```python
import pandas as pd
```

```python
df = pd.read_csv('/Users/dipaksairamesh/Desktop/Projects/Python Projects/BCG - GenAI/Company_Financial_Data.csv')
```

```python
df
```

	Fiscal Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow from Operating Activities	Company
0	2021	168088	61271	333779	191791	76740	Microsoft
1	2022	198270	72738	364840	198298	89035	Microsoft
2	2023	211915	72361	411976	205753	87582	Microsoft
3	2021	53823	5519	62131	30548	11497	Tesla
4	2022	81462	12556	82338	36440	14724	Tesla
5	2023	96773	14974	106618	43009	13256	Tesla
6	2021	365817	94680	351002	287912	104038	Apple
7	2022	394328	99803	352755	302083	122151	Apple
8	2023	383285	96995	352583	290437	110543	Apple

```python
df['Revenue Growth (%)'] = df.groupby(['Company'])['Total Revenue'].pct_change() * 100
```

```python
df
```

	Fiscal Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow from Operating Activities	Company	Revenue Growth (%)
0	2021	168088	61271	333779	191791	76740	Microsoft	NaN
1	2022	198270	72738	364840	198298	89035	Microsoft	17.956071
2	2023	211915	72361	411976	205753	87582	Microsoft	6.882030
3	2021	53823	5519	62131	30548	11497	Tesla	NaN
4	2022	81462	12556	82338	36440	14724	Tesla	51.351653
5	2023	96773	14974	106618	43009	13256	Tesla	18.795267
6	2021	365817	94680	351002	287912	104038	Apple	NaN
7	2022	394328	99803	352755	302083	122151	Apple	7.793788
8	2023	383285	96995	352583	290437	110543	Apple	-2.800461

```python
df['Net Income Growth (%)'] = df.groupby(['Company'])['Net Income'].pct_change() * 100
```

```python
df
```

	Fiscal Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow from Operating Activities	Company	Revenue Growth (%)	Net Income Growth (%)
0	2021	168088	61271	333779	191791	76740	Microsoft	NaN	NaN
1	2022	198270	72738	364840	198298	89035	Microsoft	17.956071	18.715216
2	2023	211915	72361	411976	205753	87582	Microsoft	6.882030	-0.518299
3	2021	53823	5519	62131	30548	11497	Tesla	NaN	NaN
4	2022	81462	12556	82338	36440	14724	Tesla	51.351653	127.504983
5	2023	96773	14974	106618	43009	13256	Tesla	18.795267	19.257725
6	2021	365817	94680	351002	287912	104038	Apple	NaN	NaN
7	2022	394328	99803	352755	302083	122151	Apple	7.793788	5.410858
8	2023	383285	96995	352583	290437	110543	Apple	-2.800461	-2.813543

```python
df.fillna(0, inplace=True)
```

```
df
```

	Fiscal Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow from Operating Activities	Company	Revenue Growth (%)	Net Income Growth (%)
0	2021	168088	61271	333779	191791	76740	Microsoft	0.000000	0.000000
1	2022	198270	72738	364840	198298	89035	Microsoft	17.956071	18.715216
2	2023	211915	72361	411976	205753	87582	Microsoft	6.882030	-0.518299
3	2021	53823	5519	62131	30548	11497	Tesla	0.000000	0.000000
4	2022	81462	12556	82338	36440	14724	Tesla	51.351653	127.504983
5	2023	96773	14974	106618	43009	13256	Tesla	18.795267	19.257725
6	2021	365817	94680	351002	287912	104038	Apple	0.000000	0.000000
7	2022	394328	99803	352755	302083	122151	Apple	7.793788	5.410858
8	2023	383285	96995	352583	290437	110543	Apple	-2.800461	-2.813543

```
df.to_csv('Analysis-Revenue&NetIncome.csv')
```

```
df['Assets Growth (%)'] = df.groupby(['Company'])['Total Assets'].pct_change() * 100
df['Liabilities Growth (%)'] = df.groupby(['Company'])['Total Liabilities'].pct_change() * 100
df['Cash Flow from Operating Activities Growth (%)'] = df.groupby(['Company'])['Cash Flow from Operating Activities'].pct_change() * 100
```

```
df
```

