

Group - 2

Team Members



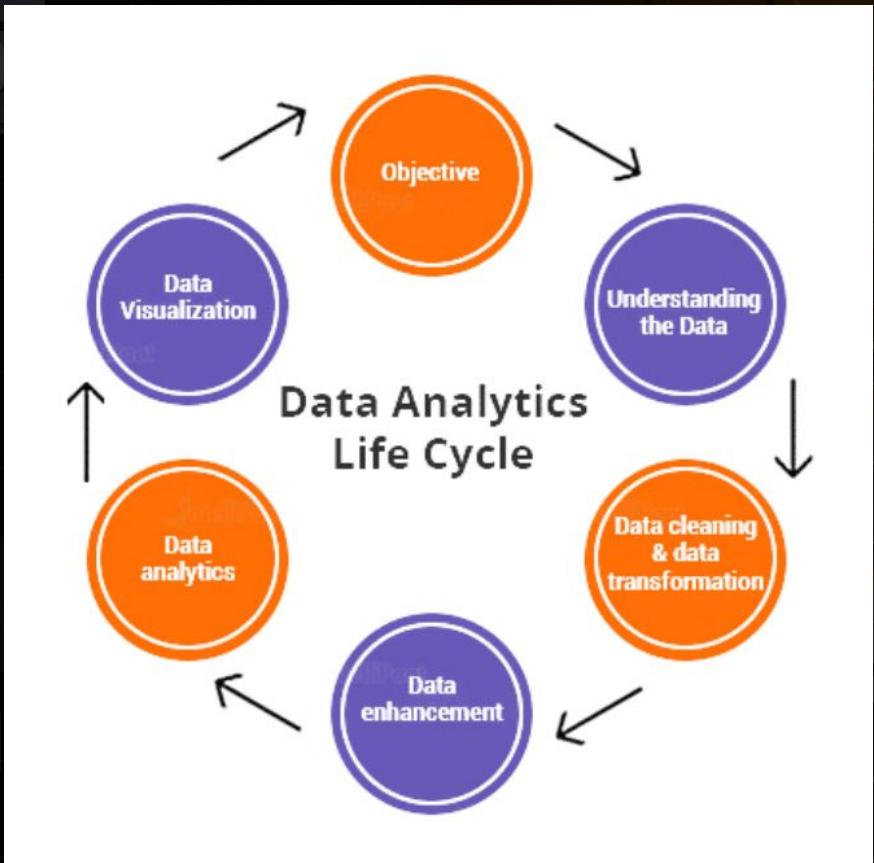
Aung Khine Moe



Chit Thet



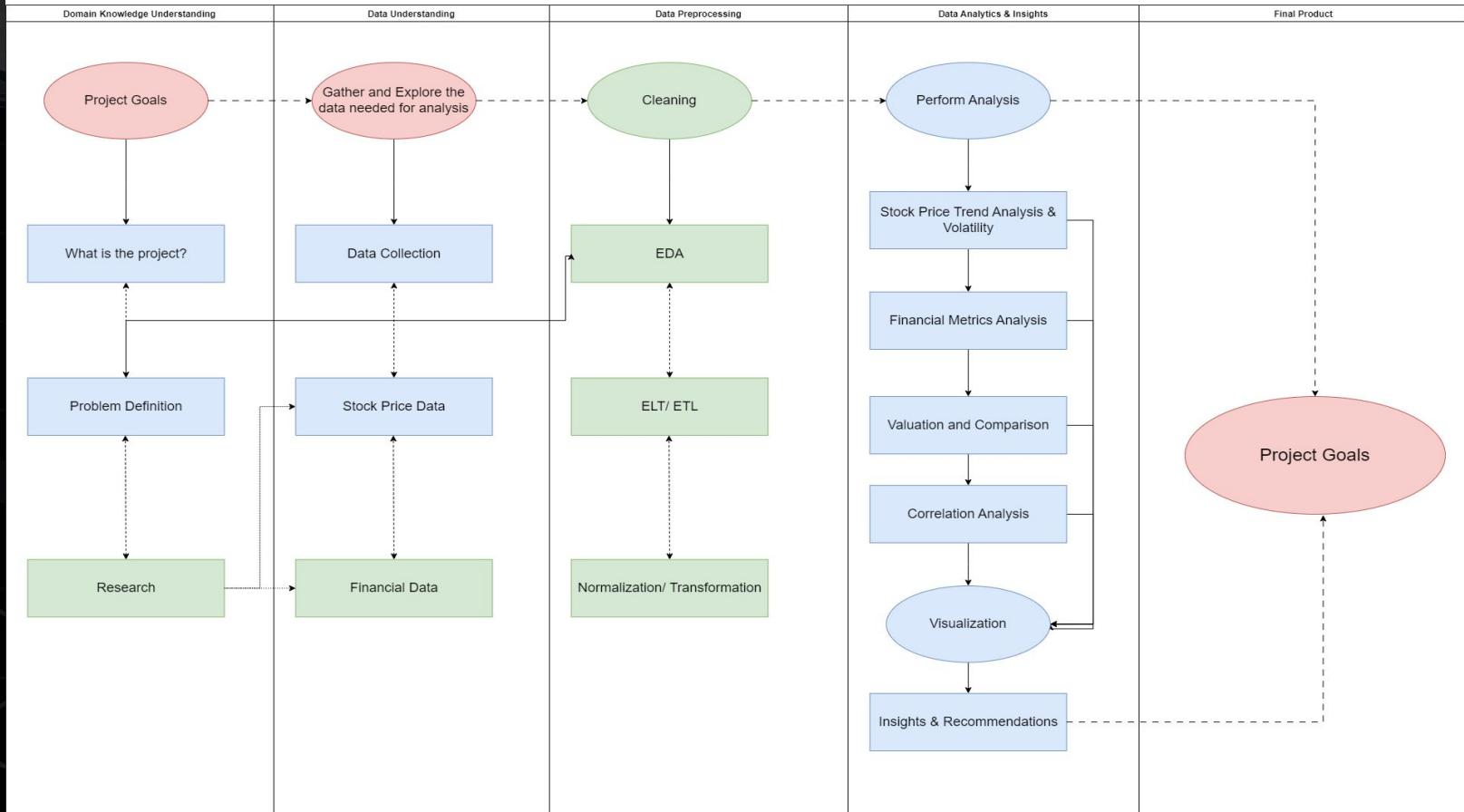
Myo Min Khant



Our Workflow

