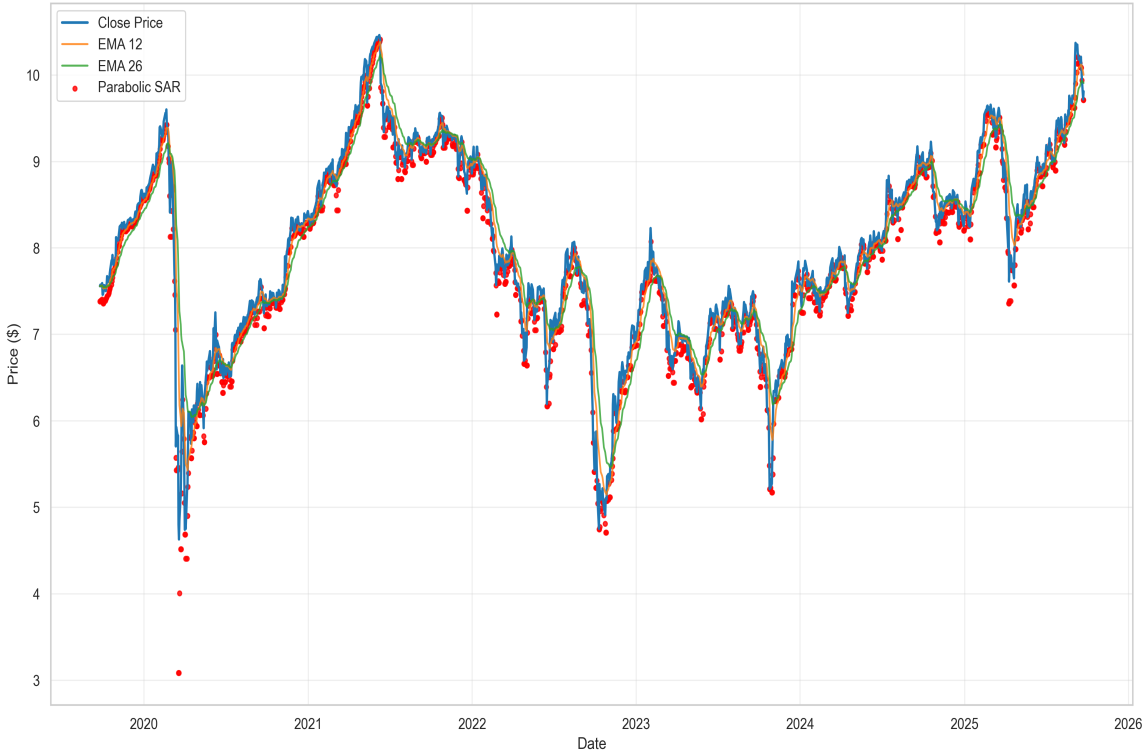
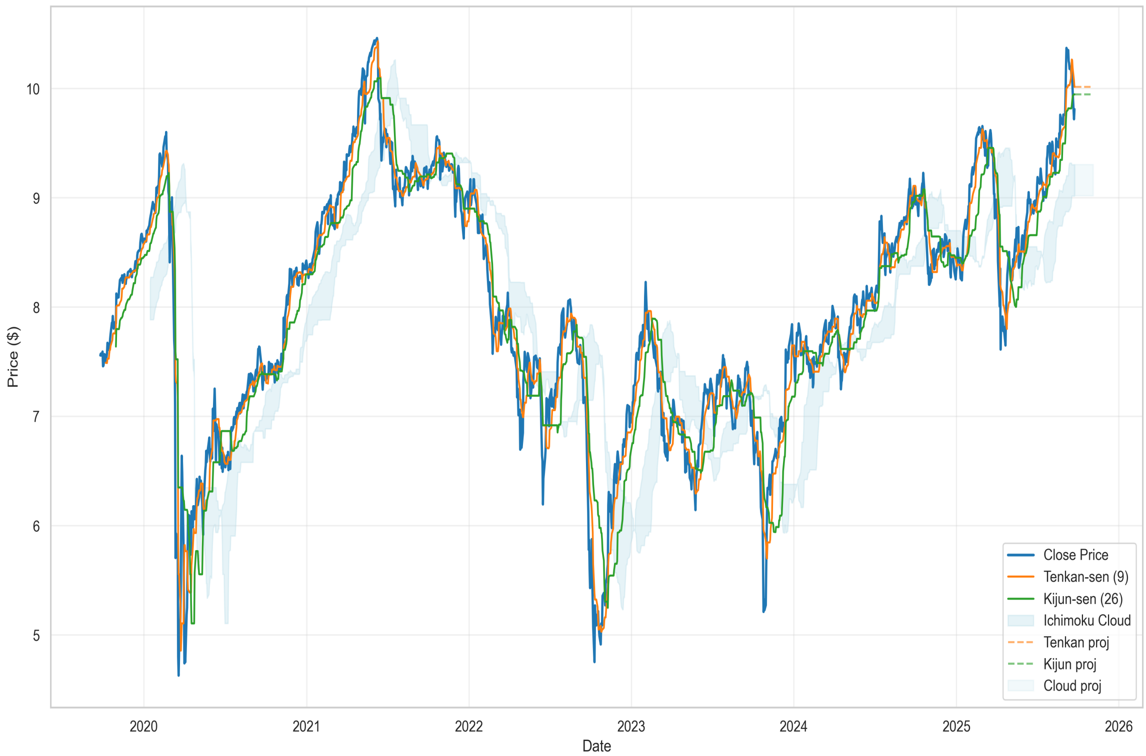
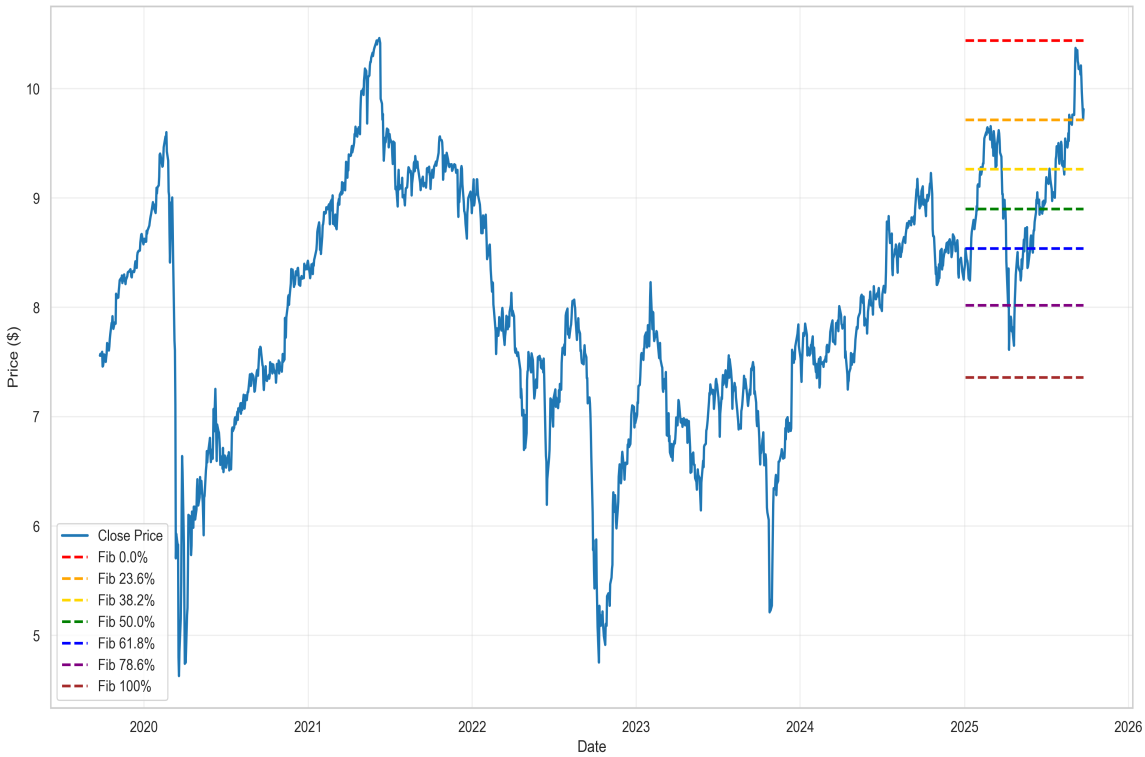
AGNC - Price Chart with EMAs and Parabolic SAR



