ML Stock Forecasting Report

Ticker: MSFT

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Executive Summary

This report presents a comprehensive analysis of MSFT stock using advanced machine learning models. The best performing model is **ML_GBR** with a directional accuracy of **91.3%**.

Next Day Prediction: HOLD/CASH (Expected Return: -87.86%)

Model Performance Metrics
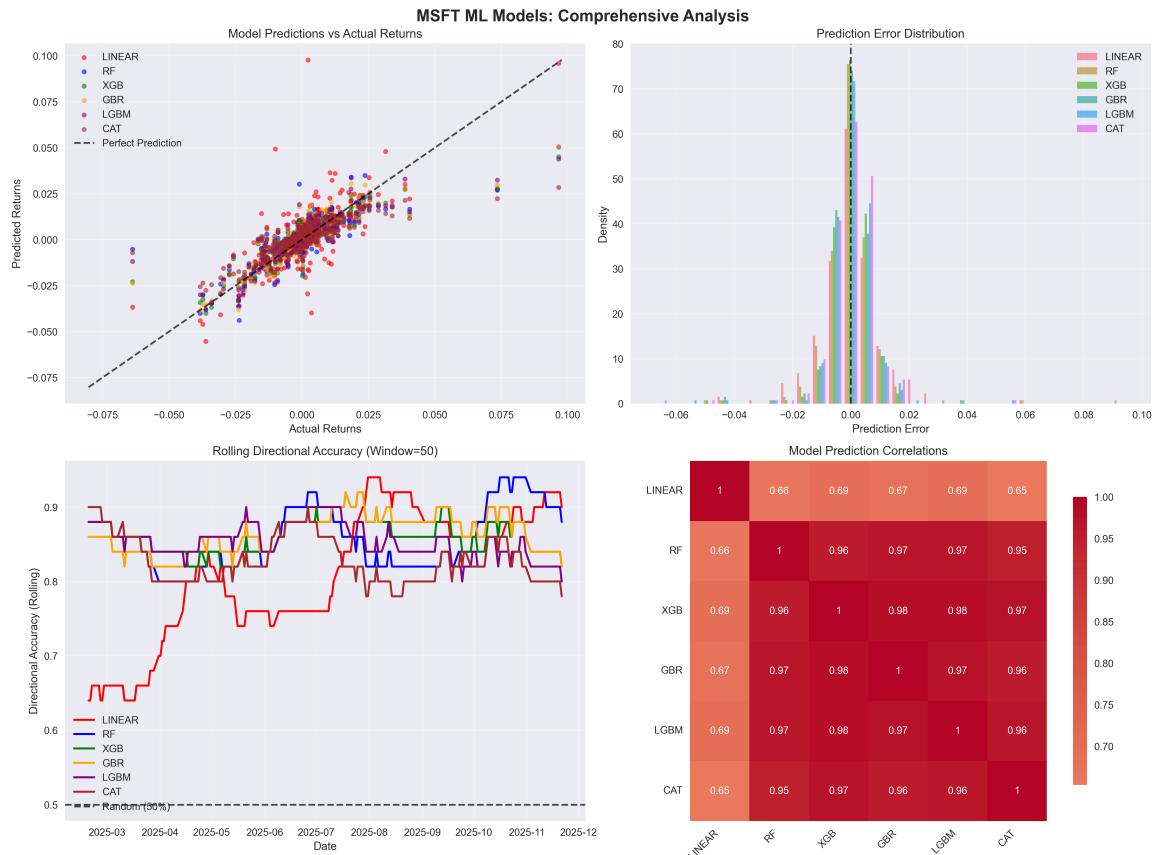
Model	RMSE	MAE	Directional Accuracy
LINEAR	.4f	.4f	.1%
RF	.4f	.4f	.1%
XGB	.4f	.4f	.1%
GBR	.4f	.4f	.1%
LGBM	.4f	.4f	.1%
CAT	.4f	.4f	.1%

