

# Trilake Capital TCA Challenge: ACQC 2025

## Designing a Transaction Cost–Aware Market-Neutral U.S. Equity Strategy

### Context & Overview

Trilake Capital Management is looking to launch a new quantitative equity trading strategy. While many strategies boast impressive theoretical returns, the “real world” can be unforgiving: execution frictions—such as commissions, bid-ask spreads, slippage, and market impact—can significantly erode performance. In this challenge, you will design a long-short, market-neutral U.S. equity strategy that integrates transaction cost analysis (TCA) into every stage of the strategy’s development. The goal is to demonstrate how a deep understanding of TCA can lead to a more robust, “realizable alpha” proposition.

### Objectives

Your task is to develop a comprehensive, qualitative proposal for a market-neutral long-short U.S. equity strategy that:

- **Defines a Clear Alpha Hypothesis:** Choose an intuitive source of alpha (e.g., a factor-based, mean-reversion, or thematic signal) and explain its potential and limitations.
- **Integrates Transaction Cost Analysis Throughout:** Identify and analyze how transaction costs affect every stage—from signal generation and universe selection to portfolio construction and order execution.
- **Proposes Practical Mitigation Strategies:** Outline actionable methods to reduce cumulative transaction costs and market impact, ensuring that net alpha remains attractive.
- **Communicates a Compelling Client Value Proposition:** Explain why managing transaction costs upfront results in a more honest and sustainable investment product.

### Challenge Requirements

Over the next **15 days**, you will develop your proposal with the following focus areas:

#### 1. Alpha Model & Theoretical Returns

- **Define Your Alpha:** Articulate a simple, plausible alpha signal (e.g., a factor or price pattern) and explain why it should work under certain market conditions.

- **Acknowledging the Gap:** Discuss how raw theoretical returns are likely to be diminished once execution frictions are taken into account.

## 2. Transaction Cost Analysis (Core Focus)

- **Identify Cost Components:** Discuss the main transaction cost elements:
  - **Commissions & Fees**
  - **Bid-Ask Spreads**
  - **Slippage** (the price movement that occurs between order initiation and execution)
  - **Market Impact** (the effect of trading on the price of the asset)
- **Quantitative Reasoning (Optional):** Use simplified figures or basic calculations to illustrate how these costs can erode gross returns.
- **Mitigation Strategies:** Propose methods such as:
  - **Reducing Turnover:** Trade less frequently by focusing on more persistent signals.
  - **Liquidity-Aware Sizing:** Adjust position sizes based on the liquidity profile of each stock.
  - **Smart Execution Tactics:** Consider using limit orders or algorithms (e.g., VWAP/TWAP) to minimize market impact.

## 3. Portfolio Construction & Risk Management

- **Market Neutrality:** Explain how you will build a long-short portfolio that minimizes market exposure by carefully matching longs and shorts.
- **Risk Controls:** Detail risk management techniques (position limits, diversification, liquidity constraints) that not only reduce risk but also help control trading costs.

## 4. Performance Realization & Implementation

- **From Theory to Practice:** Conceptually demonstrate how gross alpha might shrink after incorporating realistic transaction costs.
- **Monitoring & Adaptation:** Outline how you will measure execution quality (e.g., tracking slippage, comparing projected vs. realized costs) and adjust the strategy over time.
- **Operational Considerations:** Briefly discuss technology or partnerships (such as choice of broker or execution venue) that can further enhance execution quality.

## 5. Client-Facing Pitch

- **Value Proposition:** Position your strategy as a “realizable alpha” product. Explain to potential investors how proactive transaction cost management leads to more consistent net returns and a more sustainable investment approach.

## Deliverables

You will submit two main items by the end of the 10-day period:

### 1. Short Written Report (3–5 pages)

- **Narrative Must Cover:**
  - Your chosen alpha factor and its rationale.
  - Detailed integration of transaction cost considerations across strategy phases.
  - How portfolio construction and risk management are shaped by both liquidity and cost concerns.
  - A qualitative scenario analysis showing the impact of higher or lower transaction costs on performance.
  - A client-facing pitch that explains why upfront TCA leads to more realistic net returns.

### 2. Slide Deck (5–8 slides)

- **Visual Summary:** Create a concise, visually appealing deck that highlights the key ideas of your strategy with an emphasis on TCA. This should capture the unique value proposition of managing execution costs in real time.

### 3. Optional Code/Appendices

- **For the Quant-Inclined:** Any code or supplementary materials that help illustrate your analysis (e.g., simple simulations, back-of-the-envelope calculations) may be included but are not required.

## Timeline

- **Total Duration:** February 26th, 2025
- **Submission:** Upload your final materials on **Gradescope** by the deadline.

## Judging Rubric

Your submission will be evaluated on the following dimensions:

Dimension	Criteria	Weight
<b>Alpha Concept &amp; Clarity</b>	Is the alpha source logical, intuitive, and well-justified?	15%
<b>Transaction Cost Integration</b>	How well are transaction costs identified, analyzed, and mitigated throughout the strategy?	30%
<b>Portfolio Construction &amp; Risk</b>	Is the market-neutral portfolio designed with appropriate risk and liquidity considerations?	20%
<b>Realism &amp; Implementation Feasibility</b>	Are practical execution steps (trading frequency, order types, liquidity constraints) clearly addressed?	20%
<b>Presentation &amp; Professionalism</b>	Are the written materials and slides clear, organized, and persuasive?	15%

## Additional Guidance

- **Keep It Qualitative:** While you may include simplified figures or basic code snippets, focus primarily on clear, qualitative reasoning.
- **Real-World Focus:** Judges are looking for realistic insights that acknowledge the complexity of execution in live markets.
- **Career Relevance:** Your submission should not only show strong technical reasoning but also the communication skills needed for strategy and product roles in quant finance.

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Good luck, and we look forward to your creative and thoughtful proposals!