Use RUMI and its Improved Version to Construct stock strategy

July 28, 2024

Abstract

Use RUMI and its 2 improvements to predict stock prices.

1 What is RUMI?

In one of the most renowned and authoritative trading system evaluation magazines in the United States, **Futures Truth Magazine**, the RUMI strategy ranked sixth in the "Multi-Market Quantitative Strategies" category. It is a very concise yet highly effective strategy.
The basic logic is similar to the dual moving average strategy, but it has a lower adjustment frequency compared to the dual moving average and is more robust, allowing for more effective filtering of market noise. The RUMI value is obtained by calculating the deviation of the dual moving averages and applying smoothing. When the RUMI value crosses above 0, it indicates a bullish market trend, and a buy signal is generated; when the RUMI value crosses below 0, it indicates a bearish market trend, and a sell signal is generated.

2 Model Development

2.1 Long-short Tradtioanl RUMI

Next, we will build the model.
First, we will obtain stock data for the past five years. For convenience, this article will not implement the strategy on panel data but will select stocks from the CSI 300 Index as investment targets to backtest the strategy's effectiveness.
I use long-short first. However, the backtest results shown in the figure are poor, with an annualized return of only -0.89%, and it underperformed the index for most of the time.

2.2 Long-only Tradtioanl RUMI

Considering the difficulty of shorting in the A-share market and only take into account going long when the RUMI crosses above 0 and selling to close when it crosses below 0, while waiting for RUMI to cross above 0 again to buy.
The result is as follows. The backtest performance is still below expectations, with an annualized return of only 0.07%.
Comparing the fast and slow curves with the RUMI curve (from January 1, 2018, to January 1, 2020), it can be observed that using RUMI as a signal often leads to entering positions at market tops and selling at market bottoms. During the period from 2018 to 2020, RUMI's signals frequently deviated from actual stock market signals. In the first half of 2019, it briefly followed the upward trend, but in the second half of 2019, it often provided false signals.
Even after reducing the smoothing period for the RUMI calculation to 3 days, the backtest results are still unsatisfactory.
Therefore, I would guess that the RUMI strategy (which uses a smoothed 30-day deviation) does not respond quickly during periods of high volatility in the stock market. Therefore, we are considering optimizing and deriving the model.

TOP TEN SINCE RELEASE DATE

	System	Annual % Ret
1	Clockwork—Kelly V	84.4%
2	MAR Copper Sync	61.7%
3	Gatts QM	57.4%
4	TSL_CEL_NG_1.1	52.0%
5	NatGator	50.5%
6	RC2-TF	47.1%
7	RC2-ES	44.8%
8	Clockwork—Paper Barrels	35.9%
9	TrendModelSys	34.3%
10	TrendSeeker Premium	33.7%

TOP TEN FOR PAST 12 MONTHS

	System	Annual % Ret
1	Clockwork—Aussie Banker	95.5%
2	Propero EMD	61.5%
3	PSSB_ES	57.8%
4	The Big Blue	57.6%
5	Hi%Mid	57.1%
6	MAR-Curr COT	53.2%
7	LRKageSys3	50.5%
8	Qtech-ES	41.7%
9	STAR-ES	40.3%
10	TF Trader	39.1%

TOP TEN SINGLE MARKET SYSTEMS SINCE RELEASE DATE

	System	Annual % Ret
1	Clockwork—Kelly V	84.4%
2	MAR Copper Sync	61.7%
3	Gatts QM	57.4%
4	TSL_CEL_NG_1.1	52.0%
5	NatGator	50.5%
6	RC2-TF	47.1%
7	RC2-ES	44.8%
8	Clockwork—Paper Barrels	35.9%
9	TrendModelSys	34.3%
10	TrendSeeker Premium	33.7%

TOP TEN MULTI-MARKET SYSTEMS SINCE RELEASE DATE

	System	Annual % Ret
1	FedSwing	29.6%
2	MeanSwing 2	27.0%
3	Super Turtle	24.0%
4	I-Master	22.8%
5	Hi%Mid	20.7%
6	RUMI	20.6%
7	HiProb	20.0%
8	Simple Harmony	19.7%
9	TF Trader	[illegible]%
10	Trend Weaver	13.6%

