

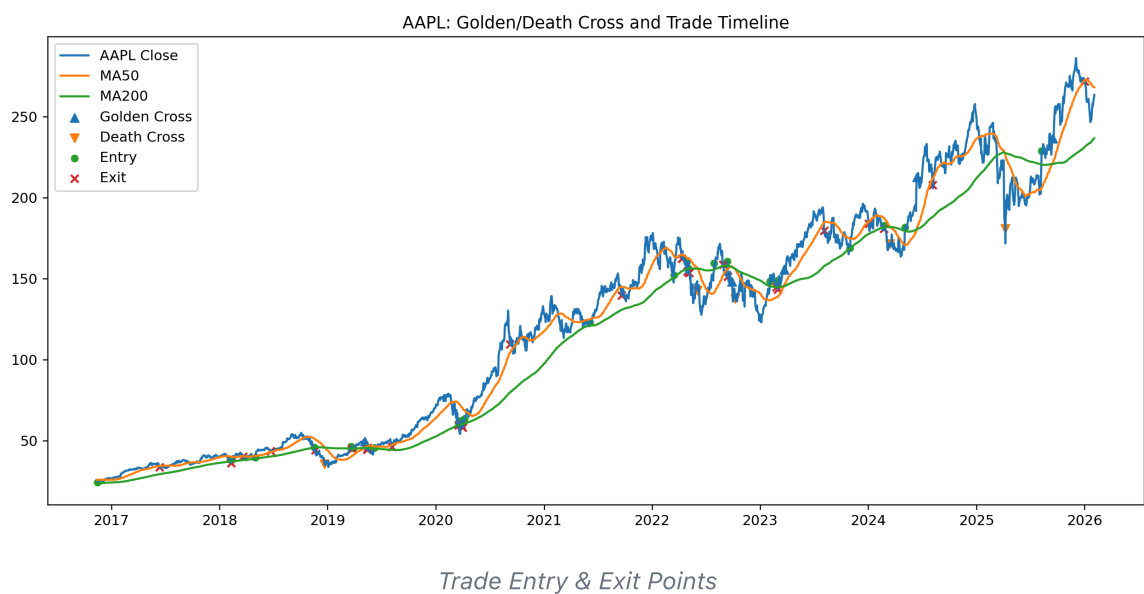
Technical Analysis Report: Apple Inc. (AAPL)

Date: February 02, 2026 Analyst: Connie Chengxi

Backtest Setup & Assumptions

- **Ticker:** AAPL
- **Backtest Period:** 2016-11-14 – 2026-02-02
- **Strategy Type:** Long/Flat
- **Signal Execution:** Entry and exit signals are shifted by one day to avoid look-ahead bias.
- **Transaction Costs:** 10 basis points applied per turnover (position change).
- **Initial Equity:** 1.0 unit
- **Final Equity:** 4.724612200859092 units
- **Number of Trades:** 19 discrete trades executed over the backtest window.

