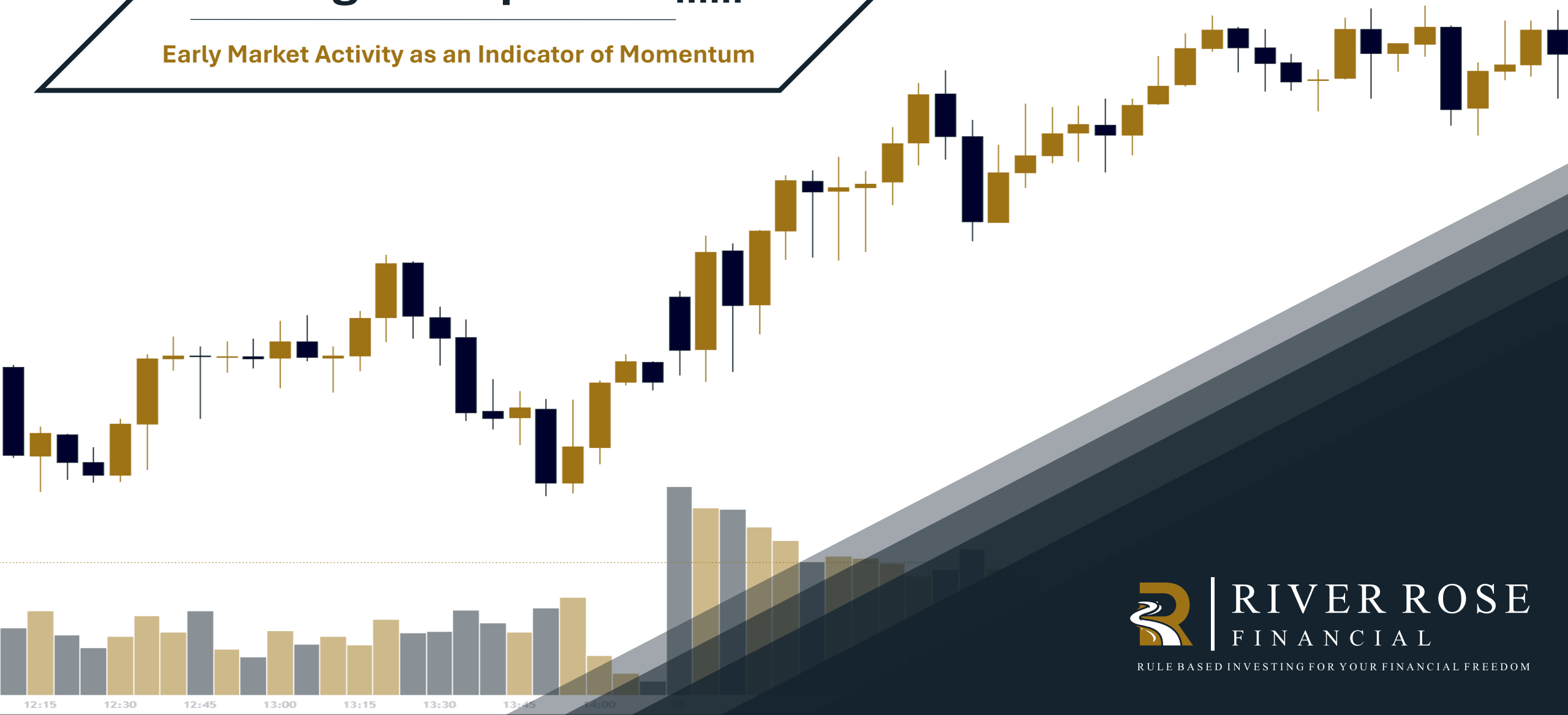
Algorithmic Trading Example

Early Market Activity as an Indicator of Momentum



RIVER ROSE FINANCIAL

RULE BASED INVESTING FOR YOUR FINANCIAL FREEDOM

Risk Disclosure Statement

River Rose Financial LLC &
Algorithmic Trading Investment Risks
Last Updated: 03/06/2025

Introduction

Investing in financial markets involves substantial risk, including the possibility of losing all or more than the amount invested. The strategies employed by **River Rose Financial LLC** and its affiliated Algorithm LLCs rely on algorithmic trading across multiple asset classes, including **equities, options, and futures**.
No guarantees of profitability are made, and past performance does not predict future results.
This document is meant as an example of algorithmic design and testing at **River Rose Financial LLC** and is meant ONLY for educational purposes. **THIS IS NOT TRADING ADVICE**.