Figure 1: RUMI is a simple but efficient strat

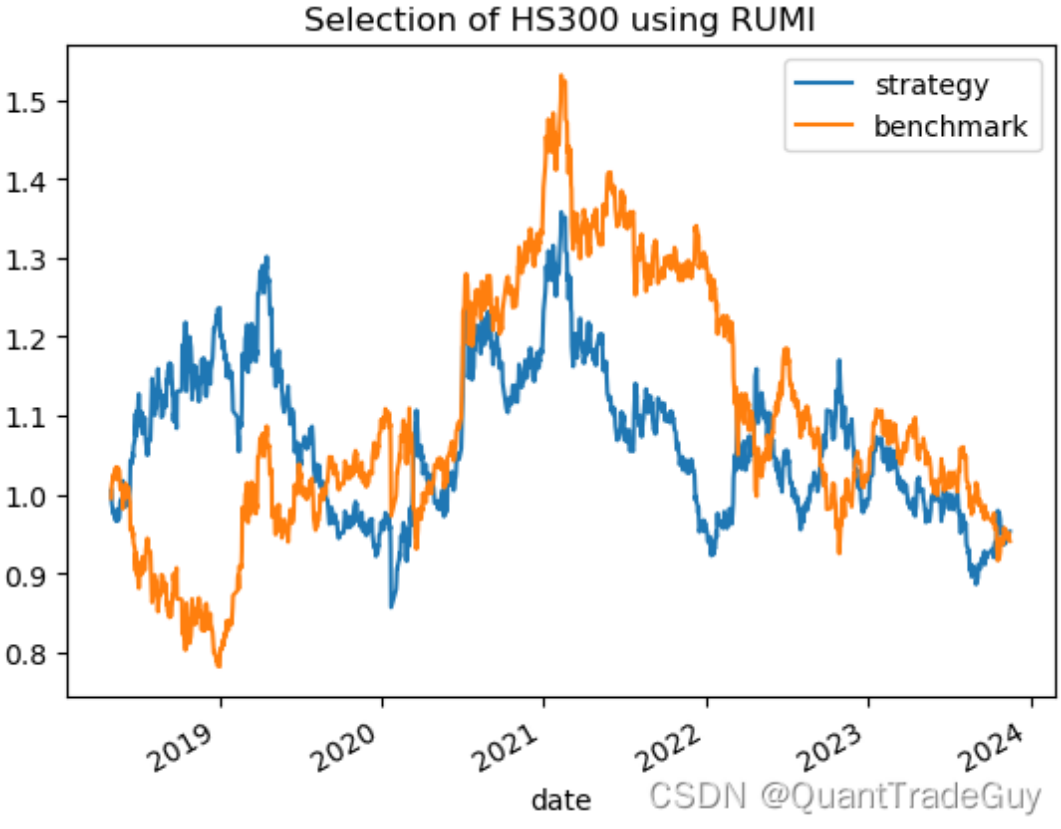

Figure 2: Traditional RUMI performs bad

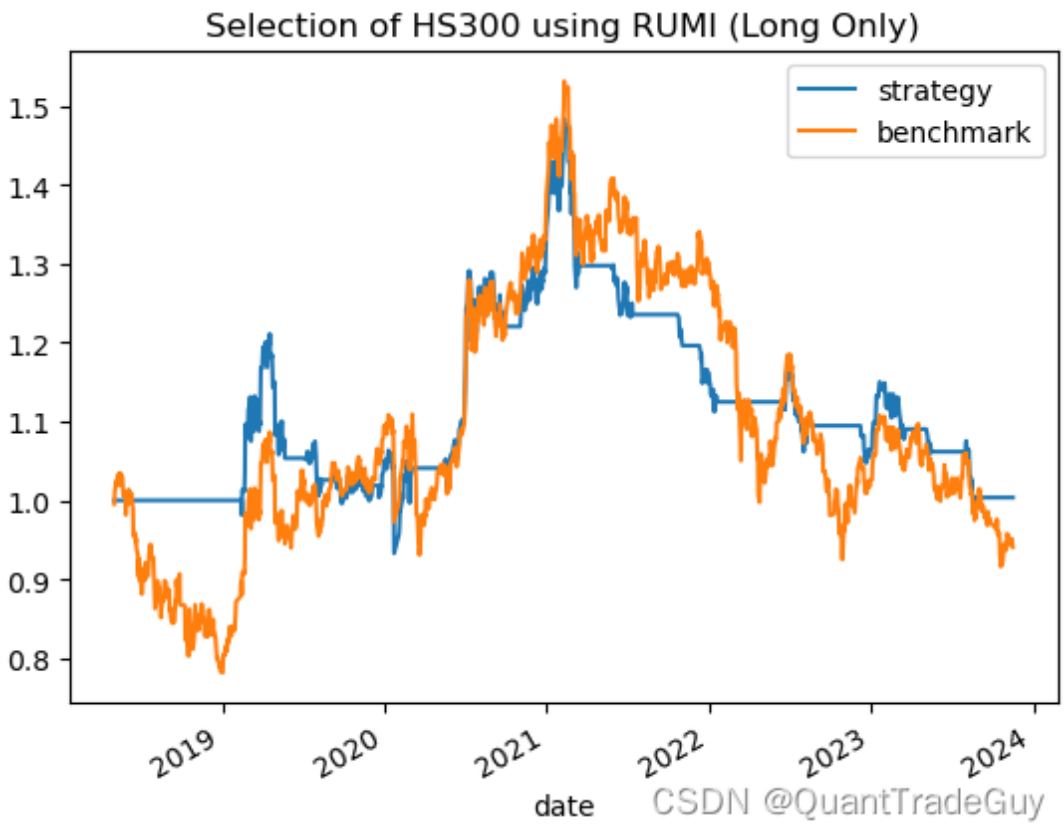

Figure 3: Long-only traditional RUMI performs bad

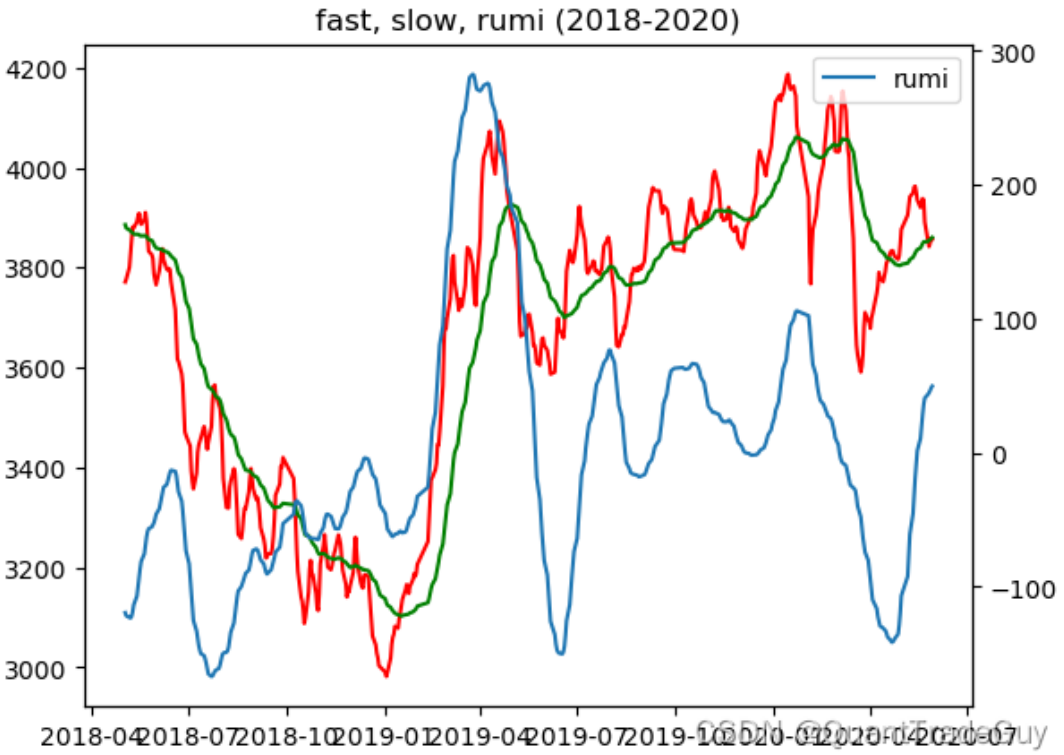

Figure 4: Compare Fast, Slow, and RUMI

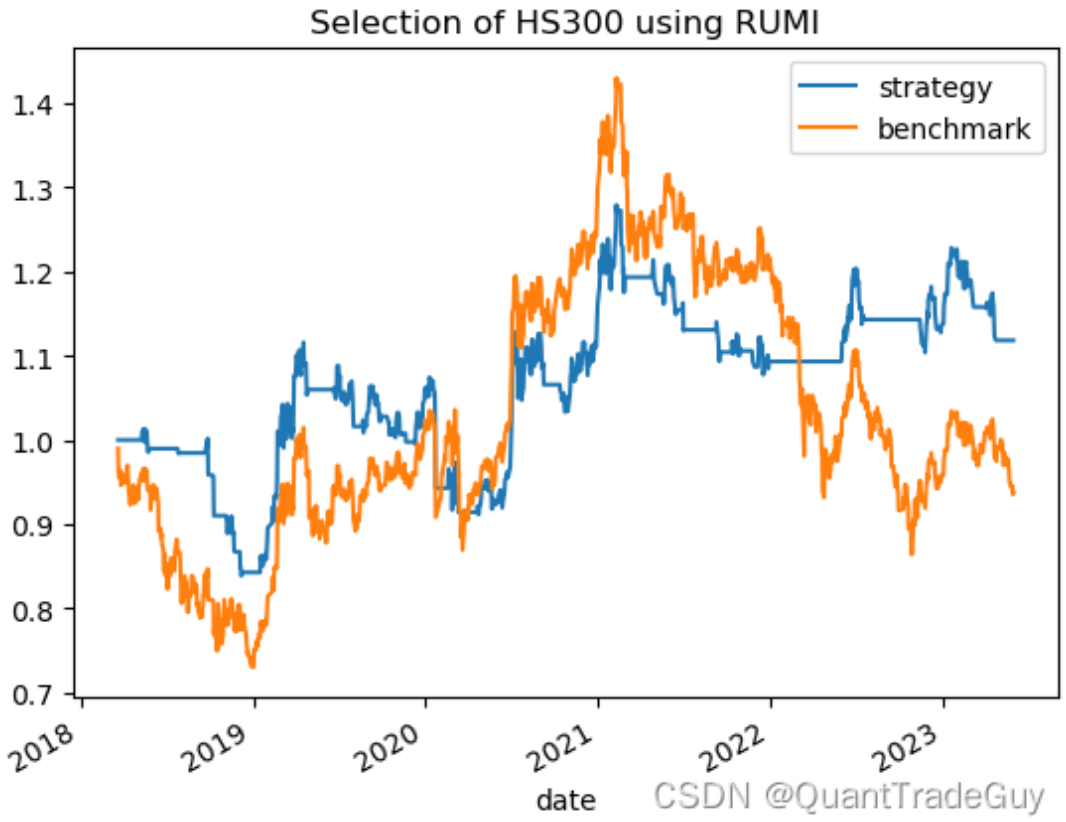

Figure 5: Shortening rolling window to 3 days

3 Model Optimization

3.1 Possible Improvements

1.Change the calculation of RUMI (which is based on calculating the area) to calculating the slope (i.e., the degree of deviation change). The principle is simple and intuitive: a slope of 0 indicates that the stock price has reached an extreme point (either a maximum or minimum). When the slope of the price change transitions from 0 to positive, it indicates that the market is in an upward range, and a buy signal should be generated; when the slope transitions from 0 to negative, it indicates that the market is in a downward range, and a sell signal should be generated. This method of judgment can more effectively avoid the situation of entering at market tops and selling at market bottoms.
2.Dual Indicator Judgment: Use the RUMI value to judge upward movements and employ a dual moving average method for timely stop-loss during downward movements. Observing the poor performance of the RUMI strategy, it is evident that RUMI reacts slowly to stop losses during downturns, often resulting in underperforming against the index. To maintain the advantages of RUMI, the RUMI strategy will still be used on the buy side, while the dual moving average method, which reacts more quickly and agilely, will be used on the sell side; specifically, sell when the short-term moving average crosses below the long-term moving average.

3.2 Backtests

3.2.1 Slope

The results (long only) is as follows:

The backtest results are outstanding, with an annualized return of 16.93% over the past five years. Moreover, the performance in the last two years has been excellent, with relatively low drawdowns.