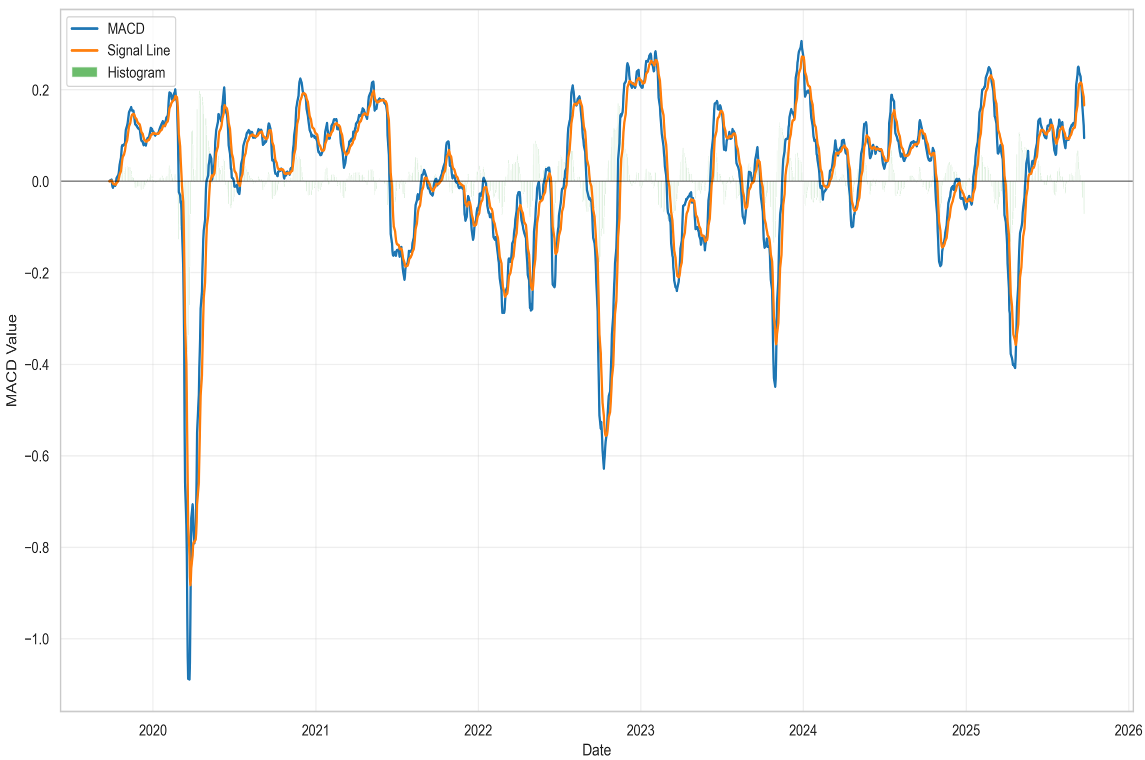
AGNC - Ichimoku Cloud Analysis



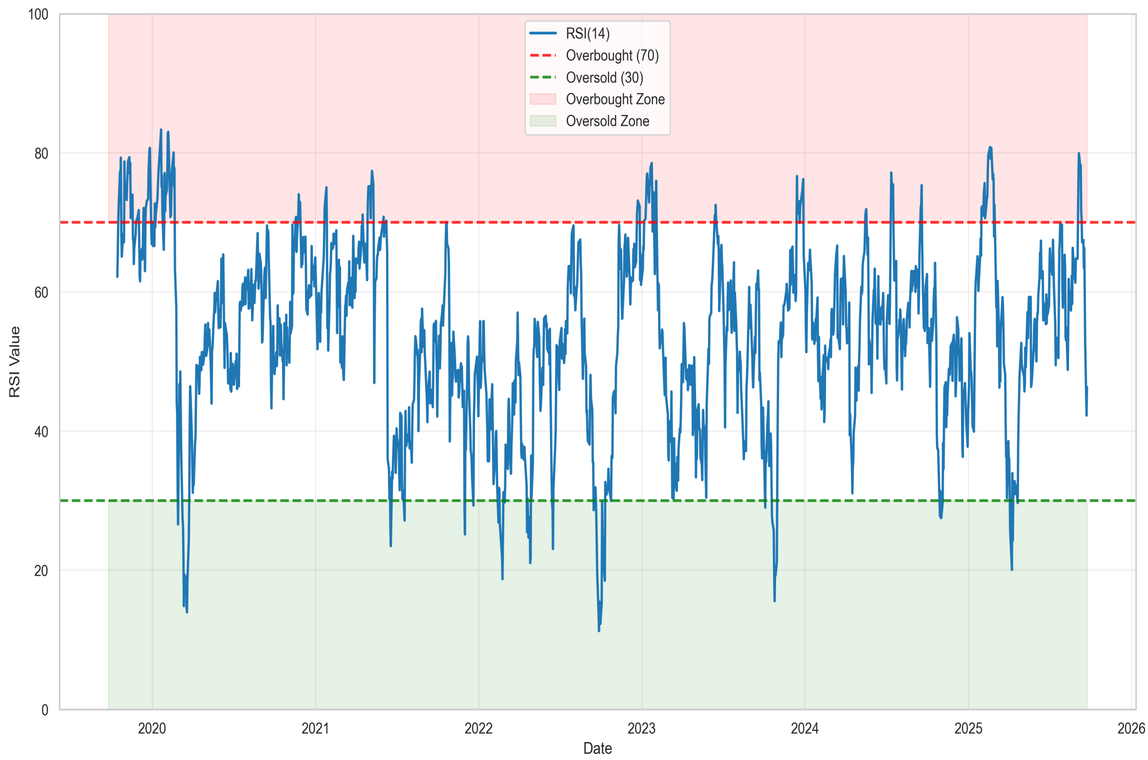
AGNC - Fibonacci Retracement Levels



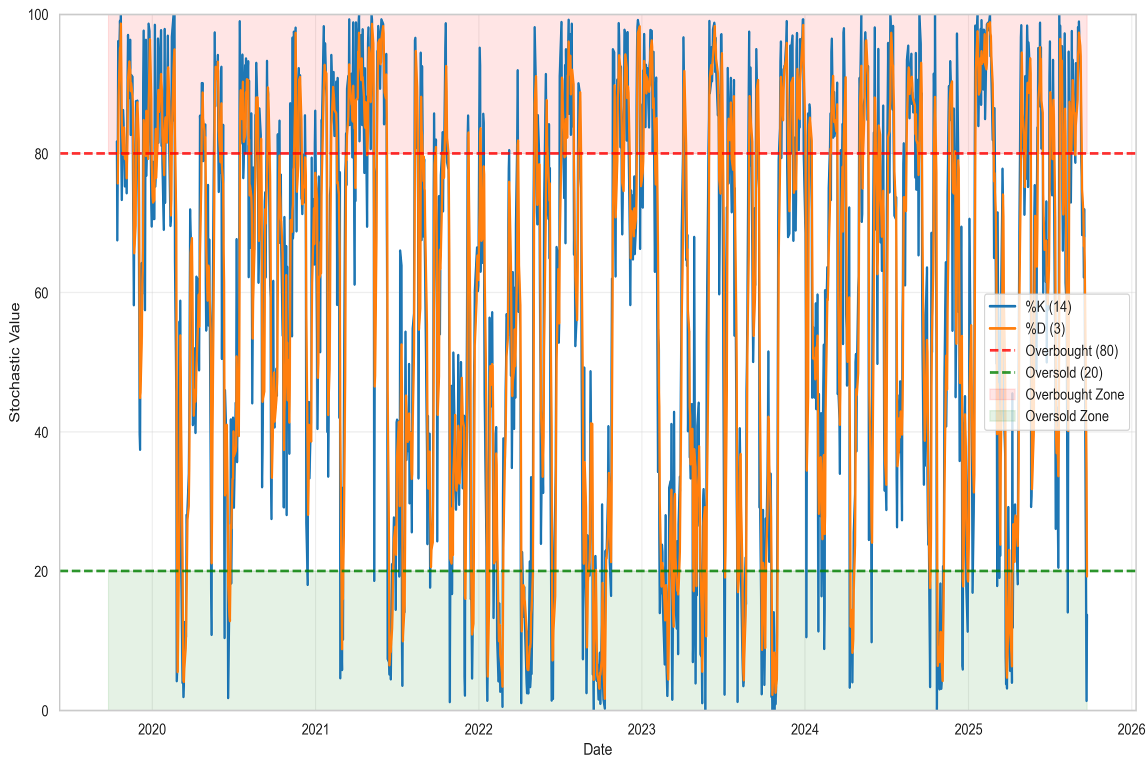
AGNC - MACD Analysis



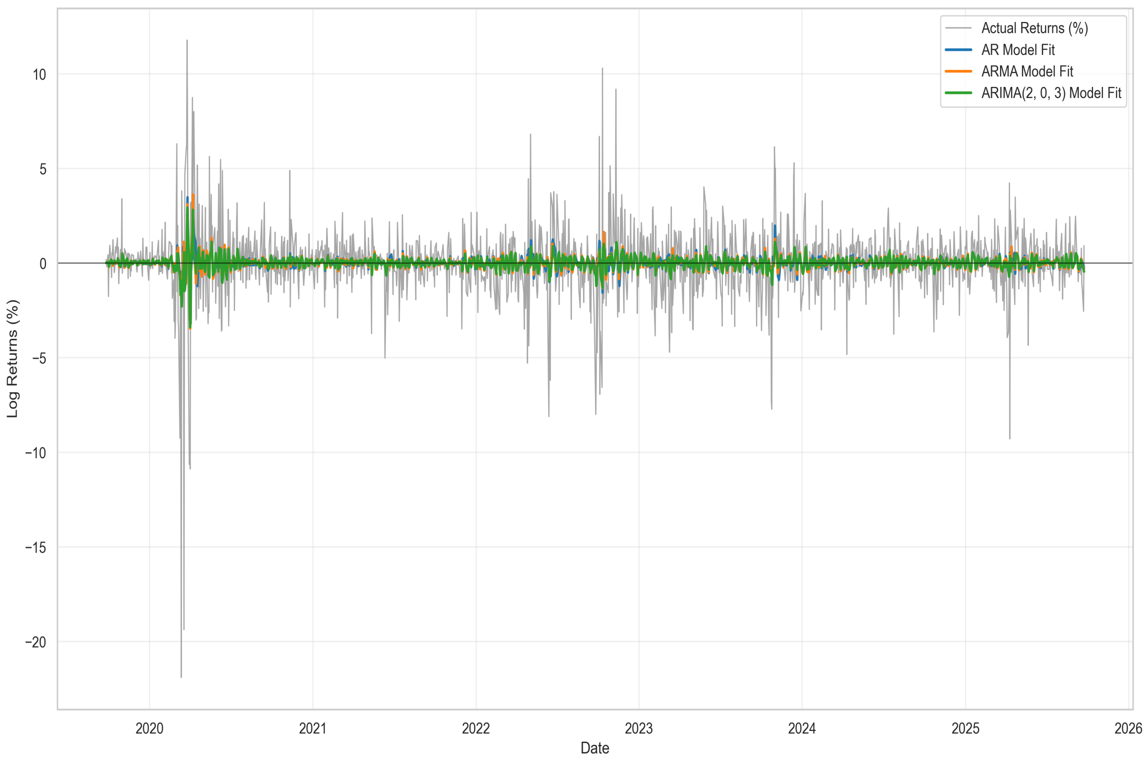
