# Looped Trading Strategy
# with Xtreamly AI Volatility Control


## Abstract

This paper presents a looped trading strategy deployed on AAVE, dynamically managed using an **Xtreamly AI-driven Volatility Classification Model**. The strategy aims to maximize returns by recursive borrowing and lending, while integrating real-time volatility detection and multiple risk checks to automatically optimize or exit positions.


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## 1. Strategy Overview

Looped trading (also known as looping) involves supplying collateral (e.g., USDCn), borrowing against it (e.g., WETH), and supplying the borrowed funds back as collateral multiple times to amplify the initial yield.

This recursive leverage process continues for a defined number of loops, but is actively managed based on market and risk conditions.

Key Components:

- Collateral Token: USDCn
- Borrowed Token: WETH
- Initial Collateral Amount: 10 units
- Minimum and Maximum Loops: 4 and 10
- Stop Loss Trigger: 10% drawdown
- Risk Flag: HIGH_RISK_LEVEL to allow riskier behavior

The strategy is augmented by Xtreamly's Volatility API, which classifies current market volatility into states like low or high volatility periods. This classification drives automatic risk-adjusted decisions.

## 2. Decision Tree and Checkpoints

The trading logic uses a **series of health and market checks** before adjusting or exiting looped positions. The **Decision Tree** can be described as follows:

### Step 1: Initialization:

init() deposits the initial amount into AAVE to begin the loop trading.

### Step 2: Health Checks (performed in each actions() round)

- **Rate Check**: If supply APY (USDCn) ≥ borrow APY (WETH), Exit (repayAll).
  Reason: The spread is negative — not profitable.
- **Utilization Rate Check**: If utilization rates of either USDCn or WETH exceed 90%, Exit (repayAll). Reason: High utilization indicates liquidity risk.
- **Performance Check**: If Net Worth drops below 90% of the initial deposit (stop loss), Exit (repayAll and terminate). Reason: Protect against unacceptable losses.
- **Health Factor Check**: If AAVE health factor drops to between 1.0 and 1.01, Repay the last loop to slightly deleverage. Reason: Avoid liquidation danger.

### Step 3: Volatility Check (Xtreamly Classification Model)

Market Volatility Classification:

- **If volatility is low**, balance to minimum loops (4 loops).
  Reason: Low volatility favors reduced leverage (lower risk-reward).
- **If volatility is high and the user does not want to participate in extra exposure**: Exit to stable coin immediately. Reason: Higher volatility but risk tolerance is low.
- **If volatility is high and the user has an aggressive triaging approach**: increase to maximum loops (10 loops).Reason: Aggressively exploit volatility with higher leverage.

## 3. Execution Cycle

Agent continuously runs the actions() function on a scheduler. Each cycle adapts dynamically to the changing market rates and volatility classifications. Actions range from rebalancing loops to full exit strategies, ensuring real-time automated portfolio management.

## 4. Backtesting results

#### Assumptions

The looped trading strategy was tested under low volatility conditions during Q1 2025 on minutely basis, with the following setup:

- Initial Capital (USDC): $10,000.00
- Loan-to-Value (LTV): 99%
- Loop Depth (Low Volatility): 6 loops
- Loop Depth (High Volatility): 0 (full exit strategy)

Objectives of the test:

- Demonstrate profitability under stable market conditions
- Maintain safe leverage without triggering liquidation
- Achieve superior yield compared to USDC-only lending