General Investment Risks

1. Market Risk
The value of securities and derivatives can fluctuate significantly due to macroeconomic conditions, interest rate changes, geopolitical events, inflation, supply and demand, and unforeseen circumstances. These risks can result in **partial or total loss of invested capital**.
2. Liquidity Risk
Some securities or derivatives have limited market liquidity, making it difficult to enter or exit positions at desired prices, leading to potential losses.
3. Volatility Risk
Markets can experience extreme volatility, which can rapidly impact investment performance, often beyond algorithmic control.
4. Leverage Risk
Trading on margin or using leverage can **magnify gains and losses**, potentially exceeding the initial investment.
5. Counterparty Risk
Transactions in certain markets (e.g., over-the-counter derivatives) rely on third-party counterparties. A counterparty's inability to fulfill obligations may lead to financial loss.

Risks Specific to Options Trading

1. High Risk of Loss
Options involve a high risk of losing the entire investment. **Out-of-the-money options** may expire worthless, causing total capital loss.
2. Time Decay (Theta Risk)
Options lose value over time, meaning strategies based on time-sensitive pricing must be carefully managed.
3. Implied Volatility Risk
Options prices can be significantly impacted by changes in implied volatility, independent of the underlying asset's movement.
4. Assignment Risk
Investors selling uncovered options (naked calls or puts) expose themselves to **unlimited risk** if the underlying stock moves against them.

Risks Specific to Futures Trading

1. Leverage & Margin Calls
Futures require margin deposits, and minor price fluctuations can result in **large gains or losses**. If losses exceed available funds, **investors may be required to deposit additional capital immediately (margin calls)**.
2. Overnight & Gap Risk
Futures markets are subject to **overnight price gaps**, which can cause unexpected losses.
3. Regulatory Risk
Changes in regulations, margin requirements, or contract terms may impact strategy viability and performance.

Risks of Algorithmic Trading

1. Technology & Execution Risks
Algorithmic trading depends on **software, servers, and internet connectivity**. Hardware failures, latency, or data feed disruptions can result in **missed or unintended trades**.
2. Market Disruptions & Flash Crashes
Automated trading strategies may react unexpectedly to unusual market conditions, causing unintended losses.
3. Overfitting & Model Assumptions
Algorithms are optimized using historical data, which may not accurately predict future market conditions, leading to unexpected failures.
4. Lack of Human Intervention
Unlike manual trading, algorithmic strategies rely on predefined rules, which may fail under new market conditions.

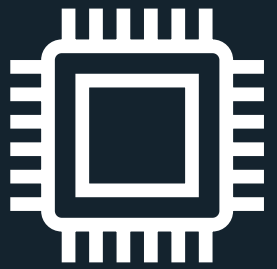
Legal Disclaimers & Regulatory Notices

1. No Investment Advice
The information provided by **River Rose Financial LLC** does not constitute financial, legal, or tax advice. Investors should conduct their own due diligence and consult qualified professionals before investing.
2. Accredited vs. Non-Accredited Investors
•**Accredited Investors** (as defined by SEC Rule 501 of Regulation D) may have different suitability requirements and risk tolerances.
•**Non-Accredited Investors** are subject to additional regulatory protections but may also face greater restrictions on participation in private placements.
•**Investing in algorithmic trading strategies is inherently risky, regardless of investor classification.**
3. No Guaranteed Returns
Investors acknowledge that **no returns are guaranteed** and that past performance does not predict future profitability.
4. Risk of Complete Loss
There is a **real possibility of total capital loss**. Investors should only allocate funds they can afford to lose without impacting financial stability.
5. Tax & Reporting Responsibility
Investors are responsible for understanding and complying with all **tax obligations** related to their investments. **River Rose Financial LLC** does not provide tax guidance.

