

ML Stock Forecasting Report

Ticker: AAPL

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Executive Summary

This report presents a comprehensive analysis of AAPL stock using advanced machine learning models. The best performing model is **ML_XGB** with a raw directional accuracy of **85.2%** (vs Buy & Hold baseline of 53.0%).

Next Day Prediction: BUY (Expected Return: 191.99%)

Model Performance Metrics

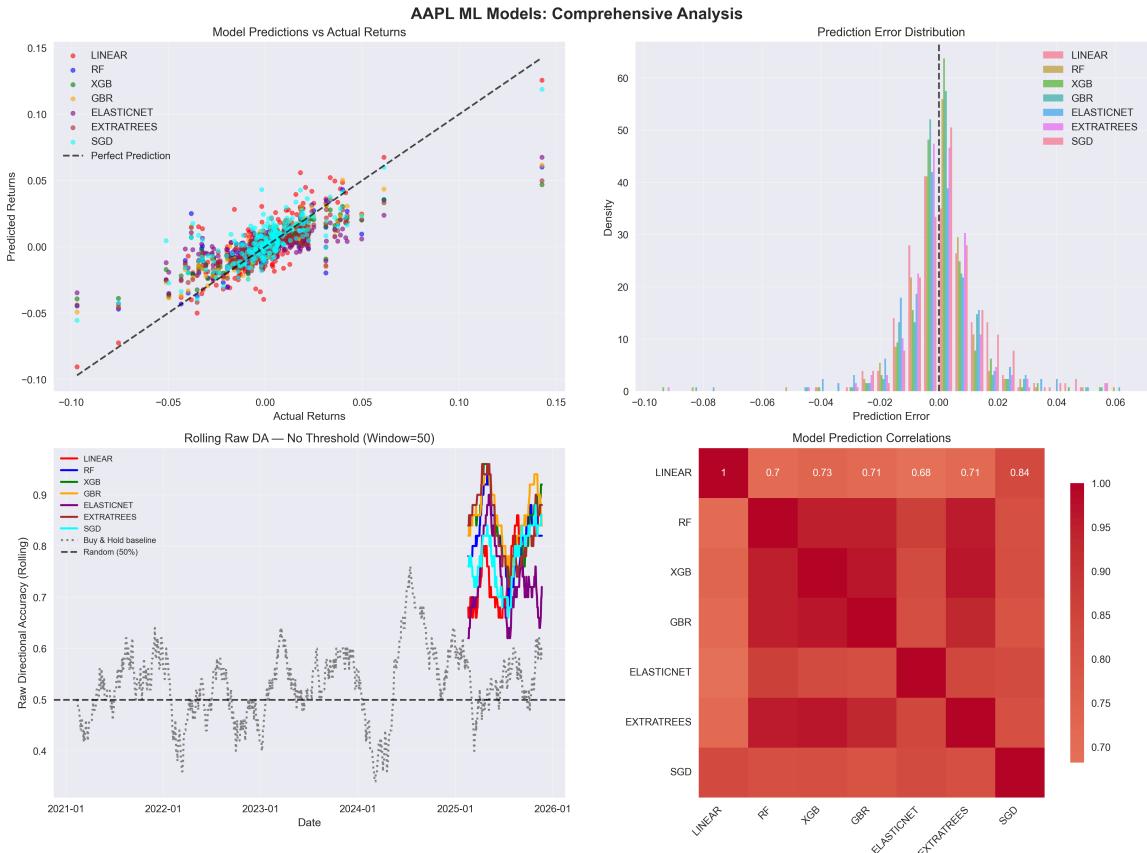
Model	RMSE	MAE	Raw DA	Confident DA	Coverage
Buy & Hold (baseline)	—	—	53.0%	—	100.0%
LINEAR	0.0124	0.0091	76.5%	77.5%	87.7%
RF	0.0125	0.0077	82.3%	87.6%	83.1%
XGB	0.0121	0.0072	85.2%	90.5%	82.7%
GBR	0.0115	0.0071	84.8%	90.3%	84.8%
ELASTICNET	0.0151	0.0102	72.0%	79.0%	74.5%
EXTRATREES	0.0124	0.0079	84.4%	86.8%	84.0%
SGD	0.0131	0.0089	79.0%	81.0%	88.9%