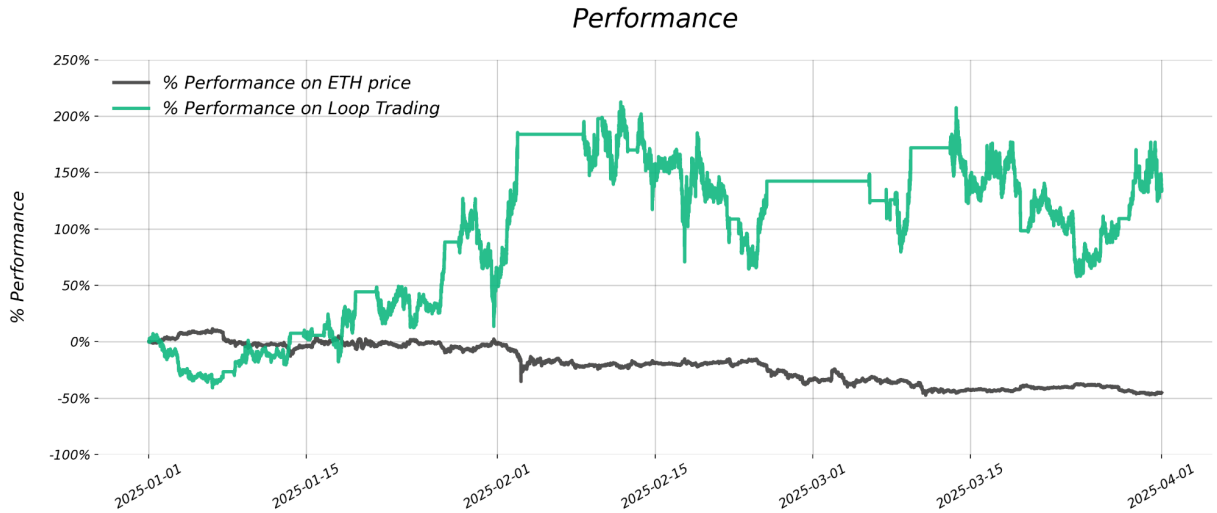
#### Key Results (Low Volatility Environment)

- Final Return (excluding investment): $13,430.65

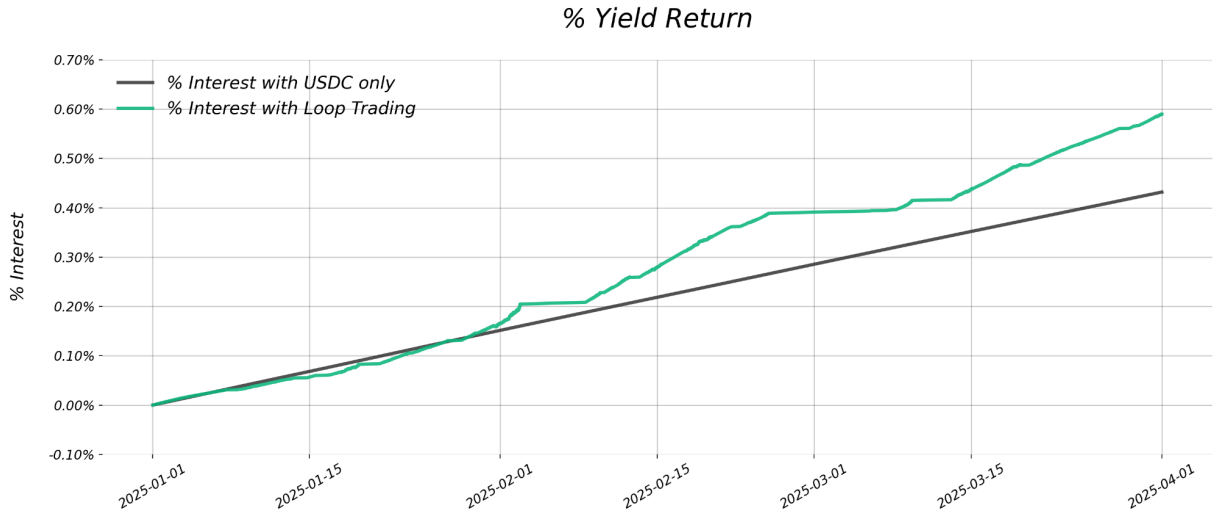
- Improvement Over Pure USDC Yield Return in value: 36.56%
- Increased Realized APY from 1.76% on USDC to 2.41% with compounded interest on loop trading