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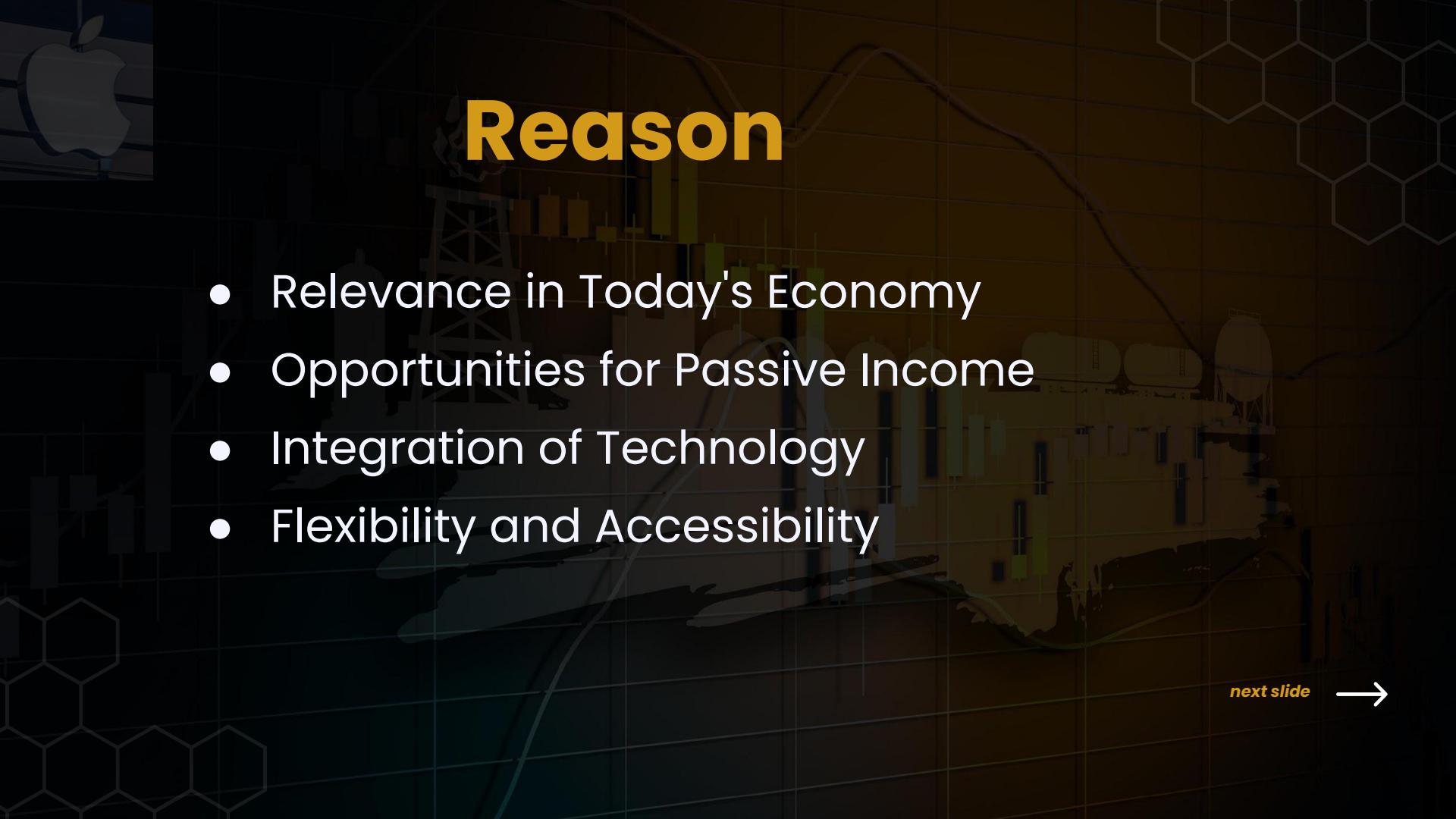
Multi-Factor Stock Performance Analysis: Trends, Volatility, and Financial Insights