Next Day Trading Recommendation

Metric	Value
Best Model	XGB
Predicted Return	1.92%
Raw DA	85.2%
Buy & Hold DA	53.0%
Recommendation	BUY

Analysis Charts

Model Predictions vs Actual Returns and Error Analysis



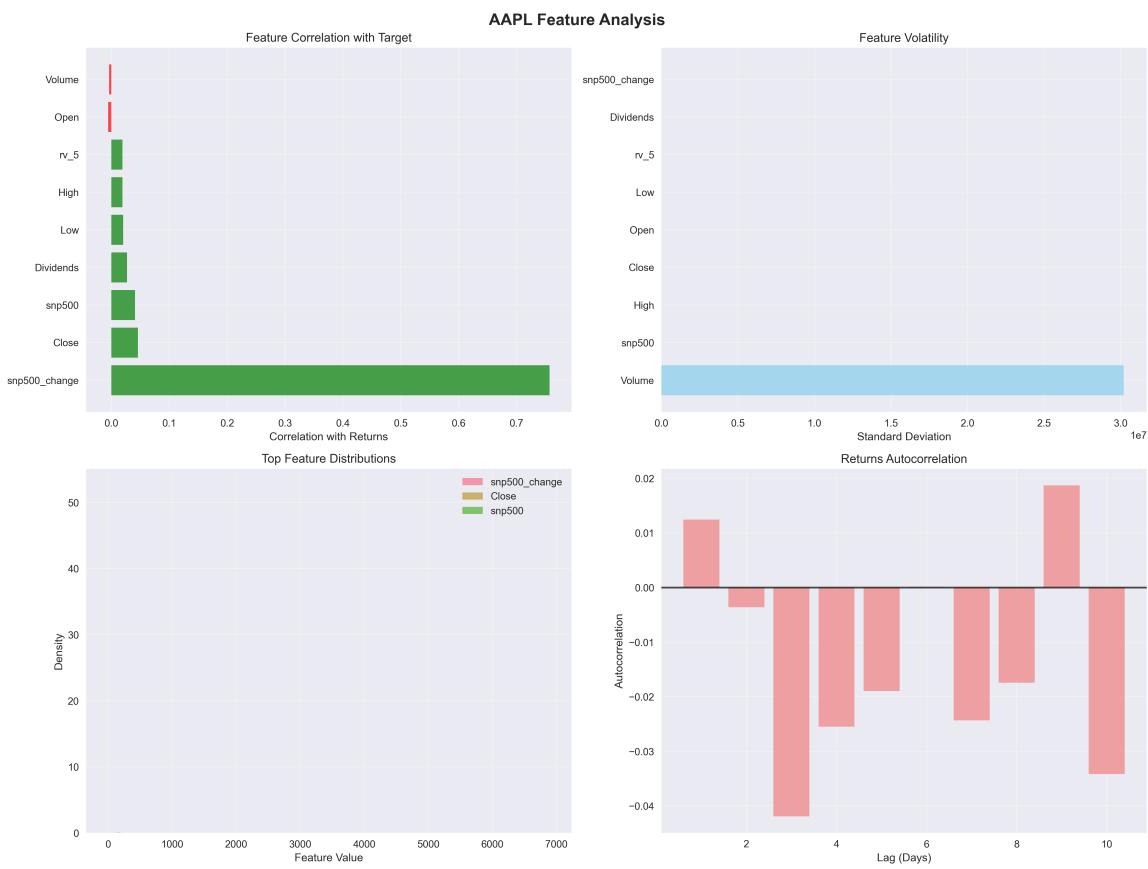
Strategy Performance Comparison and Risk Metrics