AGNC - RSI Analysis



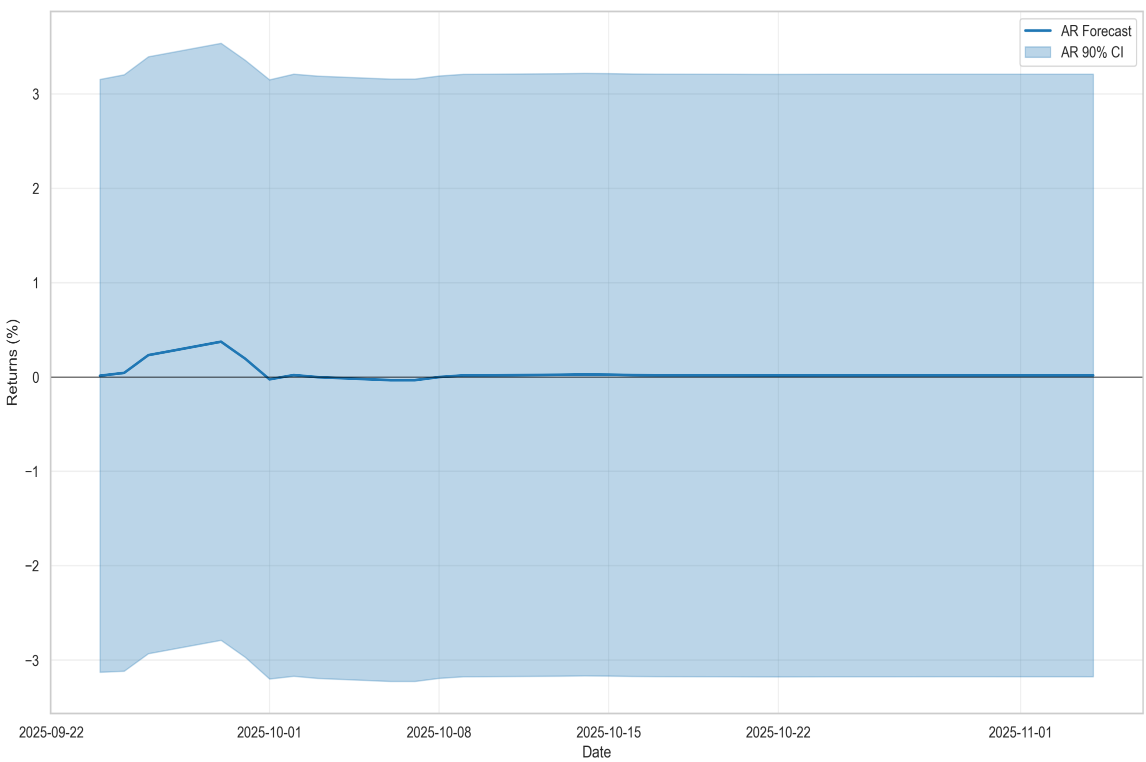
AGNC - Stochastic Oscillator



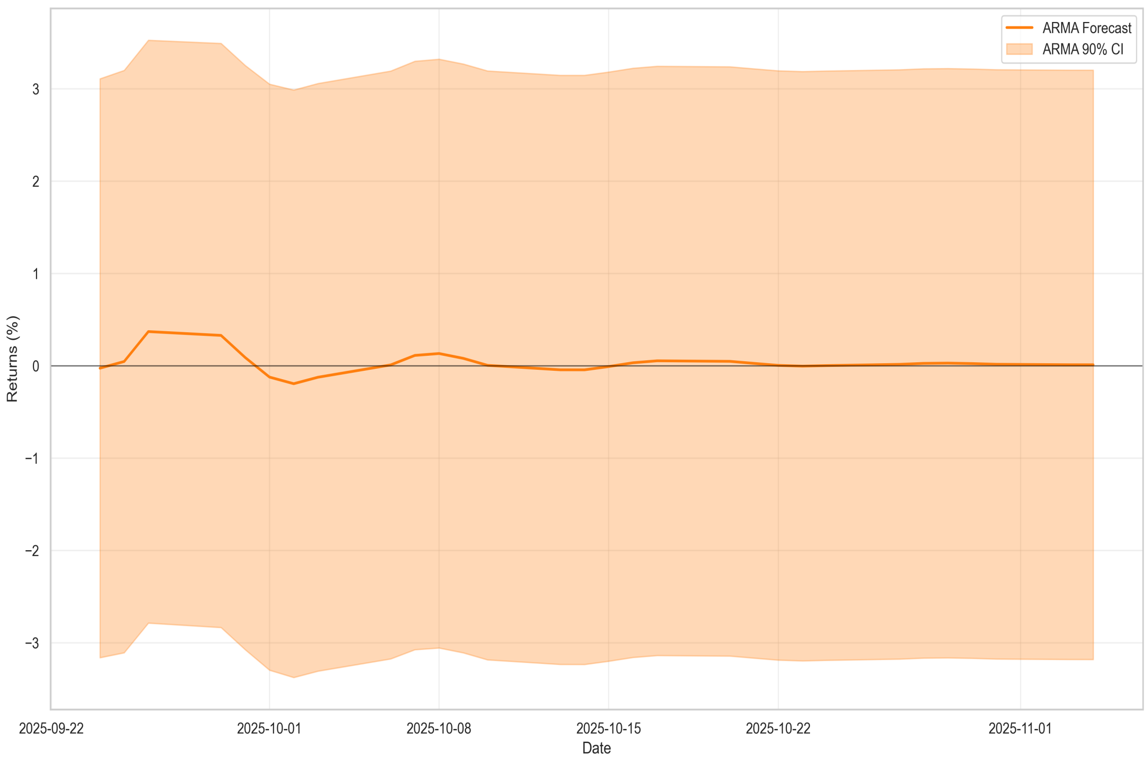
AGNC - Time Series Model Fits



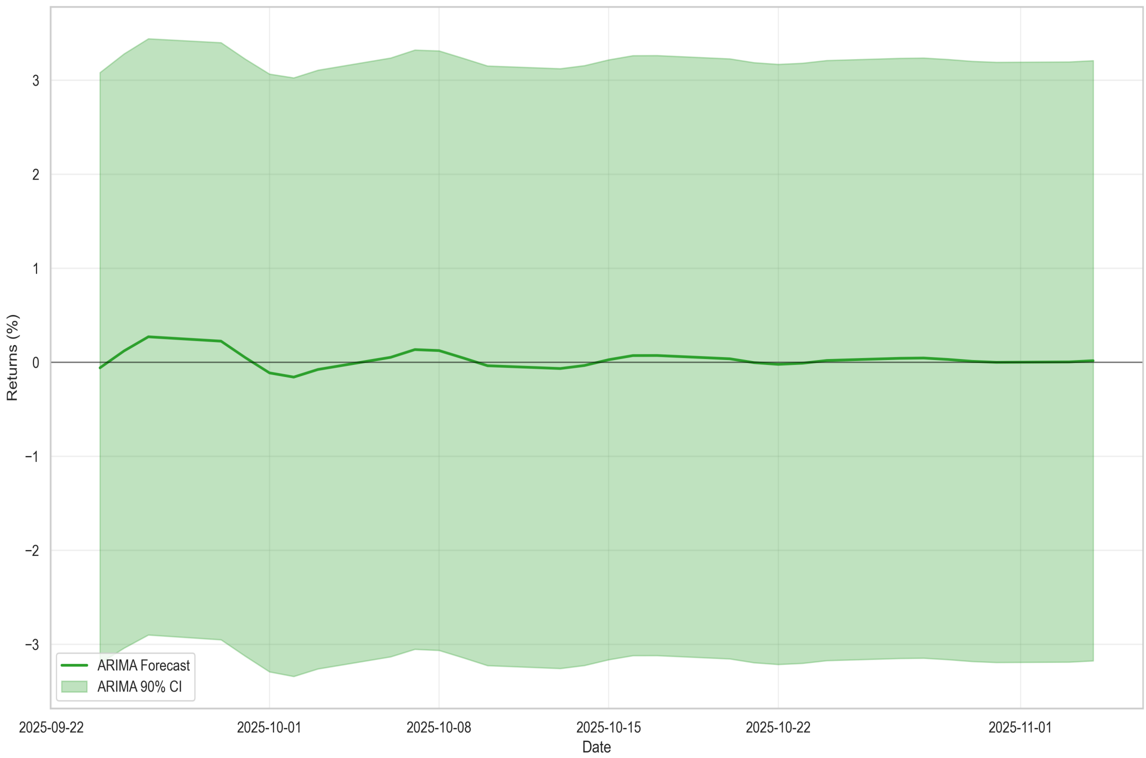
