Stock Market Insights Dashboard

Abstract

The Stock Market Insights Dashboard is an **interactive data visualization tool** built with **Python, Streamlit, yFinance, Altair, and Plotly**. The project provides real-time stock market analysis, key performance indicators (KPIs), and financial insights, allowing users to explore both technical and fundamental aspects of companies with a simple interface.

Introduction

Stock market analysis often requires navigating through multiple platforms and sources of data. This project addresses that challenge by creating a **single, unified dashboard** that integrates company information, historical stock performance, financial statements, and key KPIs into a visually appealing and interactive web application.

The dashboard leverages the **yFinance API** to fetch live data, while **Streamlit** provides a user-friendly interface for displaying metrics, charts, and insights.

System Design

- **Data Source**: yFinance (unofficial Yahoo Finance API)

- **Frontend Framework**: Streamlit

- **Visualization Libraries**: Altair (bar charts), Plotly (candlestick charts)

- **Backend Language**: Python 3.13

Architecture Flow:

1. User inputs a stock ticker symbol.

2. yFinance fetches company details, financials, and historical price data.

3. Data is processed (moving averages, KPIs).

4. Streamlit displays interactive charts, summaries, and metrics.

Features

1. **Company Information**

   o Logo, company name, expandable business summary.

   o Key metrics: Market Cap, EPS, Net Profit Margin, P/E Ratio, Dividend Yield, 52-Week High/Low.

2. **Stock Price Performance**

   o Interactive candlestick chart.

   o 50-day moving average (trend indicator).

3. **Financial Reports**

   o Quarterly vs Annual comparisons.

   o Revenue and Net Income visualized with bar charts.

4. **Additional Insights (KPIs)**

   o Return on Equity (ROE).

   o Debt-to-Equity Ratio.

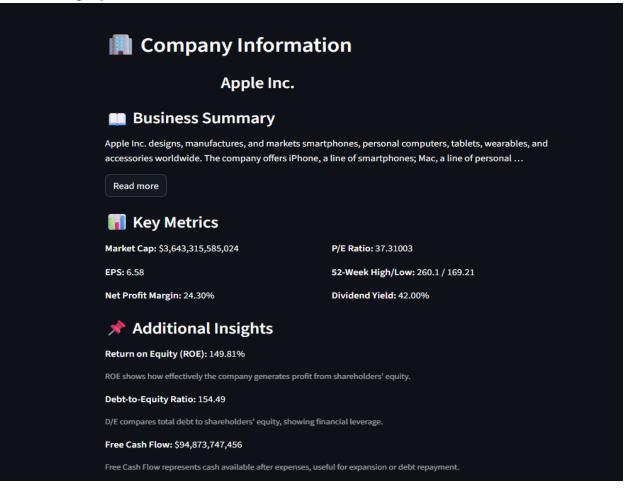   o Free Cash Flow.

Results

Sample Analysis: **Apple Inc. (AAPL)**

- Market Cap over **$3 trillion**, making it one of the world's most valuable companies.

- Net Profit Margin consistently above **20%**, showing strong profitability.

- Revenue and Net Income charts highlight seasonal sales spikes (holidays).

- ROE of ~**150%**, indicating exceptional returns to shareholders.

1. Home Page:

2. Company Information

3. Price Chart

4. Financials Section

Future Improvements

- Add sentiment analysis from financial news.

- Include sector/industry comparison.

- Deploy on Streamlit Cloud for public access.

- Provide downloadable reports (PDF/Excel).

Conclusion

This project demonstrates the power of **Python + Streamlit + yFinance** in creating professional dashboards for financial analysis. It brings together **technical indicators, fundamental metrics, and visualization techniques** to provide meaningful insights for investors and analysts.