Financial_Analysis

March 23, 2025

[1]:
```
import pandas as pd


df = pd.read_csv('/Users/agathasantos/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()␣
 ↪* 100

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

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

```
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')
     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
```

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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:
   - Percentage Change = ((New Value - Old Value) / 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.