By viewing this document you acknowledge that you have read and understand the risks outlined herein, you accept full responsibility for investment decisions and outcomes, you understand past performance does not guarantee future results, and you agree that **River Rose Financial LLC** and its affiliates are not liable for any losses incurred.

TABLE OF CONTENTS

Algorithmic Trading Example



Basis: Early Morning Activity

The first five minutes of the New York trading session see heightened volume and price action as institutional and retail traders establish positions for the day. This period presents a key opportunity to interpret order flow and anticipate market direction. The Micro E-mini Nasdaq-100 Futures (MNQ) contract, with over 35,000 contracts and $70 million traded in this short window, offers ample liquidity for substantial capital deployment. **River Rose Financial** developed this **Example Algorithm** to dynamically adjust positions based on this early market price action.

35,000+ MNQ Contracts

Traded in the first five minutes of the New York Trading Session

$70m+ in Five Minutes

Traded when calculated using the margin cost of $2027/contract

Pyramid Peak Example: Re-Entry After Initial Loss on February 26th, 2025

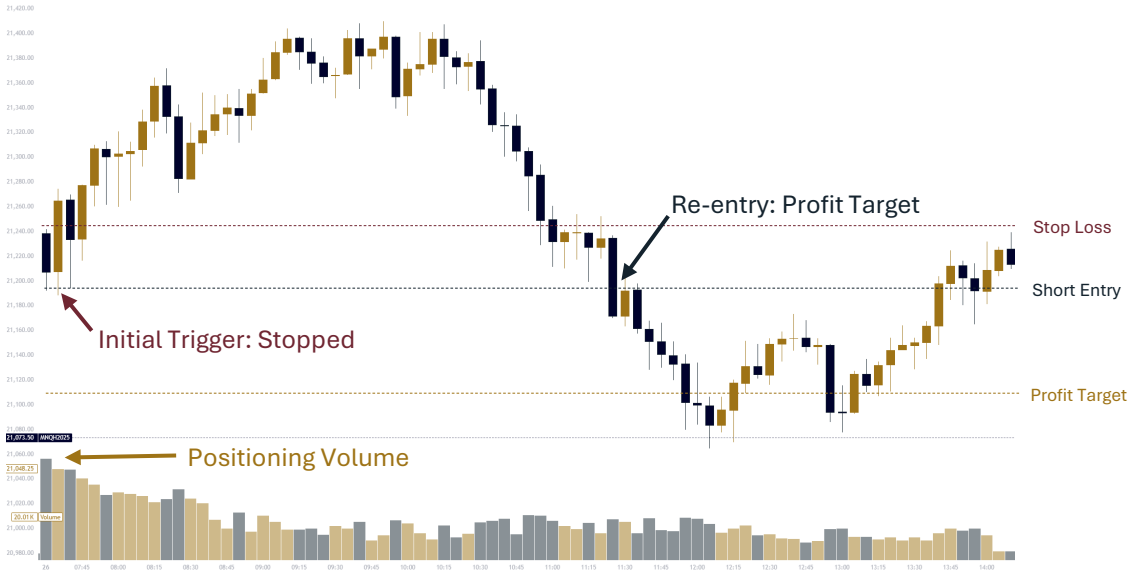


Figure 1. On the morning of February 27, 2025, there was a strong downward signal. Our algorithm positioned itself short and was immediately triggered into a position before an abrupt turn around. The algorithm removed itself from the market while the pressure continued to be bullish for the morning. Around lunchtime, the market softened and the algorithm re-entered its position at 1:25pm EST. A quick drop in price lead to full recovery of losses and a 1R gain for the day.

