✅ Performance Tracker Implementation Summary

🚀 Features Implemented:

1. Navigation Integration:

✅ Added "📊 Performance Tracker" to the main navigation menu

✅ Positioned strategically between Market Analysis and Stock Research

2. Core Performance Analysis:

✅ Dual-line comparison chart - Portfolio vs TASI Index performance

✅ Normalized to base 100 for fair comparison

✅ Interactive date range selector with 90-day default

✅ Professional Plotly charts with Saudi green color scheme

3. Advanced KPI Dashboard:

✅ Portfolio Return with delta vs market

✅ Market Return comparison

✅ Portfolio Volatility (annualized)

✅ Maximum Drawdown calculation

✅ Sharpe Ratio for risk-adjusted returns

✅ Beta calculation for market sensitivity

4. Sector Allocation Analysis:

✅ Portfolio allocation pie chart from actual holdings

✅ TASI market allocation benchmark comparison

✅ Side-by-side sector comparison bar charts

✅ Real-time sector calculation from user's portfolio

5. AI-Powered Insights:

✅ Automated performance narrative with contextual analysis

✅ Strategic recommendations based on performance metrics

✅ Risk-return analysis with professional insights

✅ Dynamic performance scoring with emojis and alerts

6. Professional Features:

✅ Responsive design with proper column layouts

✅ Error handling for missing portfolio data

✅ Help tooltips for all metrics

✅ Saudi-themed styling consistent with your app design

🔧 Technical Implementation Details:

Data Sources:

Portfolio Data: Uses your existing load\_portfolio() function

Market Data: Simulated TASI performance with realistic volatility

Sector Data: Real-time calculation from Saudi stocks database

Performance Metrics: Calculated using financial formulas

Key Calculations:

Normalization: Both portfolio and market normalized to base 100

Returns: Percentage calculations with proper delta formatting

Volatility: Annualized standard deviation

Sharpe Ratio: Risk-adjusted return measurement

Beta: Market sensitivity correlation

Max Drawdown: Peak-to-trough decline analysis

Interactive Elements:

Date Range Picker: Defaults to 90 days, max is current date

Dynamic Charts: Real-time updates based on date selection

Responsive Metrics: Color-coded performance indicators

Sector Visualization: Multiple chart types for comprehensive analysis

🎯 Next Steps & Enhancements:

Real-time Data Integration: Connect to live TASI feeds

Historical Data Storage: Cache performance data for faster loading

Benchmark Options: Add more indices (sector-specific, regional)

Export Features: PDF reports and Excel downloads

Alert System: Performance threshold notifications

Your TADAWUL NEXUS now includes a comprehensive Performance Tracker that provides institutional-grade portfolio analysis! Navigate to the "📊 Performance Tracker" tab to explore all the features.