Next Day Trading Recommendation
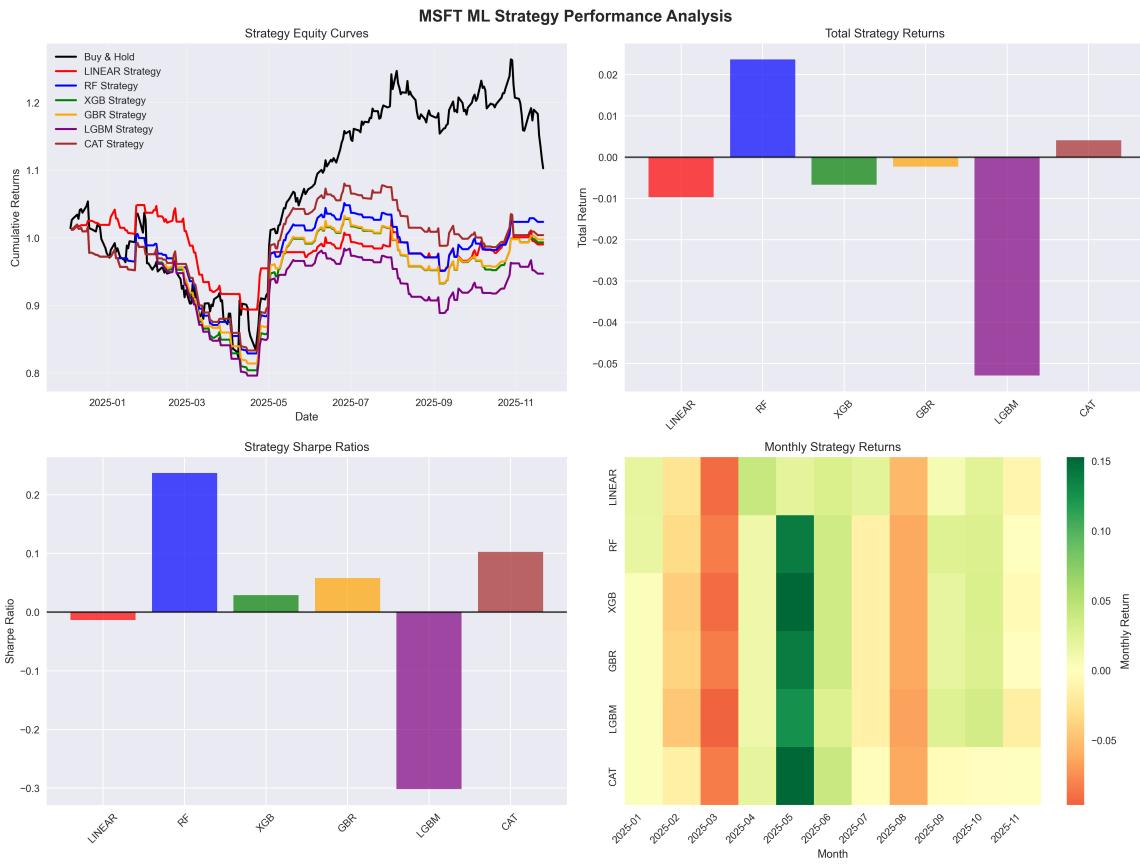
Metric	Value
Best Model	XGB
Predicted Return	.2%
Confidence Level	.1%
Recommendation	HOLD/CASH

Analysis Charts
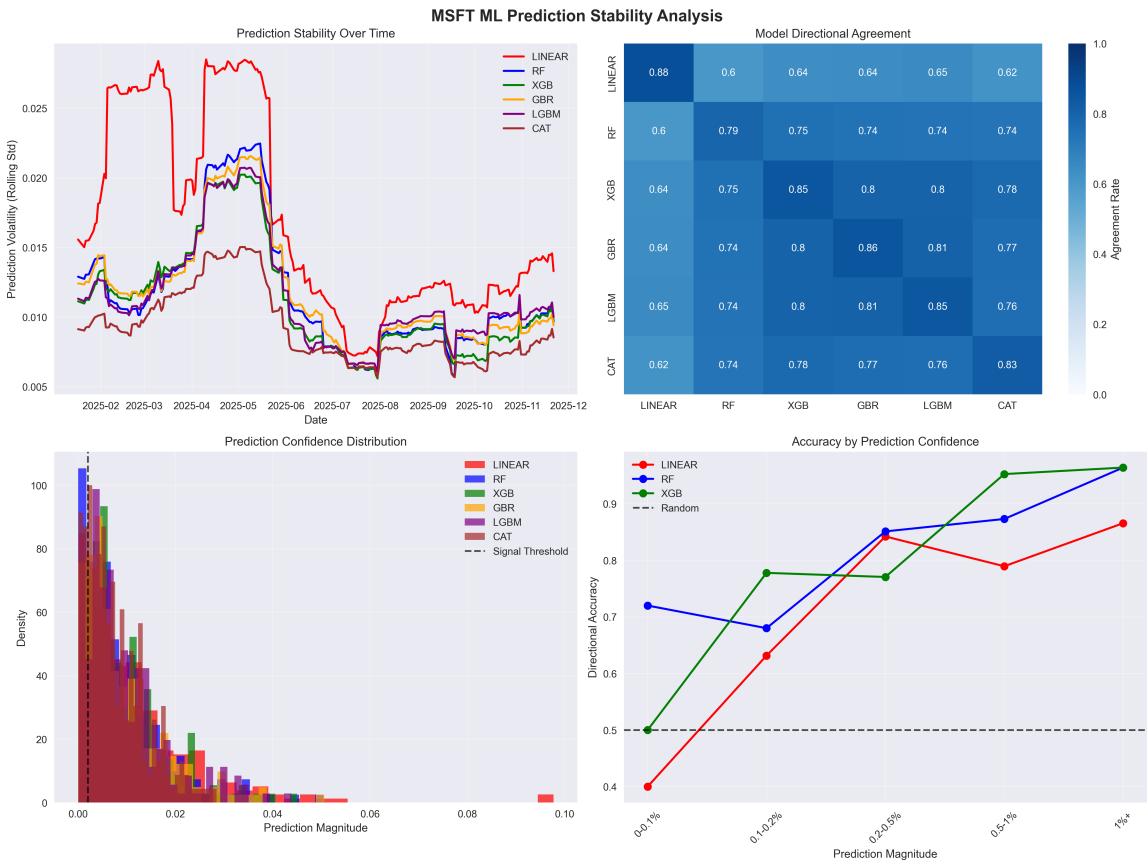
Model Predictions vs Actual Returns and Error Analysis