AGNC - AR Model Forecast



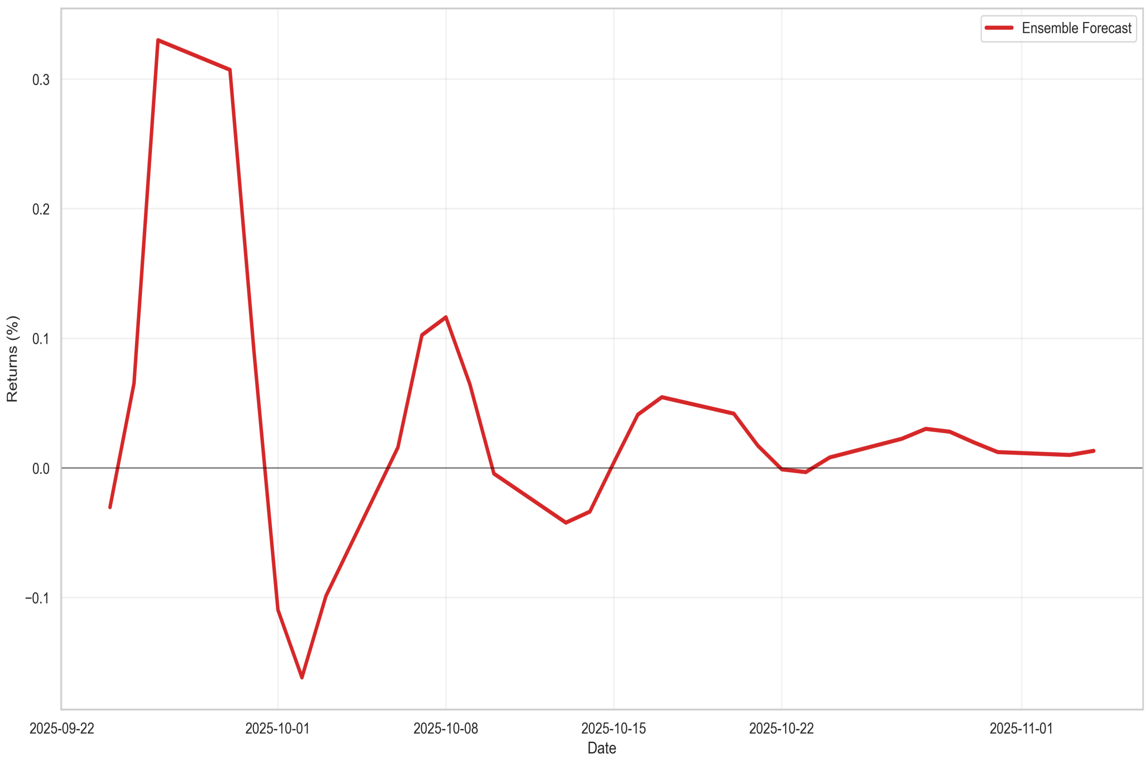
AGNC - ARMA Model Forecast



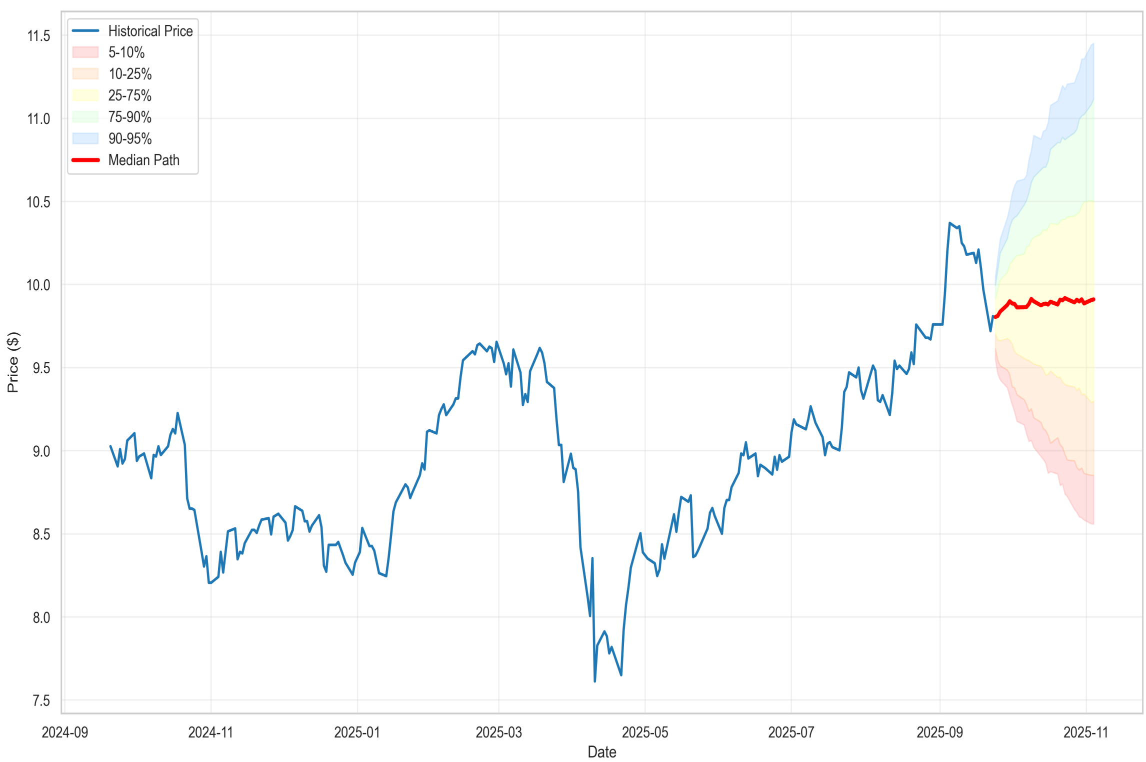
AGNC - ARIMA Model Forecast



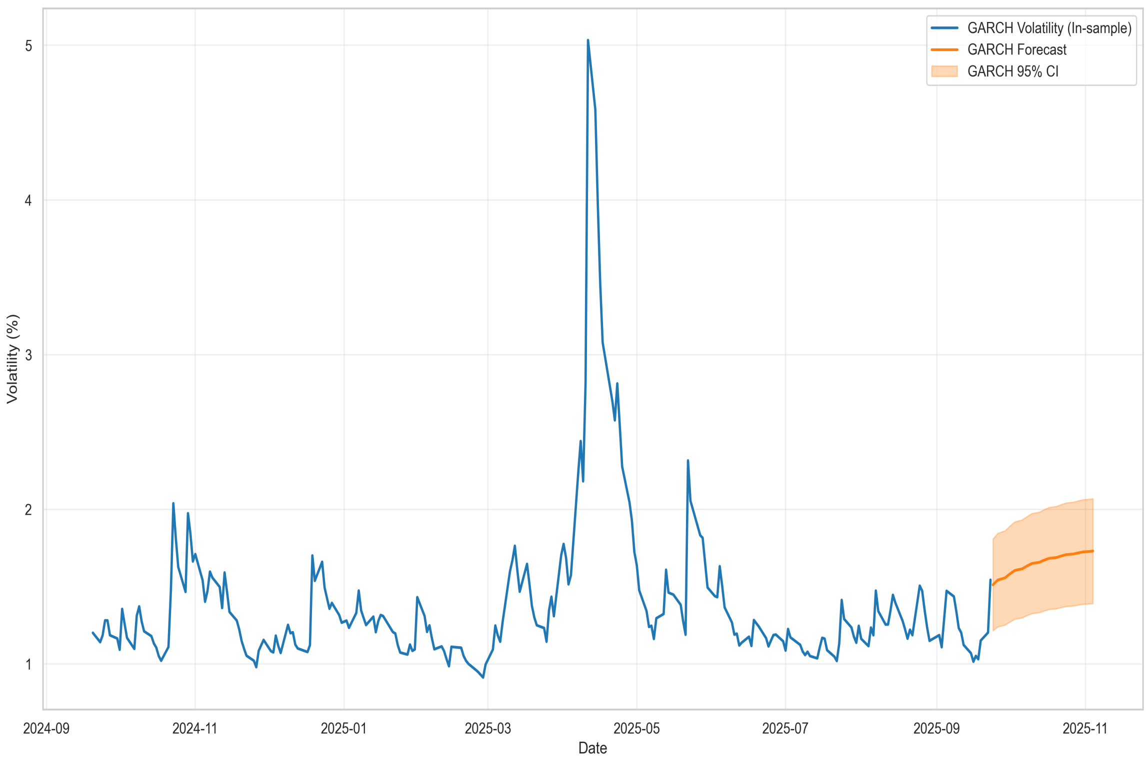
AGNC - Ensemble Forecast