Algorithmic Constraints

To optimize performance, the algorithm operates within strict constraints, determined through rigorous backtesting and continuous monitoring for adjustments based on market conditions. The current constraints for the **Example Algorithm** are:

- **Trades limited to Micro E-mini Nasdaq-100 Futures (MNQ)**
- **Maximum of two trades per day**
- **No re-entry after 3:30pm EST**
- **All trades must be closed by 3:55pm EST**

These constraints may be updated as market conditions evolve. Quarterly reports provide details on significant adjustments and their rationale.

Asset

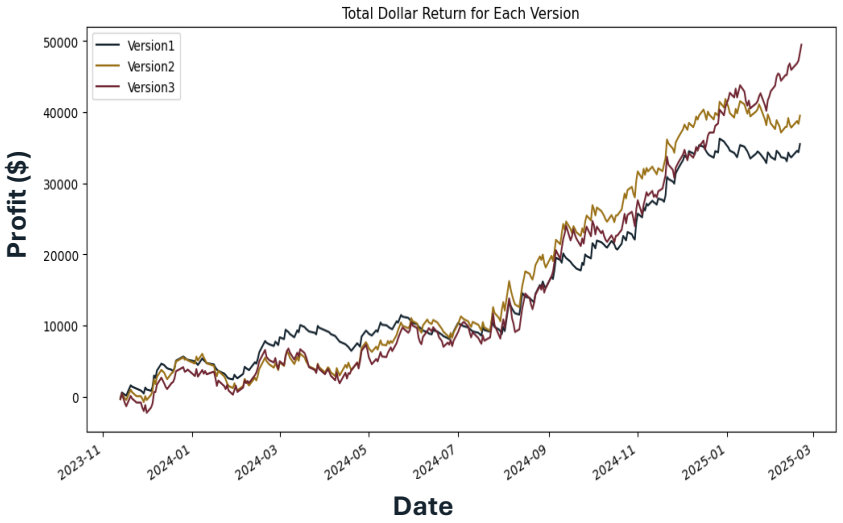
River Rose Financial tested the **Example Algorithm** on multiple classes including Equities, Options, and Futures. Within each class, multiple diverse assets were additionally tested. In our commitment to 'only-the-best' we narrowed down the example algorithm pool of tradable assets to the MNQ futures contracts.

Version

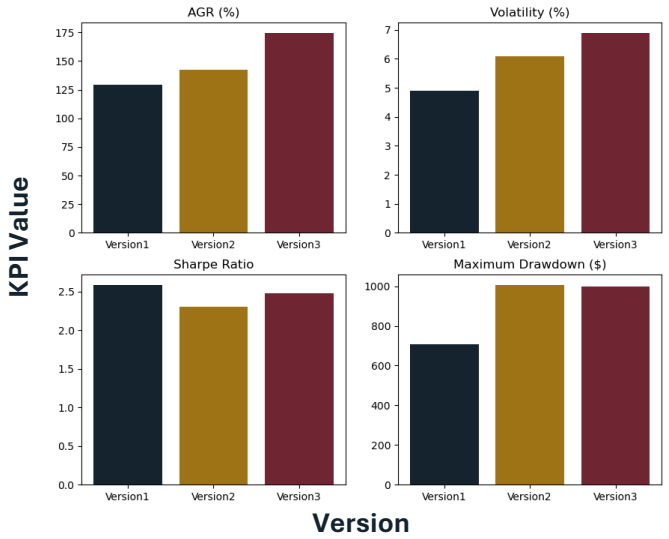
The Example Algorithm is now on it's third iteration based on rigorous backtesting standards.