Multi-Factor STOCK

Performance Analysis



Reason

- Relevance in Today's Economy
- Opportunities for Passive Income
- Integration of Technology
- Flexibility and Accessibility



Project Goal

- To make profits from the Stock market
- To make the right decision by looking at the analysis dashboard about Stock Market
- To save time and accurate consideration of the stock market

Selected Stocks



NVIDIA.



TESLA



Microsoft



Traded Company & Ticker

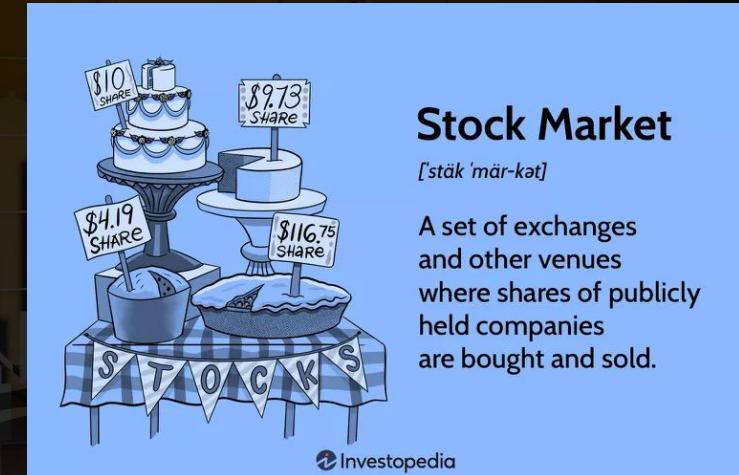
No.	Traded Company	Ticker	Sector
1	Apple Inc.	AAPL	Technology
2	NVIDIA Corp.	NVDA	Technology
3	Microsoft Corp.	MSFT	Technology
4	Amazon.com Inc.	AMZN	Consumer Discretionary
6	Tesla Inc.	TSLA	Consumer Discretionary
5	Meta Platforms Inc.	META	Communication Services
7	Alphabet Inc.	GOOGL	Communication Services
8	Coca-Cola Co.	KO	Consumer Staples

What is

Stock Market ?

The stock market is a place where investors buy and sell shares of publicly traded companies.

When you own a share of a company's stock, you own a small piece of that company, called a "share."



Stock Market

[stāk 'mär-kat]

A set of exchanges and other venues where shares of publicly held companies are bought and sold.