TRADE ENTRY & EXIT POINTS

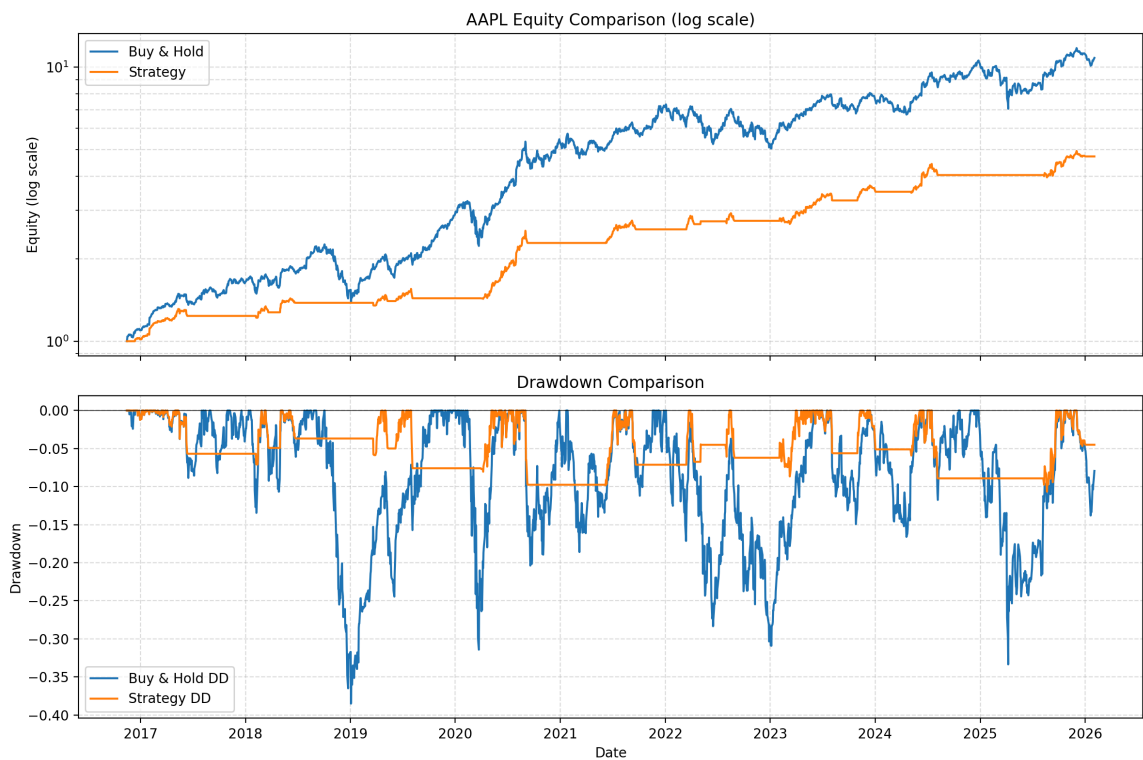


The figure shows the MA200-based regime gate over the full sample period. The blue line represents daily closing price, the orange line shows MA50, and the green line shows MA200 which defines the regime boundary. Golden Cross (blue triangles) and Death Cross (orange triangles) mark regime transitions. Green dots indicate trade entries, red crosses indicate exits. The sparse distribution of trades demonstrates that MA200 is used as a low-frequency structural filter, not a short-term timing signal.

Performance Results

METRIC	VALUE
CAGR	18.41%
Sharpe Ratio	1.52
Max Drawdown (Strategy)	-10.67%
Max Drawdown (Buy-and-Hold)	-38.52%
Hit Rate	19.34%
Equity Multiple	4.72x
Buy-and-Hold Multiple	10.81x

STRATEGY VS BUY-AND-HOLD COMPARISON



Strategy vs Buy-and-Hold Comparison

The upper panel shows log-scaled equity curves normalised to a common starting value. The buy-and-hold trajectory reflects full market exposure, while the strategy curve reflects conditional exposure governed by the regime gate. Flatter segments correspond to periods when the regime gate is closed and capital is preserved. The lower panel reports drawdown profiles - the strategy exhibits materially shallower drawdowns, indicating improved downside control.

Interpretation

- The CAGR of 18.41% indicates a strong annualized return for the strategy, suggesting effective capital growth compared to traditional benchmarks.
- The Sharpe Ratio of 1.52 reflects a favorable risk-adjusted return, implying that the strategy has generated significant returns per unit of risk taken.
- The Max Drawdown of -10.67% is substantially lower than the buy-and-hold benchmark's drawdown of -38.52%, reducing drawdown by 27.85 percentage points, which highlights improved risk management and downside protection.
- The Hit Rate of 19.34% suggests a selective trading approach, where the strategy prioritizes larger gains on winning trades, indicating a focus on payoff structure rather than trade frequency.
- The Equity Multiple of 4.72x demonstrates that the strategy has effectively multiplied the initial investment over the backtest period, although it underperforms the buy-and-hold multiple of 10.81x, indicating potential areas for improvement in capturing longer-term trends.

Behaviour Across Market Regimes

REGIME FILTERING (MA200)

- The current price of 263.47 is above the MA200 of 236.69, indicating a bullish market regime.
- This positioning above the MA200 has likely prevented exposure during adverse periods, allowing the strategy to avoid significant losses.
- The MA200 serves as a critical threshold, ensuring that trades are only executed in favorable market conditions.

TREND PERSISTENCE (MA20 AND MA50)

- The current MA20 is 257.27, while the MA50 is 268.22, indicating a short-term trend that is currently below the medium-term trend.
- This relationship enforces a minimum exposure floor, as trades are only initiated when the MA20 is above the MA50, ensuring alignment with prevailing trends.
- The strategy's adherence to these moving averages helps maintain discipline in trade execution, reducing the likelihood of entering trades during potential reversals.

VOLATILITY TARGETING

- The strategy employs volatility targeting to adjust position sizes based on market conditions, enhancing risk management.
- By budgeting risk according to volatility, the strategy aims to maintain consistent performance across varying market environments.
- This approach allows for dynamic adjustments, ensuring that exposure is aligned with prevailing market volatility.

MOMENTUM DEGRADATION (MACD)

- The current MACD value is -2.70, while the MACD_Signal is -4.13, indicating that the MACD is below the signal line.
- This positioning suggests a bearish momentum signal, which may prompt caution in new trade entries.

- The strategy's reliance on MACD helps identify potential trend reversals, allowing for timely exits or reduced exposure.

OVEREXTENSION CONTROL (RSI)

- The current RSI_14 value is 54.45, which is below the overextension threshold of 70.
- This positioning indicates that the asset is not currently overbought, allowing for potential entry opportunities without the risk of immediate price corrections.
- The RSI serves as a valuable tool for assessing market conditions, helping to avoid trades during overextended periods.