- **Version 1** – Half-stop to reduce risk while capitalizing on large moves and gains
- **Version 2** – Expanded to full-stop looking for a 2:1 profit to risk ratio
- **Version 3** – Introduced a single re-entry after taking a loss
- **Version 4** – In development: Predictive Modeling

Profit and Loss ($) for 10 contracts*: Nov. 2023 - Present



Version Comparison: KPI comparison



Backtesting KPI's

Version 3 KPI's based on 10 'MNQ' contracts:

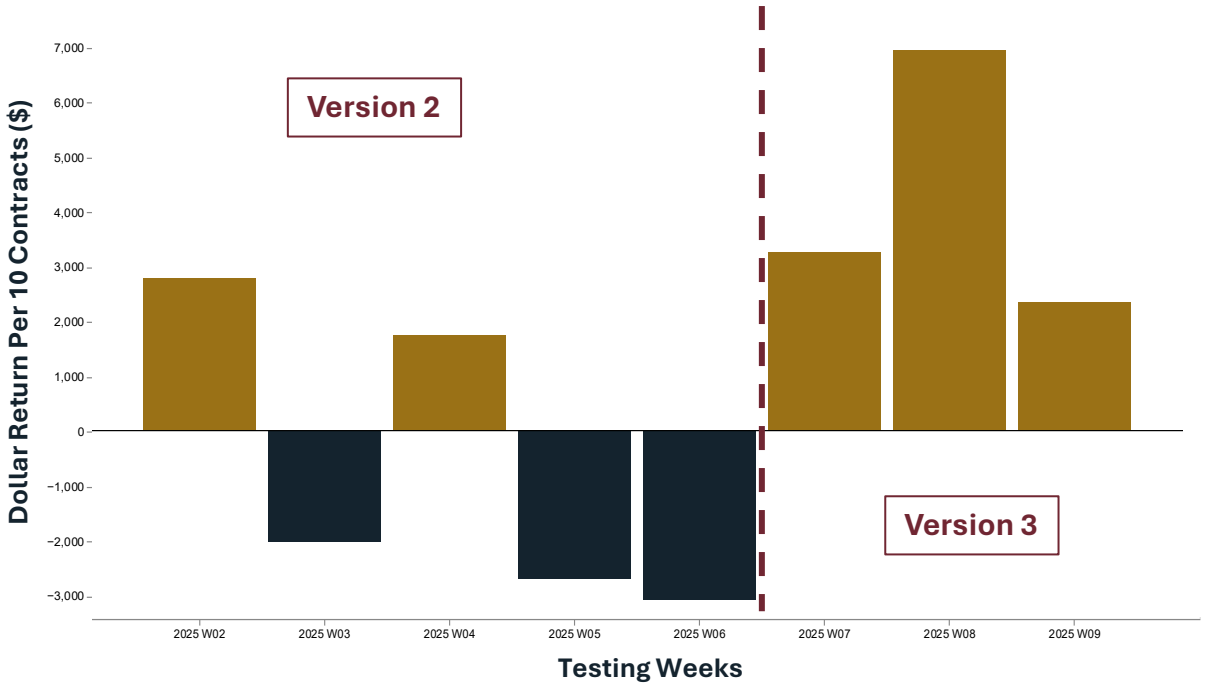
- **Annual Growth Rate (AGR) – 175% -** Based on 'compound annual growth rate' but adjusted for investing with a single contract (fixed).
- **Sharpe Ratio – 2.48 –** A metric used to evaluate algorithm return vs risk against the risk-free growth rate (Secured Overnight Financing Rate). Only sharpe ratios > 2.0 will be deployed in live markets
- **Maximum Drawdown – $10,000 –** Calculated maximum loss from peak to trough of a drawdown period. This ideally should never be more than the initial investment in backtesting
- **Batting Average – 40.9 % -** Win-to-loss ratio. If the algorithm is 1:1 reward:risk, you would need >50% win rate to be profitable
- **R-value – 2.04 –** Reward to risk ratio. We are risking 1R to make 2.04x the risk in this scenario. A $100 Risk would make $204
- **Max Consecutive Loss – 8 –** The largest number of consecutive losses of the algorithm in a row