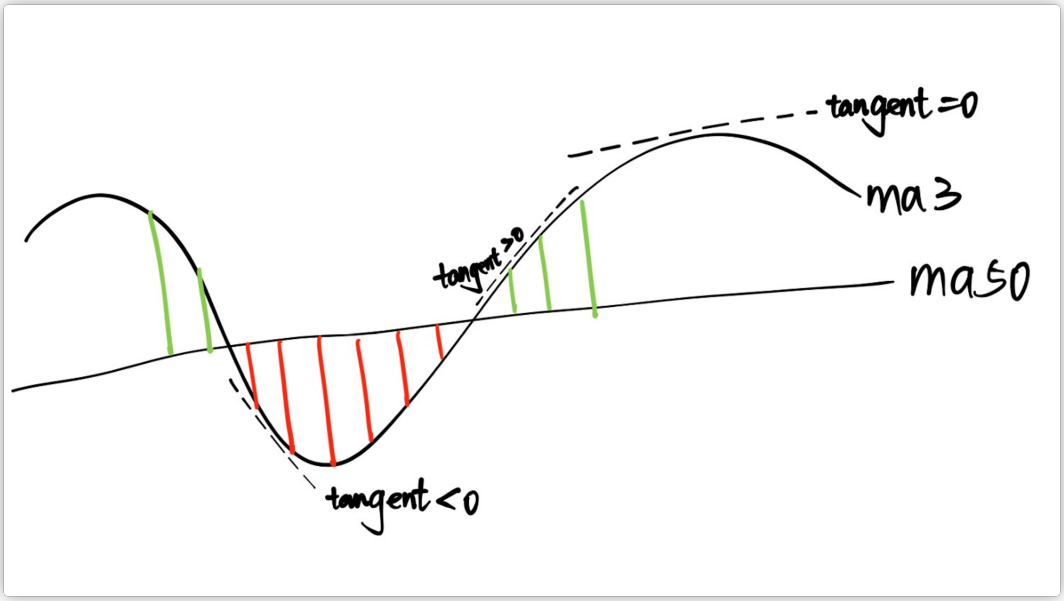

Figure 6: Possible Improvements 1: Slope

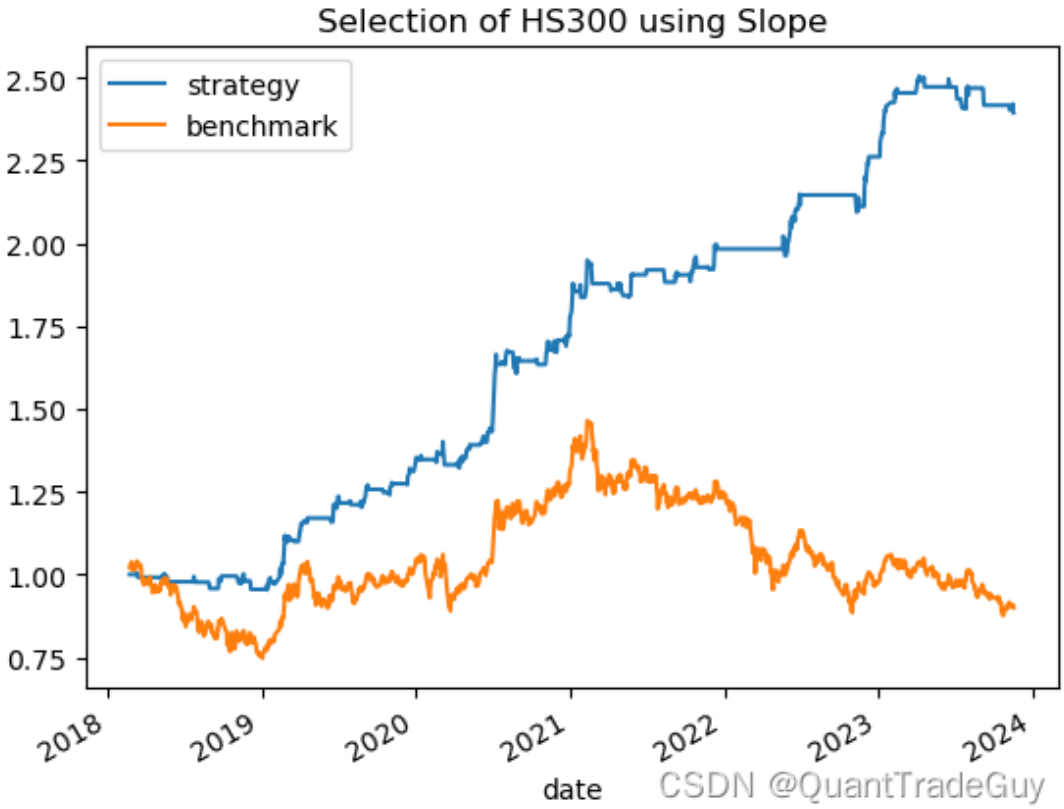

Figure 7: Slope Strategy performs well.

