Albert Lee
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Term Project – Checkpoint A
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Introduction

With so many ETF's and Mutual Funds currently available, it's a massive market that many investors such as myself need to understand so that we can make our best judgement on which ones to invest in. It's no different then trying to buy a house and doing market comparisons and research on the house. According to to ICI (Investment Company Institute) there are over 10,000 (Active and Index) Mutual Funds and ETF's with over $32,679 trillion of assets. This research is to allow everyday investors such as ourselves understand and potentially design a quantitative investment fund. The below prospectus allows us to bridge academic rigor with real-world investing scenarios.

Who else has conducted research like this?

Many have conducted research around Quantitative Finance and many references to the hypothetical fund core strategies include references to the researchers work. Some of the topics highlighted are time-series momentum, regime-based allocation, volatility targeted risk management, and adaptive portfolio optimization.

How are you conducting the research? Make sure you address the issues that are the focus of this checkpoint assignment.

The research is grounded in principles of quantitative finance. Rather than just a buy and hold strategy, the hypothetical prospectus below highlights how the fund is going to be a systematic investment strategy. The hypothetical portfolio is actively managed and portfolio construction will be algorithmically developed based on the funds core quantitative principles.

What did you learn from your research so far?

The biggest lessons learned so far is reading the Prospectus and what it takes to put one together. Since I'm still early in developing the assets for the portfolio, I had not put together a Prospectus before and using examples from the SEC, I was able to mock one up for the hypothetical fund.

So, what does it all mean? Do you have any concerns about the term project at this point?

I'm excited to get to the next step in the term project and start doing the portfolio construction. In the past, I feel like my "portfolios" were all basic buy and hold strategies across a few equities. Taking the core pillars of the quantitative models to develop the portfolio will allow me to see whether the quantitative modeled approach will perform better than the static approaches of buying assets that are "relevant" in today's markets.

AlphaQuant Strategies Fund

Fund Name: AlphaQuant Strategies Fund
Ticker Symbol: AQSF
Fund Type: Actively Managed Exchange-Traded Fund (ETF)

Investment Objective

The AlphaQuant Strategies Fund goal is to seek long-term capital appreciation and minimizing risks by allocating across multiple asset classes based on data-driven quantitative models.

Fees and Expenses of the Fund

The below table describes the fees and expenses that investors may pay if you buy and hold shares of the fund.

Shareholder Fees (fees paid directly from your investment)

	Investor Class	**Institutional Class**
Redemption Fee	None	None

Annual Fund Operating Expenses (expenses that you pay each year

	Investor Class	**Institutional Class**
Management Fee	0.55%	0.55%
Distribution and service Fees	0.25%	0.00%
Other Expenses	0.205	0.20%
Total Annual Operating Expenses	**1.00%**	**0.755**

Example. This Example is intended to help you compare the cost of investing in the Fund with the cost of investing in other mutual funds. The Example assumes that you invest $10,000 in the Fund for the time periods indicated and then redeem all of your shares at the end of those periods. The Example also assumes that your investment has a 5% return each year and that the operating expenses remain the same. Although your actual costs may be higher or lower, based on these assumptions your costs would be:

	1 Year	**3 Years**	**5 Years**	**10 Years**
Investor Class	$105	$344	$626	$1,558
Institutional Class	$79	$260	$475	$1,189

Portfolio turnover

Portfolio turnover is a measure of how frequently assets within a fund are bought and sold. It's calculated by either taking the total amount of new assets or the number of assets sold over a

period of tine and divided by the net asset value (NAV). Since this is a new portfolio, the turnover rate is not calculated but the fund is targeting a rate of ~20% - 50%. The portfolio turnover is intended to be low to keep trading costs low for our investors.

Principal Investment Strategy

The AlphaQuant Strategies Fund seeks long-term capital appreciation while minimizing risks for investors. The fund will use a quantitative, model-driven investment strategy drawing from methodologies used by other top-tier institutional investors. The fund will allocate assets across US equities, bonds, commodities, and volatility-linked securities. The fund strategy will be centered around three core quantitative pillars:

1. **Time-Series Momentum & Regime-Based Allocation**
2. **Volatility-Targeted Risk Management**
3. **Adaptive Portfolio Optimization**

Time-Series Momentum a core fund strategy is a quantitative approach that invests in assets exhibiting positive trends within recent price history. This strategy can also be used to help predict returns based on historical trends (e.g. positive or negative). We can then use those trends to determine whether we hold or sell an asset. This strategy has been demonstrated over a 212-year span of US equity and has consistently delivered excess returns even through major market downturns (Geczy & Samonov, 2016). Not only is this method proven among US equities, but it's also been proven across other global asset classes such as stocks, bonds, commodities, and currencies (Moskowitz, Ooi & Pedersen, 2012).

In addition to the momentum trading, the fund will incorporate a regime-based strategic asset allocation framework. To help optimize for dynamic economic environments, the fund may rebalance asset classes based on their associated risk profiles in various economic regimes – growth, inflation, stagnation, and contraction (Bouyé & Teiletche 2024). The fund will use probabilistic models to identify macroeconomic regimes using data such as but not limited to GDP, CPI, credit card spending, loan delinquencies, etc.

To help stabilize the risk profiles of asset classes, the fund will deploy a volatility targeted risk management framework. Rather than having a static position, the fund will rebalance the asset allocations based on recent or forecasted volatility. This will allow the fund to implement targets at both the asset-class level and at the total portfolio level. The targets for the fund will be as follows:

	Acceptable Ranges
Annualized Volatility	8% - 12%
Sharpe Ratio	≥0.8
Maximum Drawdown	< - 15%

The last and final piece of the core quantitative pillars is Adaptive Portfolio Optimization. The fund will incorporate adaptive-robust principles to address uncertainties in the market. It will use two key elements: 1) robust optimization which helps the model guard against misestimation and

2) adaptive learning so that the model can update as new data arrives (Bhudisaksang et al., 2025). This helps protect the fund from potential overconfidence within the data while also incorporating new market data.

The fund will primarily be using technical analysis such as price momentums (identifying trends across 1M, 3M, or 12M scenario), volatility breakout, and moving average signals. The fund will also deploy a top-down macroeconomic signal to define broad exposure to various type of asset classes and at the portfolio totality. The fund will not engage in short-term speculation and is focused on long-term capital appreciation. As needed, the fund will rebalance weekly or monthly based on signal turnovers. The portfolio turnover will be constrained to minimize costs to investors and to maintain tax / trading cost disciplines.

Example of how the fund will deploy the rules for buying / selling:

Buy	**Initiate or increase position when security:**
	Has positive 1M, 3M, 6M, or 12M returns
	Has volatility under cap threshold
	Is in a supported regime
	Is one of the top signal scorers
Sell / Reduce	**Reduce or exit when:**
	Return momentum turns negative (1M, 3M, 6M, or 12M)
	Regime changes unfavorably
	Volatility risk above threshold
	Rebalancing lowers fund thresholds

While the Fund incorporates principles of long-term investing it does not follow a strict buy-and-hold strategy. Instead, the fund employs a dynamic, quantitative-based active allocation approach that responds to market conditions through signals grounded in price trends, volatility, and macroeconomic regime shifts. This provides the fund flexibility to remain invested during favorable periods while de-risking any potential impacts of drawdowns.

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