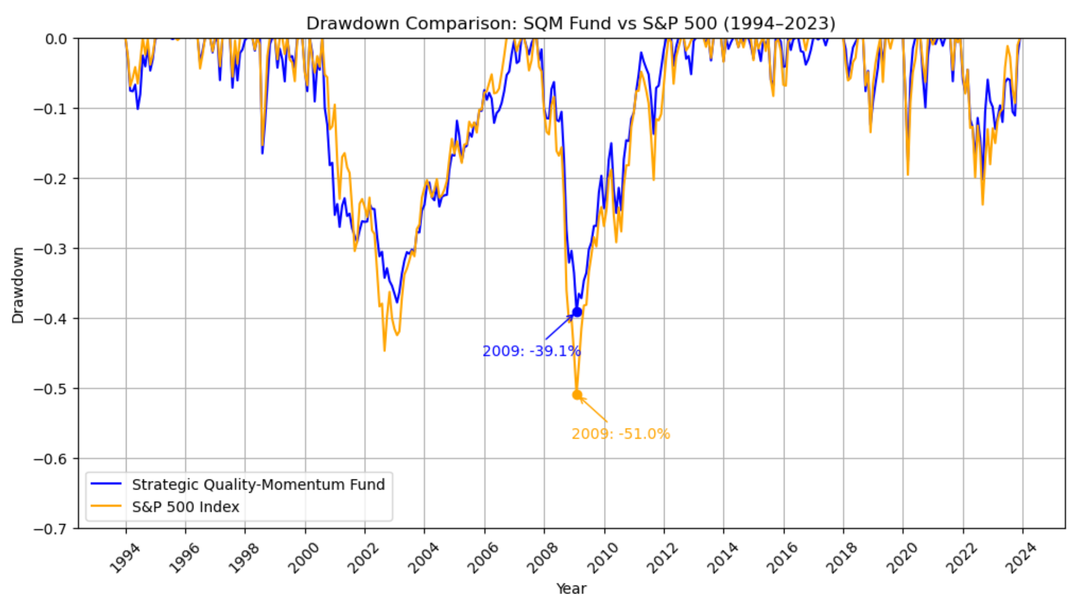
Cumulative Returns of SQMF



This line chart compares the growth of a $10,000 investment in SQMF and the S&P 500 Index from 1994 to 2023.

By the end of 2023, the SQMF grew to approximately **$256,964**, significantly outperforming the **$181,945** final value of a passive S&P 500 investment. This performance illustrates the fund's ability to compound capital over the long term while navigating varying market conditions. The outperformance becomes especially evident after 2010, driven by the fund's persistent exposure to profitable, low-volatility momentum stocks.

Risk Management - Drawdown



This chart shows the maximum drawdowns of both the SQMF and the S&P 500 Index during the time frame.

The SQMF consistently exhibited diminished drawdowns as compared to the S&P 500 during periods of market stress. For instance, during the Global Financial Crisis, the S&P 500 experienced a maximum drawdown of **-51.0%** in 2009, while SQMF's peak drawdown was more moderate at **-39.1%**. This demonstrates the defensive contribution of the low-volatility screen and highlights the fund's risk-managed profile.

Holdings

Rank	Ticker	Company Name	Exchange	Portfolio Weight (%)
1	AAPL	Apple	Nasdaq	20.69%
2	MSFT	Microsoft	Nasdaq	19.31%
3	AMZN	Amazon	Nasdaq	10.85%
4	NVDA	NVIDIA	Nasdaq	8.45%
5	META	Meta Platforms	Nasdaq	5.43%
6	JPM	JPMorgan Chase	NYSE	3.40%
7	V	Visa	NYSE	2.85%
8	MA	Mastercard	NYSE	2.74%
9	HD	Home Depot	NYSE	2.38%
10	CSCO	Cisco Systems	Nasdaq	1.42%

At the end of 2023, the Strategic Quality-Momentum Fund was concentrated in large-cap U.S. equities with strong market presence, stable volatility profiles, and consistent profitability. The table below lists the top ten holdings by portfolio weight. Notably, the top five positions are composed entirely of high-growth technology companies, with Apple and Microsoft making up over 40% of the fund's total market value alone. These dominant weights reflect the fund's value-weighting approach and the large market capitalizations of these firms.

The remaining top holdings include firms across technology**,** consumer discretionary, and financial services, such as Amazon, NVIDIA, and JPMorgan Chase. Most of the top holdings are listed on the Nasdaq, consistent with the sector tilt. While the portfolio is diversified across multiple names, it exhibits moderate concentration, with the top ten holdings representing over 77% of total portfolio value.

Risk and Limitations

While the Strategic Quality-Momentum Fund has demonstrated strong historical performance and robust risk-adjusted returns, there are several risks and limitations that investors should be aware of. The strategy relies on historical signals—momentum (R11), profitability (ROE), and volatility—which may not always predict future performance, especially during regime shifts or unexpected macroeconomic shocks. Momentum strategies, for example, are vulnerable to sudden reversals, and large-cap value-weighted portfolios may become overly concentrated in dominant firms, such as Apple or Microsoft, increasing sector exposure risk.

The fund also assumes frictionless quarterly rebalancing, but in practice, transaction costs, slippage, and liquidity constraints could modestly reduce returns. Additionally, while the combination of low volatility, high momentum, and strong profitability has delivered strong historical results, the effectiveness of these factors may vary across market cycles. As such, investors should consider the fund’s exposures and dynamic nature in the context of their broader portfolio goals and risk tolerance.