*10 contracts = $20,270 investment

Simulated Testing*: 2-Months

As a proof of concept, River Rose Financial tests all algorithms for a minimum of 2 months in a simulated environment. This allows us to find any bugs in the code, test multiple market environments, as well as testing the strategy on novel price action. We released the Example Algorithm - Version 3 at the beginning of week 7 of testing with very promising results. **During the complete testing period, the 'SPY', an ETF mimicking the S&P500, had an overall return of -0.31% whereas the Example Algorithm had a return of 26.4%.**

Monthly PnL ($): Simulated Environment



Overall Net Dollar Return: $5,345.00 (After Fees)

The Example Algorithm had an overall net return of **$5,345.00** after fees which is a **26.4%** return on investment

Batting Average: 43.2%

The Example Algorithm was right roughly 4 out of every 10 trades. It took a total of 37 trades, with 16 hitting profit target

R-Value: 1.8R

After factoring in commissions, we were typically making 1.8X more on profitable trades compared to losing trades.

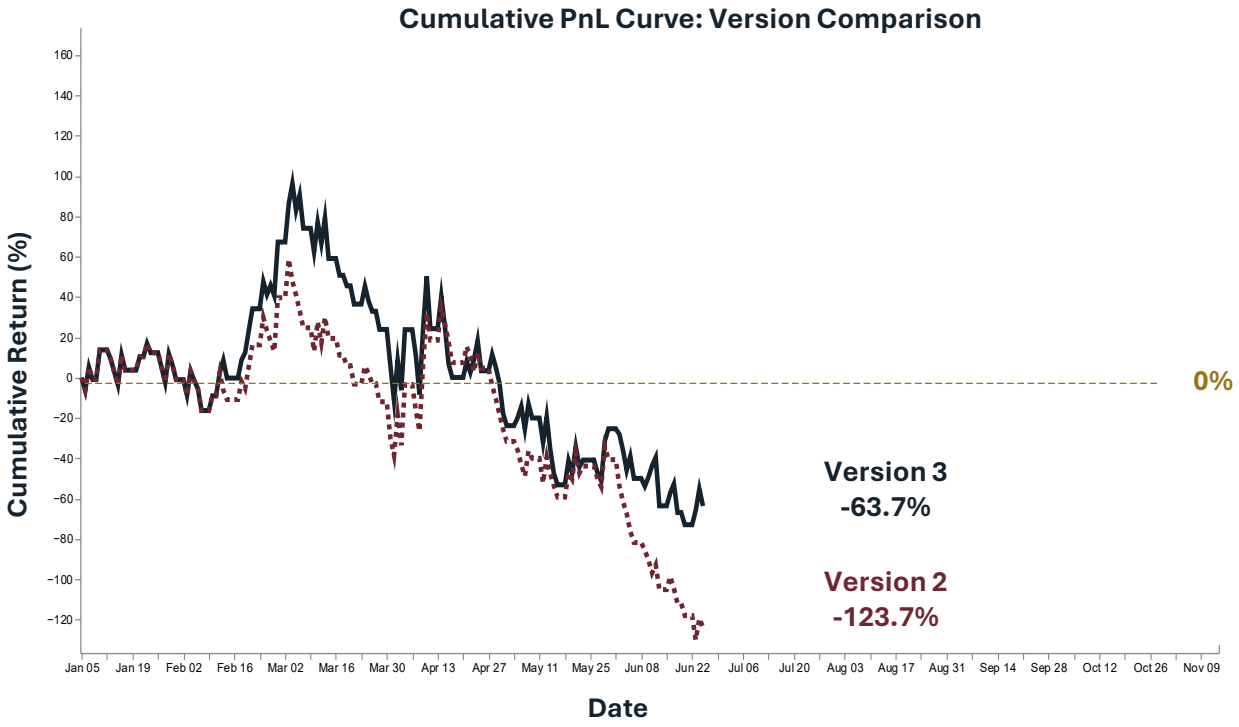
Consecutive Loss: 3

The worst run we had was three consecutive losses in a two-month period.