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Important

Stock Fundamentals

1. EPS : Earnings per share
2. P/B ratio : Price-to-Book ratio
3. P/E ratio : Price-to-Earnings ratio
4. ROE : Return on Equity
5. ROA : Return on Assets
6. Gross Profit Margin
7. Net Profit Margin
8. Current Ratio
9. Debt to Equity Ratio
10. Beta

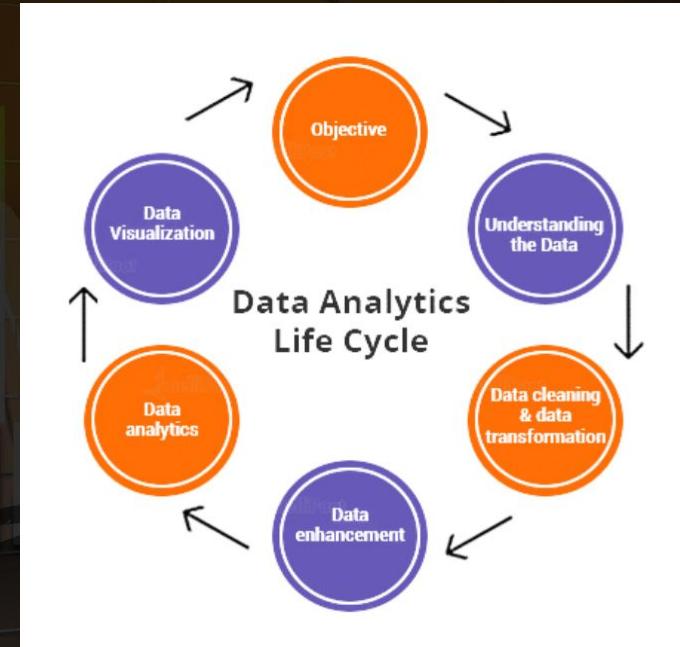
Our Investment

Criteria

1. P/E ratio = 1-20
2. Debt to equity ratio: 0-1
3. Market Cap (Small, Mid, Large)
4. P/B ratio = Less than 10
5. ROE = Above 20%
6. Operating Profit Margin = Above 12% and keep improving
7. Net Profit Margin = Above 12% and keep improving
8. PEG ratio between 0.5 to 1
9. Beta (Less than 1 = low risk, Greater than 1 = high risk)

Data Preprocessing

- Data Collection
- Data Cleaning
- Transformation



Data Collection

Data collected from Websites :

- Yahoo Finance > For historical stock price and financial data
- NASDAQ > For sector and company-specific metrics
- Finviz > For financial ratios and market insights

Collected data for each traded company from different sources.



Data Cleaning

- Mainly used **Microsoft Excel** and **SQL** for Data Cleaning
- Clean Duplicate Data, **NULL** error, **Typo error** and different format to correct format.
- Used **UNIQUE**, **TRIM** and **CONCATENATE** of Excel for Data Cleaning frequently.
- Used **AVERAGE**, **SUM**, **SUMIF**, **COUNT** and **VLOOKUP** for Data Manipulation.

Data Transformation

- Collected data from different sources to CSV file and transform to SQL Table.
- When creating the SQL table, exactly created the data format, data type in the csv file and SQL data format, data type to be the same.
- Used INSERT INTO script and MySQL Workbench built-in data import **Wizard** for DATA INPUT process.

Data Transformation

	AAPL	Net Profit		
2024-06-30	\$385.60B	\$101.96B	26.44%	26.38%
2024-03-31	\$381.62B	\$100.39B	26.31%	
2023-12-31	\$385.71B	\$100.91B	26.16%	25.16%
2023-09-30	\$383.29B	\$97.00B	25.31%	
2023-06-30	\$383.93B	\$94.76B	24.68%	
2023-03-31	\$385.10B	\$94.32B	24.49%	
2022-12-31	\$387.54B	\$95.17B	24.56%	25.50%
2022-09-30	\$394.33B	\$99.80B	25.31%	
2022-06-30	\$387.54B	\$99.63B	25.71%	
2022-03-31	\$386.02B	\$101.94B	26.41%	
2021-12-31	\$378.32B	\$100.56B	26.58%	25.23%
2021-09-30	\$365.82B	\$94.68B	25.88%	
2021-06-30	\$347.16B	\$86.80B	25.00%	
2021-03-31	\$325.41B	\$76.31B	23.45%	
2020-12-31	\$294.14B	\$63.93B	21.73%	21.33%