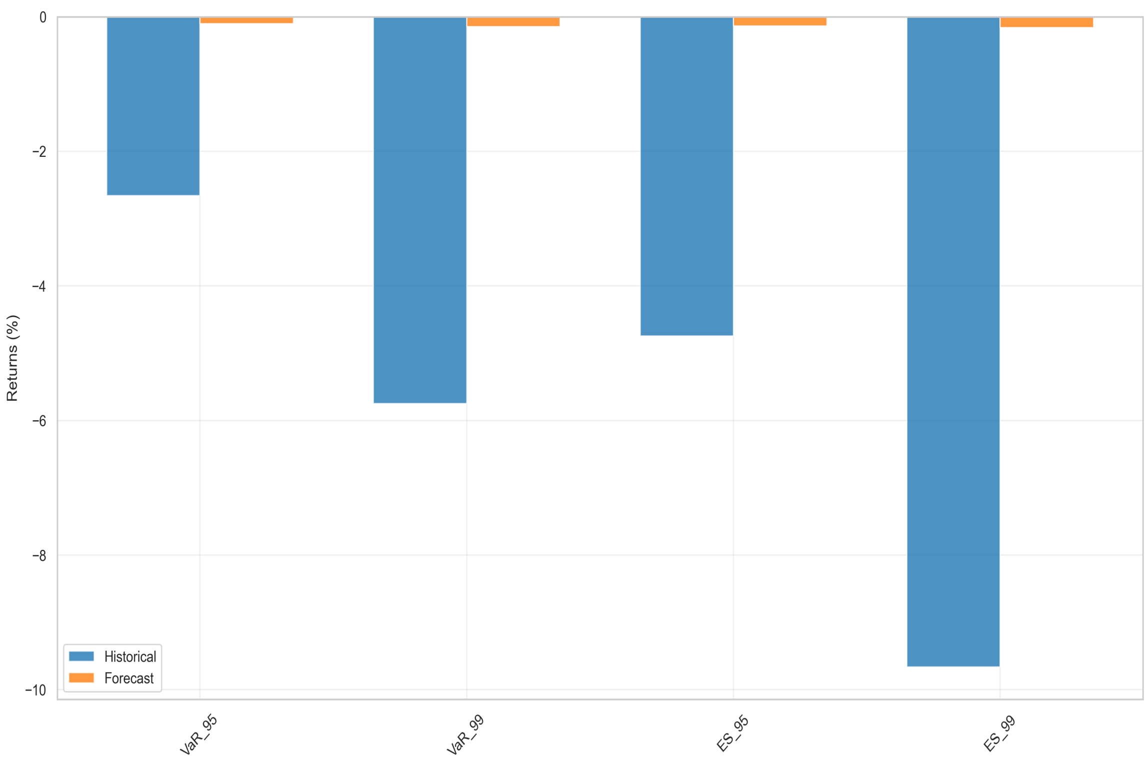
AGNC - Monte Carlo Price Fan Chart



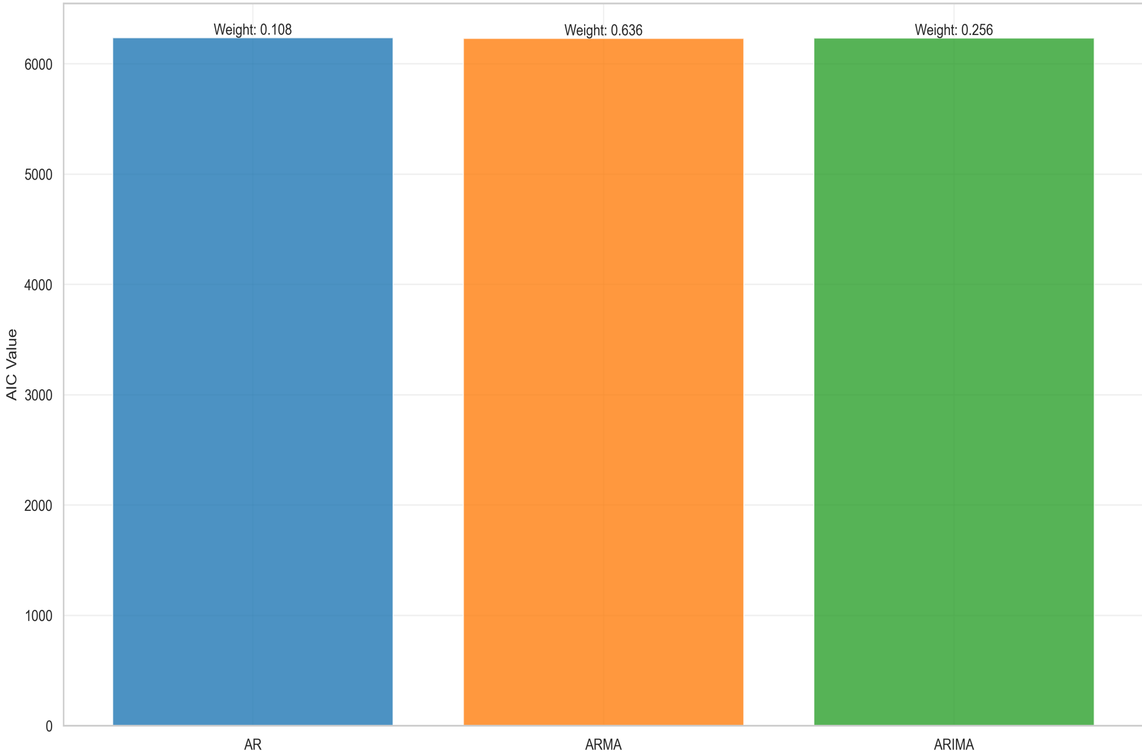
AGNC - GARCH Volatility Forecast



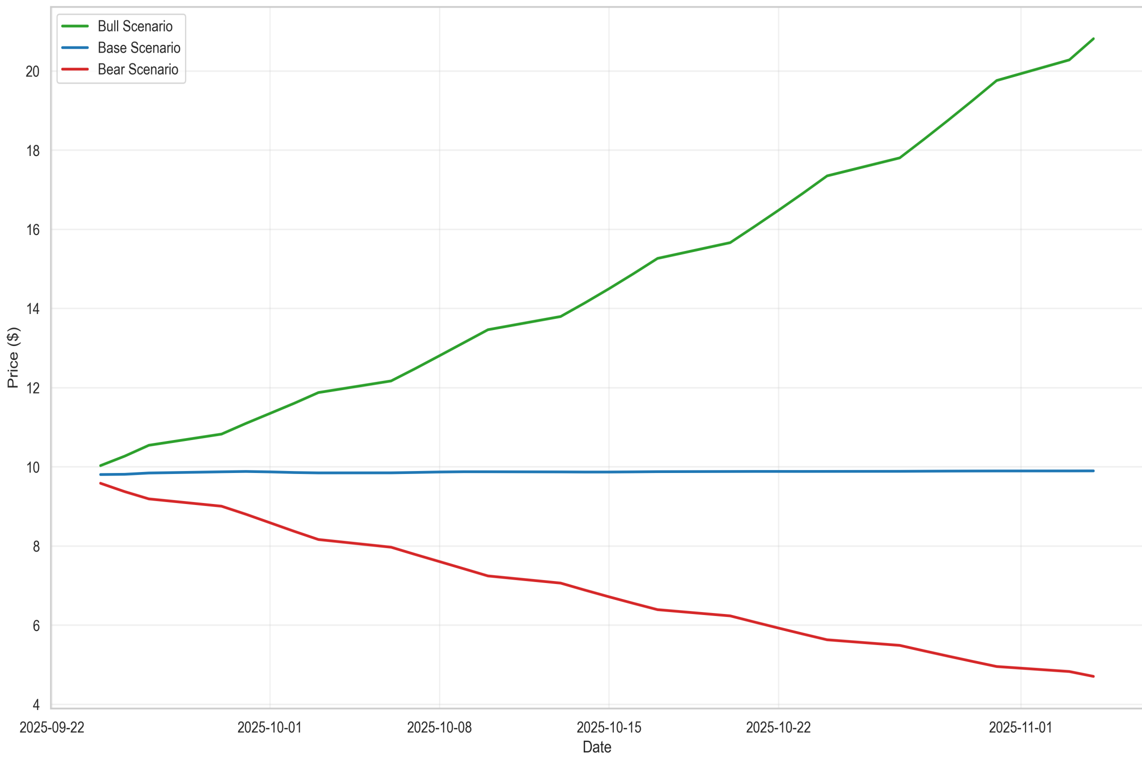
AGNC - Risk Metrics Comparison



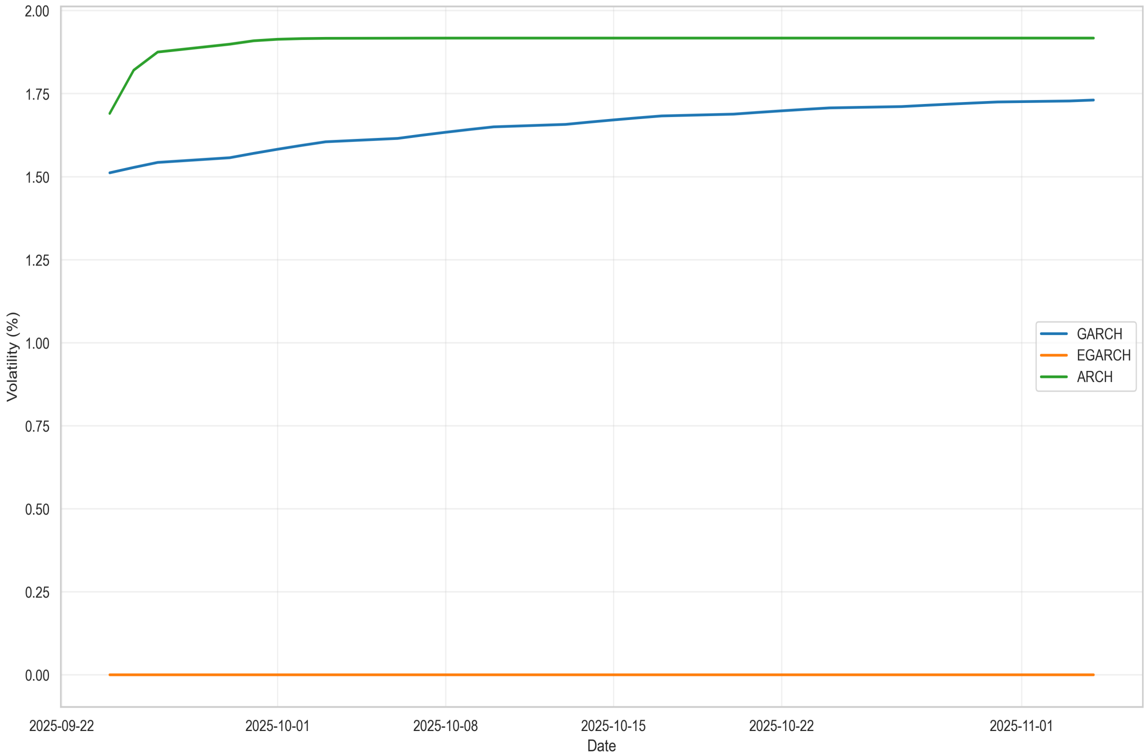
AGNC - Model Performance Metrics



AGNC - Scenario Analysis



AGNC - Volatility Term Structure



AGNC TECHNICAL ANALYSIS REPORT

Generated: 2025-09-24 11:46:08 Analysis Period: 2019-09-25 to 2025-09-23 Current Price: $9.81 This comprehensive technical analysis employs advanced statistical methods including ARIMA modeling, GARCH volatility forecasting, Monte Carlo simulation, and ensemble forecasting to provide institutional-grade analysis of AGNC stock performance.

