

Financial_Analysis

March 30, 2025

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[2]: import pandas as pd

df = pd.read_csv('data.csv')

# Year-over-Year Revenue and Net Income Change (%)
df['Revenue Growth (%)'] = df.groupby(['Company'])['Total Revenue'].
    .pct_change() * 100
df['Net Income Growth (%)'] = df.groupby(['Company'])['Net Income'].
    .pct_change() * 100

# Year-over-Year Liabilities and Assets Change (%)
df['Liabilities Change (%)'] = df.groupby(['Company'])['Total Liabilities'].
    .pct_change() * 100
df['Assets Change (%)'] = df.groupby(['Company'])['Total Assets'].pct_change()
    .pct_change() * 100

# Year-over-Year Cash Flow Change (%)
df['Cashflow Change (%)'] = df.groupby(['Company'])['Cash Flow from Operating
    .pct_change() * 100

print(df.columns)
print(df)
```

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Index(['Company', 'Year', 'Total Revenue', 'Net Income', 'Total Assets',
      'Total Liabilities', 'Cash Flow from Operating Activities',
      'Revenue Growth (%)', 'Net Income Growth (%)', 'Liabilities Change (%)',
      'Assets Change (%)', 'Cashflow Change (%)'],
      dtype='object')
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	Company	Year	Total Revenue	Net Income	Total Assets \
0	MICROSOFT	2022	198270	72738	364840
1	MICROSOFT	2023	211915	72361	411976
2	MICROSOFT	2024	245122	88136	512163
3	APPLE	2022	394328	99803	352755
4	APPLE	2023	383285	96995	352583
5	APPLE	2024	391035	93736	364980
6	TESLA	2022	81462	12556	82338

7	TESLA	2023	96773	14997	106618
8	TESLA	2024	97690	7091	122070

	Total Liabilities	Cash Flow from Operating Activities	Revenue Growth (%)	\
0	198298	89035	NaN	
1	205753	87582	6.882030	
2	243686	118548	15.669962	
3	302083	122151	NaN	
4	290437	110543	-2.800461	
5	308030	118254	2.021994	
6	36440	14724	NaN	
7	43009	13256	18.795267	
8	48390	14923	0.947578	

	Net Income Growth (%)	Liabilities Change (%)	Assets Change (%)	\
0	NaN	NaN	NaN	
1	-0.518299	3.759493	12.919636	
2	21.800417	18.436183	24.318650	
3	NaN	NaN	NaN	
4	-2.813543	-3.855232	-0.048759	
5	-3.359967	6.057424	3.516052	
6	NaN	NaN	NaN	
7	19.440905	18.026894	29.488207	
8	-52.717210	12.511335	14.492862	

	Cashflow Change (%)
0	NaN
1	-1.631942
2	35.356580
3	NaN
4	-9.502992
5	6.975566
6	NaN
7	-9.970117
8	12.575438

1 Summary of findings

Please note that 2022 has NAN values. For that reason, the analysis will focus on 2023 to 2024 only.

Microsoft: Revenue, Net Income, Total Assets, Total Liabilities and Cash Flow from Operating Activities all increased from 2023 to 2024. Revenue increased by 15.67%, Net Income increased by 21.80%, Total Liabilities increased by 18.44%, Total Assets increased by 24.32%, and Cash Flow from Operating Activities increased by 35.36%.

Apple Revenue, Total Liabilities, Total Assets and Cash Flow from Operating Activities increased from 2023 to 2024, while Net Income decreased. Revenue increased by 2.02%, Total Liabilities

increased by 6.06%, Total Assets increased by 3.52%, and Cash Flow from Operating Activities increased by 6.98%, while Net Income decreased by 3.36%.

Tesla Revenue, Total Liabilities, Total Assets, and Cash Flow from Operating Activities increased from 2023 to 2024, while Net Income decreased. Revenue increased by 0.95%, Total Liabilities increased by 12.51%, Total Assets increased by 14.49%, and Cash Flow from Operating Activities increased by 12.58%, while Net Income decreased by 52.72%.

2 Methodology for Financial Data Analysis

I performed the following steps to analyze the financial data for Microsoft, Apple, and Tesla:

1. **Data Extraction:** I manually extracted the following financial figures for Microsoft, Apple, and Tesla for the last three fiscal years from their 10-K filings on the SEC's EDGAR database:
 - Total Revenue
 - Net Income
 - Total Assets
 - Total Liabilities
 - Cash Flow from Operating Activities
2. **Data Organization:** The extracted data was organized into an Excel spreadsheet with columns for Company, Year, Total Revenue, Net Income, Total Assets, Total Liabilities, and Cash Flow from Operating Activities. This spreadsheet was then saved as a CSV file ("Financial_Data_Analysis.csv") for use in the Python analysis.
3. **Year-over-Year Percentage Change Calculation:** I used Python and the pandas library to calculate the year-over-year percentage change for each financial metric. The formula used for calculating the percentage change is:
 - $\text{Percentage Change} = ((\text{New Value} - \text{Old Value}) / \text{Old Value}) * 100$
4. **Trend Analysis:** I analyzed the trends in these metrics from 2023 to 2024. The 2022 data was excluded from the year-over-year analysis as it resulted in NaN values.

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