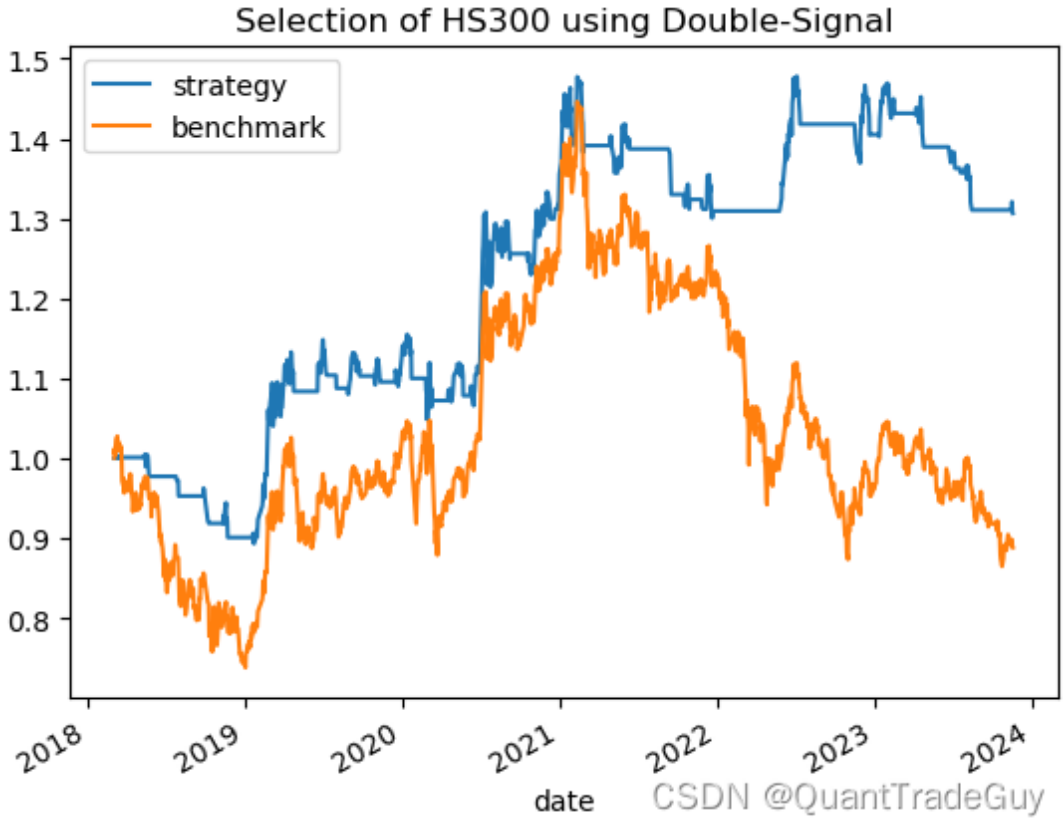

Figure 8: Double Signal Strategy performs well also.

3.2.2 Double Signal

The backtest results are also quite good, with an annualized return of 4.93% over the past five years. The performance in the last two years has been excellent, providing effective defensive capabilities in a bear market environment.

4 Summary and Evaluation

Based on the principles of RUMI, this strategy is relatively robust, buying only after identifying a clear upward trend and selling only after confirming a distinct downward trend. However, the issue lies in its potential lag, especially in rapidly declining markets where it may fail to execute timely stop-losses.
Therefore, two variations are considered: one uses the degree of deviation change as an alternative signal, and the other employs a "buy based on RUMI and sell based on a death cross" approach. The improved strategies both show superior performance.
Upon careful observation of the enhanced strategies, it is noted that they have performed particularly well over the past two years, indicating that such strategies are robust and possess a certain defensive capability. While these strategies may underperform during periods of significant market turbulence, they perform well when the market trend is clear or when volatility is high but reversals are infrequent, providing timely stop-loss protection.