Sector	Ticker	Company Name	Year	Market Cap (Billion USD)	Earnings Per Share (EPS)	Price-to-Earnings (P/E) Ratio	PEG Ratio	Price-to-Book (P/B) Ratio	Price-to-Sales (P/S) Ratio	ROE (%)	ROA (%)	Gross Profit Margin (%)	Operating Margin (%)	Net Profit Margin (%)	Current Ratio	Quick Ratio	Debt to Equity Ratio	
Technology	AAPL	Apple Inc	2019	1287	3.19	23	52.79	14.4	4.81	54.36	16.26	24.6	21.59	1.54	1.56	2.8		
Technology	AAPL	Apple Inc	2020	2,255.00	3.74	35.5	2.9	34.1	7.67	75.22	10.03	38.2	24.1	21.33	1.4	1.13	4.35	
Technology	AAPL	Apple Inc	2021	2,901.00	6.08	24	35	0.5	40.3	7.67	134.19	26.27	41.8	29.8	25.23	1.1	1	4.3
Technology	AAPL	Apple Inc	2022	2,066.00	5.92	27.79	1.2	36.4	5.33	157.55	28.13	43.3	30.3	25.50	0.9	0.89	5.11	
Technology	AAPL	Apple Inc	2023	2,994.00	6.46	35.92	-19	40.4	7.76	161.87	28.27	44.1	29.8	25.16	1	1.02	3.77	
Communication Services	META	Meta Platforms, Inc.	2019	585.37	6.48	31.17	5.7	5.79	8.28	21.03	16.96	81.9	41	28.42	4.4	4.28	0.32	
Communication Services	META	Meta Platforms, Inc.	2020	778.23	10.23	26.7	0.8	6.07	9.05	23.24	18.00	80.6	38	31.44	5.1	4.89	0.24	
Communication Services	META	Meta Platforms, Inc.	2021	921.93	14	24	0.4	7.38	7.82	29.39	23.59	80.8	39.6	35.55	3.2	2.94	0.33	
Communication Services	META	Meta Platforms, Inc.	2022	319.88	8.61	14	-0.4	2.54	2.74	24.26	18.16	79.6	28.8	25.92	2.2	2.01	0.48	
Communication Services	META	Meta Platforms, Inc.	2023	905.62	11.5	33.2	4.1	5.94	6.74	21.40	14.38	80.7	37.2	22.35	2.7	2.55	0.51	
Technology	NVDA	NVIDIA Corporation	2019	144	0.99	5.94	-1.06	12.8	12.3	33.54	23.27	61.2	32.5	29.25	7.9	7.71	0.41	
Technology	NVDA	NVIDIA Corporation	2020	323.24	1.55	8.42	-1.3	21.1	21	27.25	17.47	62	26.1	26.41	7.7	3.52	0.75	
Technology	NVDA	NVIDIA Corporation	2021	735.27	3.3	8.92	1.5	30.9	26.3	35.51	20.50	63.3	28.3	29.95	4.1	6.53	0.71	

```
CREATE TABLE financial_metrics (
    Sector VARCHAR(50),
    Ticker VARCHAR(10),
    Company_Name VARCHAR(100),
    Financial_Year INT,
    Market_Cap_Billion_USD DECIMAL (15, 2),
    EPS DECIMAL (5, 2),
    PE_Ratio DECIMAL (5, 2),
    PEG_Ratio DECIMAL (5, 2),
    PB_Ratio DECIMAL (5, 2),
    PS_Ratio DECIMAL (5, 2),
    ROE_Percent DECIMAL (5, 2),
    ROA_Percent DECIMAL (5, 2),
    Gross_Profit_Margin_Percent DECIMAL (5, 2),
    Operating_Margin_Percent DECIMAL (5, 2),
    Net_Profit_Margin_Percent DECIMAL (5, 2),
    Current_Ratio DECIMAL (5, 2),
    Quick_Ratio DECIMAL (5, 2),
    Debt_to_Equity_Ratio DECIMAL (5, 2),
    Interest_Coverage_Ratio DECIMAL (5, 2),
    Free_Cash_Flow_Billion_USD DECIMAL (5, 2),
    Beta DECIMAL (5, 2)
```

Data Analyzing



Our SQL process

Data Import : Loaded raw data (CSV files) into SQL tables.

Data Cleaning : Removed duplicates, handled missing values, and standardized formats.

Data Transformation : Normalized data into relational tables to ensure efficiency.

Query Execution : Used SQL queries to calculate metrics and extract insights.