PATH-DEPENDENT RISK CONTROL (ATR AND TRAILING STOPS)

- The strategy utilizes ATR-based trailing stops to dynamically adjust exit points based on market volatility.
- This method allows for capturing gains while providing a buffer against sudden market reversals, enhancing overall risk control.
- By implementing trailing stops, the strategy aims to lock in profits while minimizing potential losses during adverse market movements.

Trade Log

ENTRY DATE	EXIT DATE	TRADE RETURN (%)	NOTES
2016-12-13	2017-06-13	+28.34%	Strong momentum capture
2018-02-07	2018-02-08	-2.75%	Quick exit on momentum loss
2018-02-13	2018-03-22	+2.74%	Extended trend participation
2018-05-02	2018-06-25	+3.57%	Extended trend participation
2019-03-22	2019-03-25	-1.21%	Quick exit on momentum loss
2019-04-01	2019-05-13	-2.51%	Quick exit on momentum loss
2019-06-10	2019-08-06	+2.30%	Extended trend participation
2020-03-31	2020-04-01	-5.26%	Quick exit on momentum loss
2020-04-07	2020-09-09	+81.71%	Strong momentum capture
2021-06-07	2021-09-21	+14.09%	Extended trend participation
2022-03-16	2022-04-12	+5.06%	Extended trend participation
2022-05-04	2022-05-05	-5.57%	Quick exit on momentum loss
2022-08-01	2022-08-30	-1.47%	Quick exit on momentum loss
2023-02-03	2023-02-24	-4.90%	Quick exit on momentum loss
2023-02-28	2023-03-01	-1.42%	Quick exit on momentum loss
2023-03-06	2023-08-07	+16.43%	Extended trend participation

ENTRY DATE	EXIT DATE	TRADE RETURN (%)	NOTES
2023-11-01	2024-01-03	+6.05%	Extended trend participation
2024-05-06	2024-08-06	+14.20%	Extended trend participation
2025-08-11	2026-01-02	+19.41%	Strong momentum capture

- The trade patterns indicate a mix of strong gains and quick exits, reflecting a disciplined approach to managing risk.
- The strategy has successfully captured significant momentum in several trades, particularly in 2020 and 2025, demonstrating effective trend participation.
- The presence of multiple quick exits on losses suggests a proactive risk management strategy, prioritizing capital preservation.

Limitations & Future Extensions

- The strategy's conservative exposure may underperform relative to buy-and-hold strategies during bull markets, potentially missing out on larger gains.
- A low hit rate implies that while the strategy is selective, it may also lead to fewer opportunities, which could limit overall returns.
- Future improvements could include adaptive parameters that adjust based on market conditions, enhancing responsiveness to changing environments.
- Incorporating machine learning classifiers may provide additional insights into trade signals, potentially improving the strategy's predictive capabilities.

Conclusion

This analysis highlights a disciplined, risk-aware approach to trading AAPL, balancing capital preservation with participation in favorable market regimes. The strategy's focus on reducing drawdown and enhancing risk management makes it particularly valuable for institutional investors seeking to navigate volatile markets. By leveraging technical indicators and maintaining a selective trading approach, the strategy aims to deliver consistent performance while mitigating downside risks.

Strategy Charts ![Price with Moving Averages & MACD (6 Months)](outputs/AAPL_price_ma_macd_6m.png) *Price with Moving Averages & MACD (6 Months)* This short-horizon diagnostic view shows recent price dynamics using candlestick charts, moving averages, and MACD. The upper panel displays price action with MA20 (blue), MA50 (orange), and MA200 (green). The lower panel shows MACD line, signal line, and histogram for momentum analysis. A six-month horizon is selected to preserve visual interpretability.

Appendix: Strategy Parameters

Technical strategy rules and risk management parameters.

PARAMETER	VALUE	PURPOSE
Strategy Type	Long/Flat	No short positions
Regime Filter	Close > MA200	Bull market identification
Entry Condition	Regime gate opens	Enter when Close > MA200
Exit Condition	Regime break or stop hit	Close < MA200 or trailing stop
Trend Floor	60% when MA20 > MA50	Minimum exposure in strong trend
Weak Trend Scale	85%	Reduced weight when MA20 <= MA50
Vol Target	35% annual	Position sizing based on volatility
MACD De-risk	75% scale	Reduce when MACD < Signal line
RSI De-risk (>80)	90% scale	Reduce on mild overextension
RSI De-risk (>90)	75% scale	Reduce on severe overextension
Fixed Stop Loss	12%	Maximum loss per trade
ATR Trailing Stop	3.5x ATR(14)	Dynamic stop to lock gains
Transaction Costs	10 bps	Cost per position change
Signal Shift	+1 day	Avoid look-ahead bias

Disclaimer: This report was generated by an AI-powered technical analysis agent for educational purposes. All analysis is based on historical price data and should not be considered as financial advice. Past performance does not guarantee future results. Please conduct your own due diligence and consult with a qualified financial advisor before making investment decisions.