*10 contracts = $20,270 investment

Live Performance: Investor Experience

With consistent results between backtesting and the simulated environment, River Rose Financial launched the **Example Algorithm** in live markets in January, 2025. We introduced dynamic share sizing into the algorithm, so whenever the algorithm makes $2000, it will increase share size. If the net profit drops below $2000, share size will reduce accordingly. Currently, Pyramid Peak is performing outside of its expected uncertainty range in live markets based on backtesting and simulated trading. **Pyramid Peaks current net return for an investor trading one contracts is $-1,290.25 after fees which is a -63.7% return on investment for 2025.**



Overall Net Dollar Return: $-1,290.25 (After Fees)

The Example Algorithm has an overall net return of **$-1290.25** after fees which is a **-63.7%** return on investment

Batting Average: 33.7%

The example algorithm is right roughly 3.3 out of every 10 trades. It has taken a total of 151 trades, with 51 hitting profit target

R-Value: 1.8R

After factoring in commissions, we are typically making 1.8X more on profitable trades compared to losing trades.

Consecutive Loss: 7

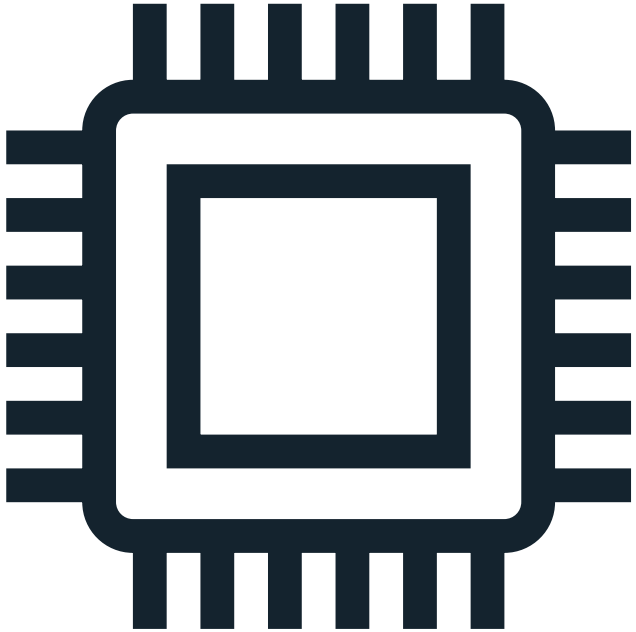
The worst current run we have experience was seven consecutive losses.

*Information contained in this document was accurate at time of creation but may have since changed

Optimization: Predictive Modeling

As **River Rose Financial** continues to track data and performance of the Example Algorithm, we will use predictive modeling to help predict when the algorithm will be successful and when it will fail. We will use this to better optimize entry criteria potentially leading to an improved batting average and increased profits. Data points we will be monitoring are:

- ❖ Size of five-minute trading range
- ❖ Volume of five-minute trading range
- ❖ Price relative to yesterdays close
- ❖ Average Daily Trading Range
- ❖ Above or Below the 21-Period Moving Average
- ❖ Daily, Weekly, Monthly Volume Weighted Average Price



Frequently Asked Questions

Q1: What is the purpose of this report?

This report was designed to show an example of algorithmic trading done at **River Rose Financial LLC**. This is a very basic opening range breakout strategy that may or may not be profitable. It is meant to demonstrate abilities; it is not meant as trading advice.

Q2: Why don't we aim for a higher batting averages?

Ultimately, our goal is to produce the highest batting average we can. The market is unpredictable, and we balance profits with batting average. We could achieve a higher batting average, but we would have to reduce the size of the profit target we are looking for. To produce an 80% batting average, we will be looking to make $30 while risking $100 and would have to be right 75%+ of the time. If we are trying to make $600 while risking $100, we only need to be right ~15% of the time. Different algorithms will have different reward:risk and batting average profiles.