Import → Clean → Transform → Analyze

```
CREATE TABLE financial_metrics (
  Sector VARCHAR(50),
  Ticker VARCHAR(10),
  Company_Name VARCHAR(100),
  Financial_Year INT,
  Market_Cap_Billion_USD DECIMAL (15, 2),
  EPS DECIMAL (5, 2),
  PE_Ratio DECIMAL (5, 2),
  PEG_Ratio DECIMAL (5, 2),
  PB_Ratio DECIMAL (5, 2),
  PS_Ratio DECIMAL (5, 2),
  ROE_Percent DECIMAL (5, 2),
  ROA_Percent DECIMAL (5, 2),
  Gross_Profit_Margin_Percent DECIMAL (5, 2),
  Operating_Margin_Percent DECIMAL (5, 2),
  Net_Profit_Margin_Percent DECIMAL (5, 2),
  Current_Ratio DECIMAL (5, 2),
  Quick_Ratio DECIMAL (5, 2),
  Debt_to_Equity_Ratio DECIMAL (5, 2),
  Interest_Coverage_Ratio DECIMAL (5, 2),
  Free_Cash_Flow_Billion_USD DECIMAL (5, 2),
  Beta DECIMAL (5, 2)
);

CREATE TABLE company_profile (
  Sector VARCHAR(50),
  Ticker VARCHAR(10),
  Company_Name VARCHAR(100)
);

CREATE TABLE price_history (
  Ticker VARCHAR(10),
  Company_Name VARCHAR(100),
  Price_Date DATE,
)
```

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Data Analyzing

1. Profitability Analysis

```
-- 2. Which Company is the Most Profitable?  
SELECT Financial_Year, Ticker, Net_Profit_Margin_Percent, ROE_Percent  
FROM financial_metrics  
  
WHERE (Financial_Year, Net_Profit_Margin_Percent) IN (  
    SELECT Financial_Year, MAX(Net_Profit_Margin_Percent)  
    FROM financial_metrics  
    GROUP BY Financial_Year)  
  
ORDER BY Financial_Year DESC;
```

2. Risk Analysis

```
-- 9. Which Company is the Most Volatile (High-Risk, High-Reward)?  
SELECT Ticker, MAX(Beta) AS max_beta  
FROM financial_metrics  
GROUP BY Ticker  
ORDER BY max_beta DESC  
;  
  
-- 10. Which Company is the Low Volatile (Low-Risk, Low-Reward)?  
SELECT Ticker, MIN(Beta) AS min_beta  
FROM financial_metrics  
GROUP BY Ticker  
ORDER BY min_beta ASC;
```

Data Analyzing

Fair Value Calculation

If the Stock Price > Fair Value than the stock is overvalued else it is undervalued.

Ticker	Financial_Year	Fair_Value	year_close_price	Under_Over_Value
AAPL	2019	73.3700	73.41	OVER Valued
AAPL	2020	132.7700	132.69	Under Valued
AAPL	2021	148.0480	177.57	OVER Valued
AAPL	2022	164.5168	129.93	Under Valued
AAPL	2023	232.0432	192.53	Under Valued
META	2019	201.9816	205.25	OVER Valued
META	2020	273.1410	273.16	OVER Valued
META	2021	336.0000	336.35	OVER Valued
META	2022	120.5400	120.34	Under Valued
META	2023	381.8000	353.96	Under Valued

```
-- Calculation of Fair Value
SELECT fm.Ticker, Financial_Year, (PE_Ratio * EPS) AS Fair_Value,
CASE WHEN fm.Financial_Year = 2023 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND Price_Date = '2023-12-29')
WHEN fm.Financial_Year = 2021 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2021-12-31')
WHEN fm.Financial_Year = 2020 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2020-12-31')
WHEN fm.Financial_Year = 2019 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2019-12-31')
WHEN fm.Financial_Year = 2022 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2022-12-30')
END) AS year_close_price,
CASE WHEN (PE_Ratio * EPS) >
(CASE WHEN fm.Financial_Year = 2023 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND Price_Date = '2023-12-29')
WHEN fm.Financial_Year = 2021 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2021-12-31')
WHEN fm.Financial_Year = 2020 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2020-12-31')
WHEN fm.Financial_Year = 2019 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2019-12-31')
WHEN fm.Financial_Year = 2022 THEN
(SELECT ph.Close_Price
FROM price_history ph
WHERE ph.Ticker = fm.Ticker AND ph.Price_Date = '2022-12-30')
END) AS year_close_price,
```