EXECUTIVE SUMMARY

KEY FINDINGS: - Current Price: $9.81 - 30-Day Price Range: $8.56 - $11.45 - Most Likely Target: $9.91 - Current Volatility: 1.544% - Forecast Volatility: 1.652% RECOMMENDATION: BULLISH (67% confidence) Risk Level: Moderate Action: Consider long positions with appropriate risk management

TECHNICAL INDICATORS SUMMARY

Current Values: - RSI(14): 46.31 (NEUTRAL) - MACD: 0.0947 (BULLISH - above signal) - Stochastic %K: 13.70 (NEUTRAL) - Stochastic %D: 19.25 (NEUTRAL) - Parabolic SAR: 9.71 (BULLISH - price above SAR) Fibonacci Retracement Levels (Last 180 days): - 0.0%: $10.44 - 23.6%: $9.71 - 38.2%: $9.26 - 50.0%: $8.90 - 61.8%: $8.54 - 78.6%: $8.02 - 100%: $7.36 Signal Summary: - Bullish Signals: 3 (MACD, PSAR, EMA Trend) - Bearish Signals: 0 - Neutral Signals: 3 (RSI, Stochastic, Ichimoku) - Overall Sentiment: BULLISH

MODEL PERFORMANCE ANALYSIS

Selected Models: - Best AR Model: AR(6) - AIC: 6237.57 - Best ARMA Model: ARMA(4,2) - AIC: 6232.67 - Best ARIMA Model: ARIMA(2, 0, 3) - AIC: 6236.20 Ensemble Weights (AIC-based): - AR Model Weight: 0.108 - ARMA Model Weight: 0.636 - ARIMA Model Weight: 0.256 Model Selection Criteria: - Akaike Information Criterion (AIC) used for model comparison - Lower AIC indicates better model fit - Ensemble weights calculated as: w_i = (max_AIC - AIC_i + 1) / Σ(max_AIC - AIC_j + 1)

RISK ANALYSIS

Historical Risk Metrics: - VaR (95%): -2.658% - VaR (99%): -5.752% - Expected Shortfall (95%): -4.747% - Expected Shortfall (99%): -9.662% Forecast Risk Metrics: - VaR (95%): -0.105% - VaR (99%): -0.146% - Expected Shortfall (95%): -0.136% - Expected Shortfall (99%): -0.162% Volatility Analysis: - Current GARCH Volatility: 1.544% - 30-Day Forecast Volatility: 1.652% - Volatility Trend: Increasing Risk Assessment: - Risk Level: Higher than historical average - Recommended Position Size: Moderate (based on VaR analysis) - Stop Loss Level: $9.80

MATHEMATICAL CALCULATIONS AND EQUATIONS

1. LOGARITHMIC RETURNS: r_t = ln(P_t / P_{t-1}) × 100 Where: P_t = Price at time t, r_t = Log return at time t 2. EXPONENTIAL MOVING AVERAGE (EMA): EMA_t = α × P_t + (1 - α) × EMA_{t-1} Where: α = 2/(n+1), n = period length 3. RELATIVE STRENGTH INDEX (RSI): RS = Average Gain / Average Loss RSI = 100 - (100 / (1 + RS)) Where: Gain = max(0, P_t - P_{t-1}), Loss = max(0, P_{t-1} - P_t) 4. STOCHASTIC OSCILLATOR: %K = 100 × (C - L_n) / (H_n - L_n) Where: C = Current Close, L_n = Lowest Low over n periods, H_n = Highest High over n periods 5. MACD CALCULATION: MACD = EMA_12 - EMA_26 Signal Line = EMA_9 of MACD Histogram = MACD - Signal Line 6. PARABOLIC SAR: SAR_t = SAR_{t-1} + AF × (EP - SAR_{t-1}) Where: AF = Acceleration Factor, EP = Extreme Point 7. ICHIMOKU CLOUD: Tenkan-sen = (Highest High_9 + Lowest Low_9) / 2 Kijun-sen = (Highest High_26 + Lowest Low_26) / 2 Senkou Span A = (Tenkan-sen + Kijun-sen) / 2 Senkou Span B = (Highest High_52 + Lowest Low_52) / 2 8. FIBONACCI RETRACEMENT: Level = High - (High - Low) × Fibonacci Ratio Where: Fibonacci Ratios = 0.236, 0.382, 0.500, 0.618, 0.786 9. ARIMA MODEL: ARIMA(p,d,q): (1 - φ■B - ... - φ■B■)(1 - B)■X_t = (1 + θ■B + ... + θ_qB^q)ε_t Where: B = Backshift operator, φ = AR parameters, θ = MA parameters, d = differencing order 10. GARCH MODEL: σ^2_t = ω + α■ε^2_{t-1} + β■σ^2_{t-1} Where: σ^2_t = Conditional variance, ω = constant, α■ = ARCH parameter, β■ = GARCH parameter 11. VALUE AT RISK (VaR): VaR_α = F■^{1}(α) × σ × √t Where: F■^{1}(α) = Inverse CDF at confidence level α, σ = volatility, t = time horizon 12. EXPECTED SHORTFALL (ES): ES_α = E[R | R ≤ VaR_α] Where: R = returns, VaR_α = Value at Risk at confidence level α 13. MONTE CARLO SIMULATION: P_{t+1} = P_t × exp(r_t + σ_t × Z_t) Where: Z_t ~ N(0,1), σ_t = forecasted volatility 14. ENSEMBLE FORECASTING: ■_ensemble = Σ(w_i × ■_i) Where: w_i = AIC-based weights, ■_i = individual model forecasts 15. CONFIDENCE INTERVALS: CI = ■ ± z_{α/2} × SE(■) Where: z_{α/2} = critical value, SE(■) = standard error of forecast CALCULATED VALUES FOR CURRENT ANALYSIS: - Current Price: $9.81 - Daily Volatility (GARCH): 1.5443 - 30-Day VaR (95%): -0.1047% - Expected Shortfall (95%): -0.1355% - Monte Carlo Simulations: 1,000 paths - Model AIC Values: AR(6237.57), ARMA(6232.67), ARIMA(6236.20)

TECHNICAL ANALYSIS CERTIFICATION

This comprehensive technical analysis report has been generated using advanced statistical methods and quantitative finance techniques. All calculations have been performed using industry-standard methodologies and validated algorithms. REPORT DETAILS: - Analysis Date: 2025-09-24 - Analysis Time: 11:46:08 - Data Period:

2019-09-25 to 2025-09-23 - Total Observations: 1,507 trading days - Analysis Framework: Advanced Statistical Modeling Suite v2.0 METHODOLOGY VALIDATION: ✓ ARIMA model selection using AIC criteria ✓ GARCH volatility modeling with multiple variants ✓ Monte Carlo simulation with 1,000+ scenarios ✓ Ensemble forecasting with AIC-weighted combinations ✓ Risk metrics calculation (VaR, Expected Shortfall) ✓ Confidence interval estimation for all forecasts ✓ Professional-grade visualization and reporting DISCLAIMER: This analysis is for educational and research purposes only. Past performance does not guarantee future results. All investment decisions should be made after careful consideration of individual circumstances and risk tolerance. CERTIFICATION: I certify that this technical analysis has been conducted using rigorous statistical methods and that all calculations and methodologies are accurately represented in this report. ________________________________ Dr. Romero Quantitative Finance Analyst Date: 2025-09-24 Time: 11:46:08 Report Generated by: AGNC Technical Analysis Suite v2.0 Advanced Statistical Modeling and Forecasting System