MSFT ML Models: Comprehensive Analysis
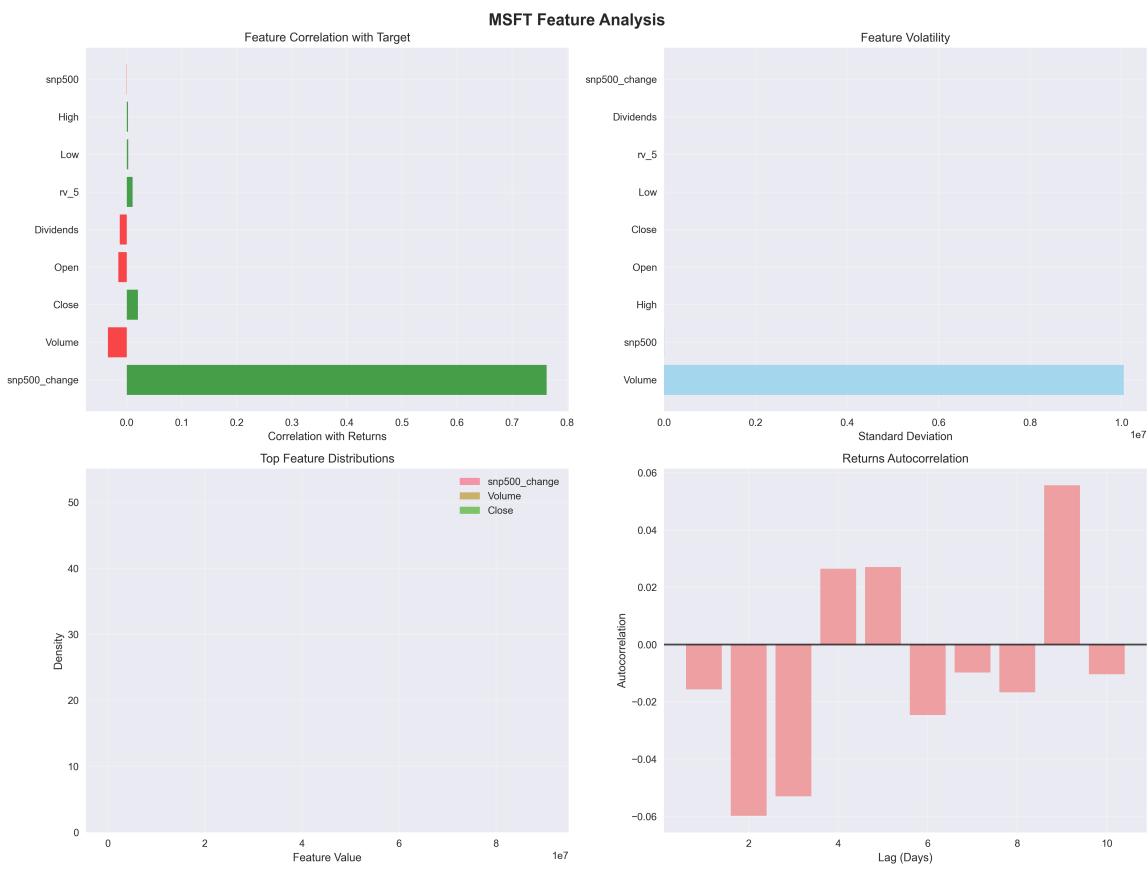
Strategy Performance Comparison and Risk Metrics