Data Visualization



Data > Visuals > Insights

1. Summary page
2. Fundamental Analysis
3. Deep-down Analysis

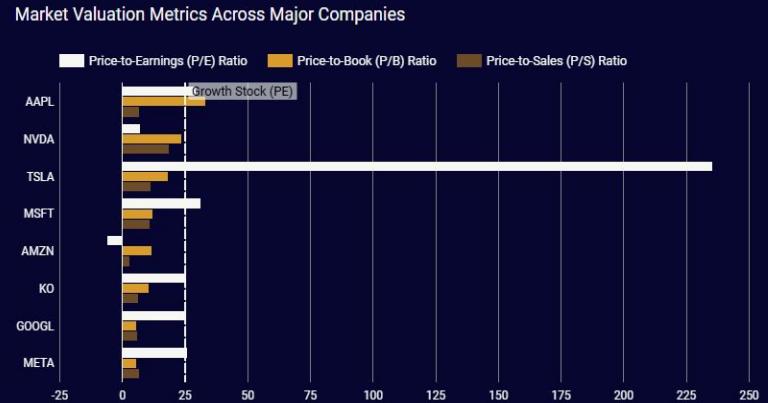
The screenshot shows a Looker Studio dashboard titled "Stock Analysis Final Project Dashboard by Group 2". The dashboard has a dark theme with a header bar containing file navigation, search, and filter controls. Below the header, there are several cards: one titled "Stock Capitalization Analysis", another titled "Fundamental Analysis", and a third titled "Final Analysis" which is highlighted with a blue rounded rectangle. To the right of these cards is a sidebar with a "Currently Showing" section. At the bottom right of the dashboard area, there is a "next slide" button with a right-pointing arrow.

Market Trend Analysis

TSLA : Very high P/E ratio, indicating overvaluation or high growth expectations.

AMZN : Negative P/E ratio, likely due to losses or exceptional cases in earnings.

META, NVDA, MSFT, AAPL : Moderate valuation metrics, suggesting stability and consistent performance.



Growth Analysis

- Strong growth stocks : **META**, **MSFT**, and **NVDA** (High margins + Low PEG).
- Weak candidates : **TSLA**, **AMZN** (low margins + negative PEG).

Identifying Undervalued Growth Stock



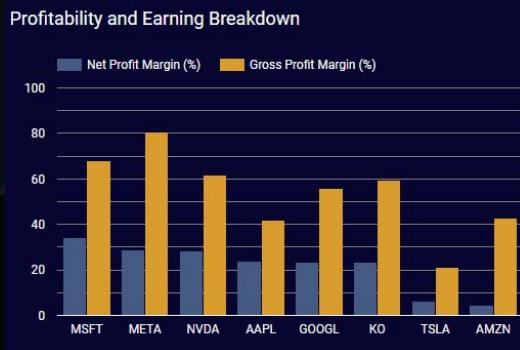
Operational Efficiency Across Companies



Earning and Profitability

Analysis

- **META** and **MSFT** dominate in both profitability and earnings metrics, reflecting strong financial health.
- **AMZN** and **TSLA** may not be favorable for dividend-focused investors due to low profitability.

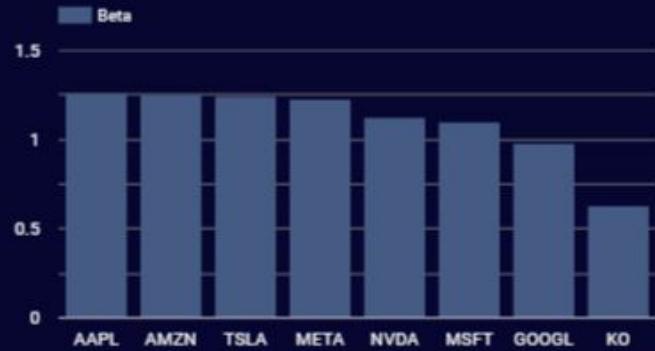


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Risk Analysis

- **TSLA, AMZN, NVDA** representing high-risk, high-reward opportunities.
- **KO** is safer bets with lower volatility and debt exposure.

Risk Analysis



next slide →

Summary of Analysis Insights

Market Trends	TSLA (overvaluation) vs. META/NVDA (reasonable).
Growth	META , MSFT are leaders; AMZN/TSLA struggle.
Profitability	META and MSFT are standout performers.
Risk	TSLA and NVDA are high-risk, KO and AAPL are safe investments.