## Performance Analysis

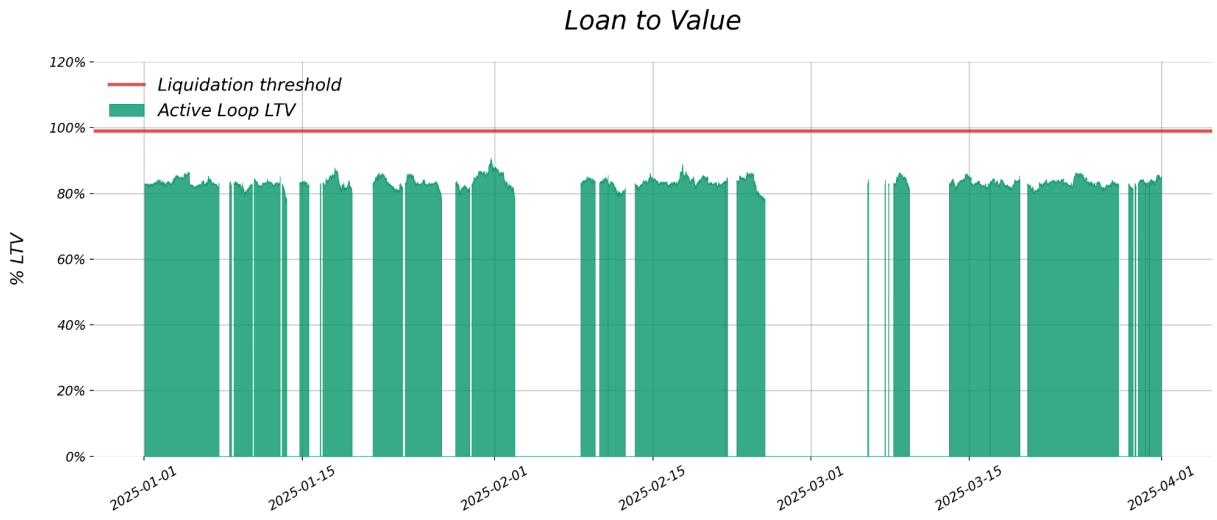
**Performance Plot** shows a steady and significant gain from looped trading vs. holding ETH, which had negative returns over the same period.



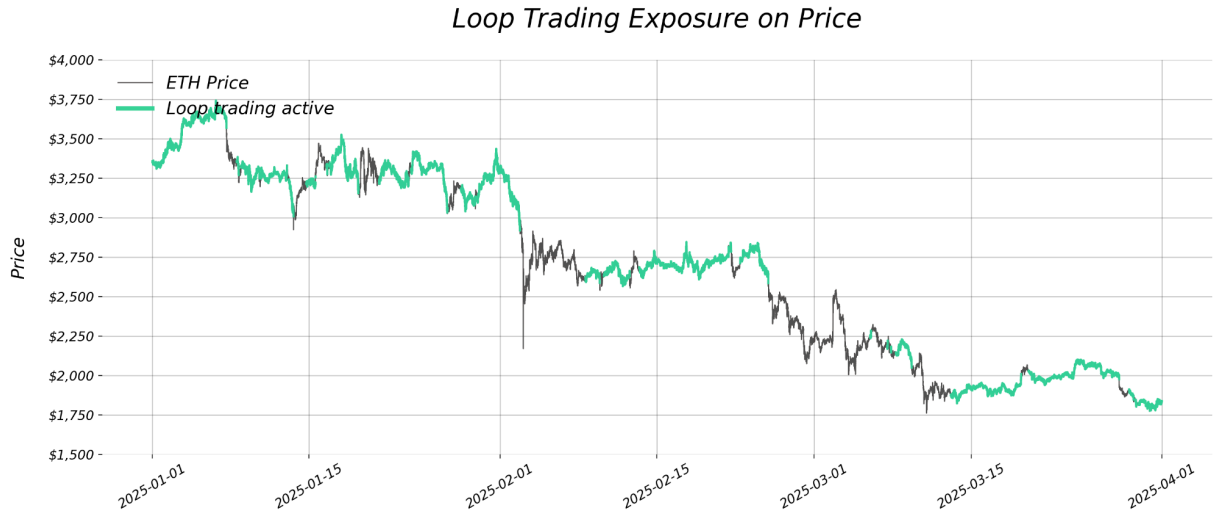

**Yield Return Comparison** indicates the looped strategy compounded faster than USDC-only lending.



**LTV Plot** shows stable leverage near the 99% threshold, indicating aggressive but controlled borrowing.




**Loop Activity Overlay on ETH Price** reveals active looped trading mostly during price stability or moderate dips — consistent with low volatility behavior.




# 5. Conclusion

Through the decision tree of rate spreads, utilization health, stop loss triggers, health factor adjustments, and volatility classification, it maintains a dynamic and resilient risk posture, balancing yield generation against downside protection.

The integration of Xtreamly's AI volatility insights significantly improves responsiveness and safety compared to static looped trading approaches.

# 6 Appendix

## Input AAVE Rates