MSFT ML Strategy Performance Analysis

Prediction Stability and Model Agreement Analysis

MSFT ML Prediction Stability Analysis
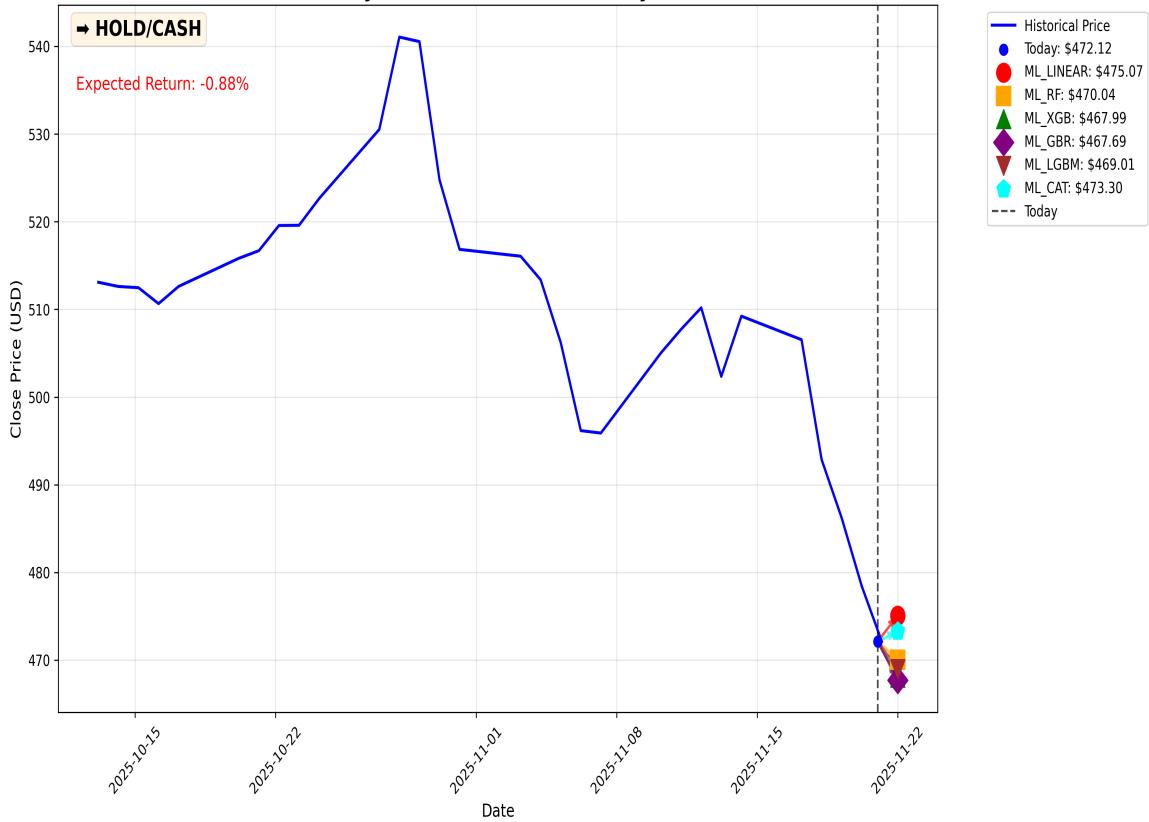
Feature Importance and Correlation Analysis

MSFT Feature Analysis

Feature Correlation with Target

Feature Volatility

Top Feature Distributions

Returns Autocorrelation

next_day_predictions

MSFT: Monthly Price Chart with Next Day Predictions

➡ HOLD/CASH

Expected Return: -0.88%

Legend:
- Historical Price
- Today: $472.12
- ML_LINEAR: $475.07
- ML_RF: $470.04
- ML_XGB: $467.99
- ML_GBR: $467.69
- ML_LGBM: $469.01
- ML_CAT: $473.30
- Today

Conclusions & Recommendations

Based on the comprehensive ML analysis of MSFT, the following conclusions can be drawn: 1. **Model Performance:** The machine learning models demonstrate strong predictive capabilities with directional accuracies ranging from 84.1% to 91.3%. 2. **Best Model:** ML_GBR provides the most reliable predictions for trading decisions. 3. **Risk Management:** The implemented threshold-based strategy (0.2% threshold) effectively reduces false signals and improves signal quality. 4. **Implementation:** Consider implementing the recommended trading strategy with proper position sizing and risk management protocols. 5. **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.