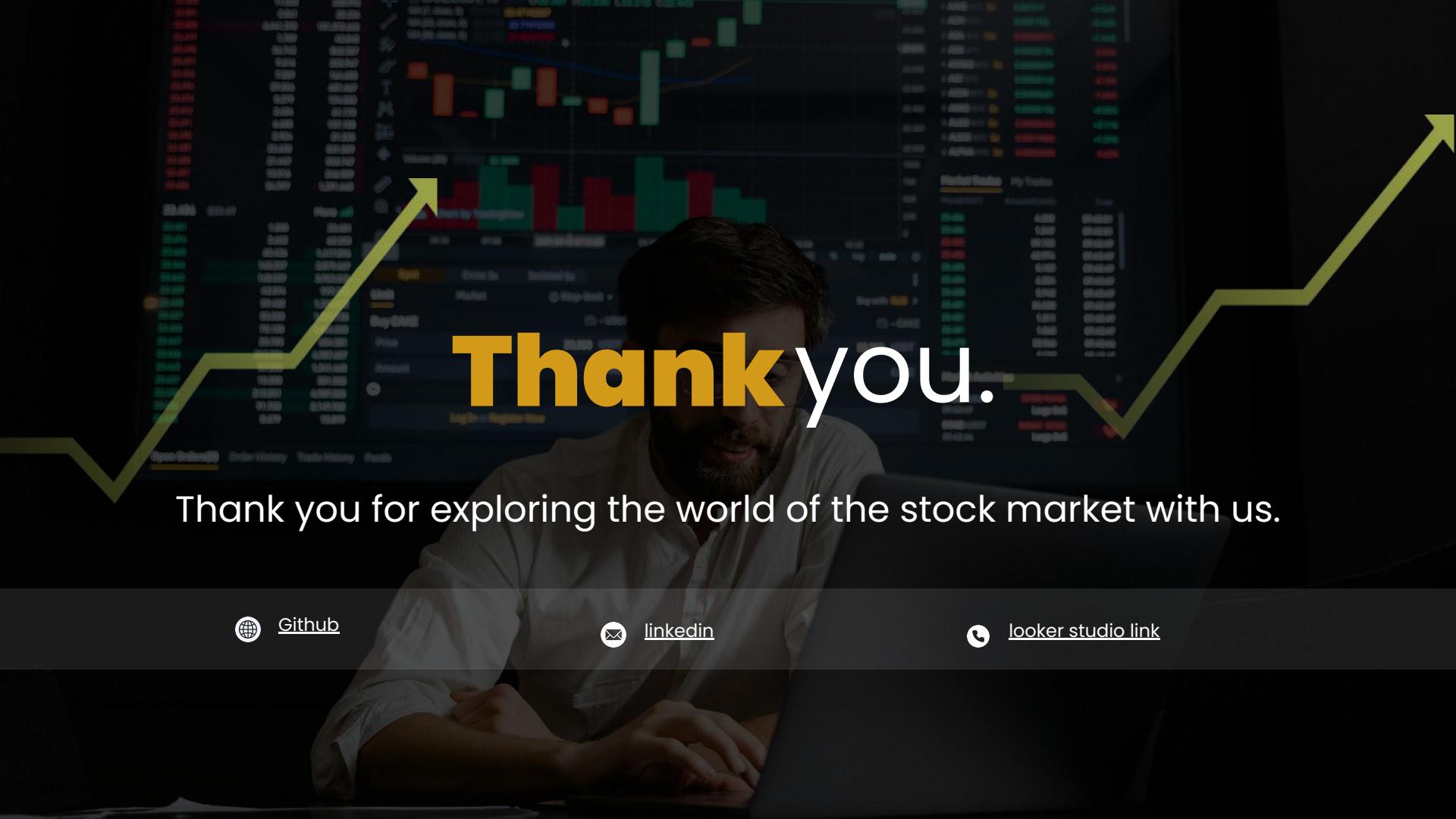
Investment

Recommendation

Growth Investors : Focus on **META**, **MSFT**, and **NVDA**.

Risk-Free Investors : Consider **KO** and **AAPL** for stable returns.

Speculative Investors : **TSLA** offers high risk and potential high reward.



Thank you.

Thank you for exploring the world of the stock market with us.



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Q&A

Session

Your Questions

Our Insights!

next slide →