Prediction Stability and Model Agreement Analysis

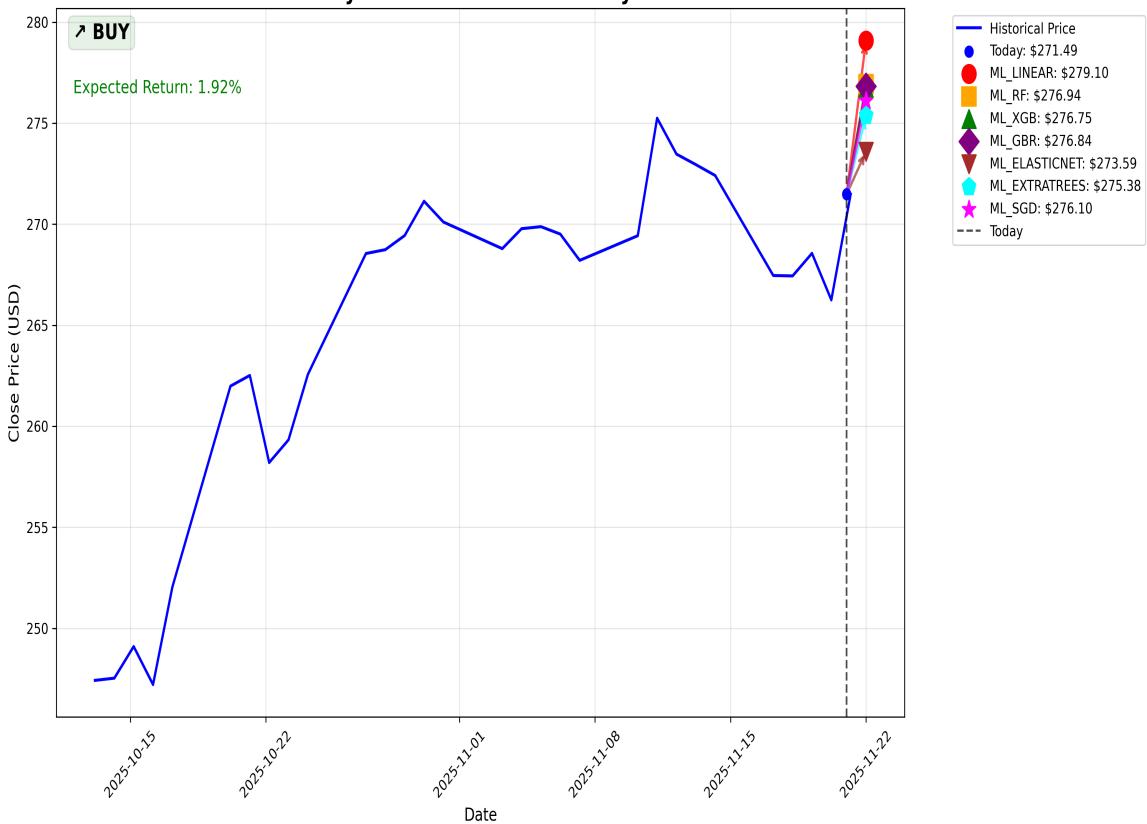


Feature Importance and Correlation Analysis



next_day_predictions

AAPL: Monthly Price Chart with Next Day Predictions



Conclusions & Recommendations

Based on the comprehensive ML analysis of AAPL, the following conclusions can be drawn:

- Model Performance:** The machine learning models achieve raw directional accuracies ranging from 72.0% to 85.2%, compared to the Buy & Hold baseline of 53.0%.
- Best Model:** ML_XGB provides the most reliable predictions for trading decisions.
- Risk Management:** The implemented threshold-based strategy (0.2% threshold) effectively reduces false signals and improves signal quality.
- Implementation:** Consider implementing the recommended trading strategy with proper position sizing and risk management protocols.
- Monitoring:** Regular model retraining and performance monitoring is essential for maintaining predictive accuracy.

Disclaimer: This analysis is for informational purposes only and should not be considered as financial advice.