

Financial Analysis Project in Power BI with Alpha Vantage API Connection

1. Project Overview

This project was developed by a **data analyst and financial analyst with expertise in value investing**. The goal is to provide an efficient and detailed company analysis to support investment decisions, with a particular focus on value investing strategies. **Power BI** was utilized as a powerful data visualization tool, and **M code** was used to connect to **Alpha Vantage's API**, a leading provider of financial data.

2. Project Objectives

- Facilitate clear and efficient company analysis through **simplified visualization** of key indicators.
- Create a dynamic data update system, allowing the user to access the most recent data without manual intervention.
- **Optimize analysis time** with a dashboard that provides a clear and concise view of performance, growth, and valuation metrics.
- Organize financial data into categories that enable quick identification of company health and growth potential.

3. Data Connection and Structure

3.1 Connection to Alpha Vantage APIs

Data was connected via **M language** in Power BI. Alpha Vantage was selected for its reputation for reliable, up-to-date financial information.

3.2 Data Retrieved from the API

Data was organized according to indicator type to improve comprehension and analysis relevance. The data is structured into five main categories:

4. Indicator Grouping

Group 1: Key Valuation and Profitability Indicators

- **MarketCapitalization**: Total market value of the company.
- **EBITDA**: Earnings before interest, taxes, depreciation, and amortization, indicating operating profitability.
- **PERatio (Price-to-Earnings Ratio)**: Key indicator to evaluate company value.
- **PEGRatio (Price-to-Earnings Growth Ratio)**: Adjusts P/E based on expected growth.
- **EPS (Earnings Per Share)**: Key profitability indicator per share.

Group 2: Growth and Margin Indicators

- **RevenueTTM (Total Revenue)**: Revenue generated over the last 12 months.
- **ProfitMargin**: Percentage of revenue that turns into profit.
- **OperatingMarginTTM**: Operating efficiency in generating profits.
- **ReturnOnAssetsTTM (ROA)**: Efficiency in using assets to generate profits.
- **ReturnOnEquityTTM (ROE)**: Profitability on equity, relevant for investors.

Group 3: Year-Over-Year Growth Indicators

- **QuarterlyEarningsGrowthYOY**: Year-over-year growth of quarterly earnings.
- **QuarterlyRevenueGrowthYOY**: Year-over-year growth of quarterly revenue.
- **TrailingPE (Historical P/E)**: P/E ratio based on past earnings.
- **ForwardPE (Forward P/E)**: P/E ratio based on projections.
- **PriceToSalesRatioTTM**: Amount paid per dollar of sales.

Group 4: Relative Valuation Indicators

- **PriceToBookRatio**: Compares market price to book value.
- **EVToRevenue (Enterprise Value to Revenue)**: Relates enterprise value to revenue.
- **EVToEBITDA (Enterprise Value to EBITDA)**: Compares enterprise value to operating profits.
- **Beta**: Stock price volatility relative to the market.
- **52WeekHigh / 52WeekLow**: Highest and lowest stock prices over the past year.

Group 5: Capital Structure and Dividend Indicators

- **SharesOutstanding**: Number of shares outstanding, critical for market capitalization and future dilution.
- **DividendPerShare**: Dividends paid per share.
- **DividendYield**: Relates dividends paid to the stock price.
- **Trailing Dividend Date**: Date of last dividend payment.
- **ExDividendDate**: Date of next dividend payment, important for income investors.

5. Visualization and Dashboard

A Power BI dashboard was created to allow users to view key indicators in a **clear and easy-to-understand** format. The user interface was optimized to allow for quick and effective data analysis. The dashboard structure allows for:

- **Quick View** of each group of indicators with visuals that reflect both historical trends and current values.
- **Visual Alerts** for key metrics such as P/E ratio, ROE, and Beta, providing quick insights into overvaluation or undervaluation relative to the market.
- **Data Cards** highlighting critical information, such as the most recent closing price and last update date, to ensure the data is fresh and relevant.

6. Dynamic Updating and Scheduling

Since data is retrieved via Alpha Vantage APIs, automatic updates were configured in Power BI Service to ensure the analysis reflects the latest data. This allows the user to have real-time information, essential for investment decisions.

7. Benefits and Conclusion

This project provides an effective tool to analyze the financial situation of companies in the market. With **clear visualization and grouping of key indicators**, it enables analysts and investors to make quick and informed decisions based on reliable data. The continuous update ensures the information is always up-to-date, which is essential for any value investing strategy.

This approach ensures a competitive advantage by simplifying access to key valuation, growth, margin, relative valuation, and dividend metrics, facilitating informed investment decision-making.