	Fiscal Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow from Operating Activities	Company	Revenue Growth (%)	Net Income Growth (%)	Assets Growth (%)	Liabilities Growth (%)	Cash Flow from Operating Activities Growth (%)
0	2021	168088	61271	333779	191791	76740	Microsoft	0.000000	0.000000	NaN	NaN	NaN
1	2022	198270	72738	364840	198298	89035	Microsoft	17.956071	18.715216	9.305858	3.392756	16.021631
2	2023	211915	72361	411976	205753	87582	Microsoft	6.882030	-0.518299	12.919636	3.759493	-1.631942
3	2021	53823	5519	62131	30548	11497	Tesla	0.000000	0.000000	NaN	NaN	NaN
4	2022	81462	12556	82338	36440	14724	Tesla	51.351653	127.504983	32.523217	19.287678	28.068192
5	2023	96773	14974	106618	43009	13256	Tesla	18.795267	19.257725	29.488207	18.026894	-9.970117
6	2021	365817	94680	351002	287912	104038	Apple	0.000000	0.000000	NaN	NaN	NaN
7	2022	394328	99803	352755	302083	122151	Apple	7.793788	5.410858	0.499427	4.921990	17.409985

```
df.fillna(0, inplace=True)
```

```
df
```

	Fiscal Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow from Operating Activities	Company	Revenue Growth (%)	Net Income Growth (%)	Assets Growth (%)	Liabilities Growth (%)	Cash Flow from Operating Activities Growth (%)
0	2021	168088	61271	333779	191791	76740	Microsoft	0.000000	0.000000	0.000000	0.000000	0.000000
1	2022	198270	72738	364840	198298	89035	Microsoft	17.956071	18.715216	9.305858	3.392756	16.021631
2	2023	211915	72361	411976	205753	87582	Microsoft	6.882030	-0.518299	12.919636	3.759493	-1.631942
3	2021	53823	5519	62131	30548	11497	Tesla	0.000000	0.000000	0.000000	0.000000	0.000000
4	2022	81462	12556	82338	36440	14724	Tesla	51.351653	127.504983	32.523217	19.287678	28.068192
5	2023	96773	14974	106618	43009	13256	Tesla	18.795267	19.257725	29.488207	18.026894	-9.970117
6	2021	365817	94680	351002	287912	104038	Apple	0.000000	0.000000	0.000000	0.000000	0.000000
7	2022	394328	99803	352755	302083	122151	Apple	7.793788	5.410858	0.499427	4.921990	17.409985

```
summary = df.groupby('Company').agg({
    'Revenue Growth (%)': 'mean',
    'Net Income Growth (%)': 'mean',
    'Assets Growth (%)' : 'mean',
    'Liabilities Growth (%)' : 'mean',
    'Cash Flow from Operating Activities Growth (%)' :'mean'
}).reset_index()
```

```
summary
```

	Company	Revenue Growth (%)	Net Income Growth (%)	Assets Growth (%)	Liabilities Growth (%)	Cash Flow from Operating Activities Growth (%)
0	Apple	1.664442	0.865772	0.150223	0.355586	2.635664
1	Microsoft	8.279367	6.065639	7.408498	2.384083	4.796563
2	Tesla	23.382306	48.920903	20.670475	12.438191	6.032692

```
summary.to_csv('Summary_Report_Data.csv')
```

Summary of Financial Analysis Findings over 3 year fiscal period

- **Revenue Growth Trends:**
  - Apple showed a modest average revenue growth of 1.664442%.
  - Microsoft had a higher average revenue growth rate of 8.279367%.
  - Tesla had a substantial average revenue growth of 23.382306%.
- **Net Income Growth Trends:**
  - Apple's net income growth averaged 0.865772%.
  - Microsoft and Tesla also showed varying net income growth rates, 6.0656639% and 48.920903% respectively, indicating differing levels of profitability and cost management efficiency.
- **Assets and Liabilities Growth:**
  - Apple's assets grew on average by 0.150223%, while liabilities growth was minimal at 0.355586%, suggesting stable financial management.
  - Microsoft and Tesla revealed more significant fluctuations in asset and liability growth rates, reflecting different investment or financial strategies.
- **Cash Flow from Operating Activities:**
  - Growth rates varied significantly among companies, with some showing strong growth in operational cash flow, indicating robust operational health.

Analysis Narratives

- **Revenue and Net Income Growth:**
  - The analysis indicates a general trend of growth in revenue across the companies, with Microsoft showing a particularly strong increase. This suggests effective market penetration and product acceptance.
  - Net income growth rates are less consistent, which could reflect varying cost structures and operational efficiencies. Apple's relatively stable net income growth suggests effective cost management despite modest revenue growth.
- **Asset Management:**
  - The asset growth rates are generally low, suggesting cautious capital management. Companies with minimal growth in liabilities alongside asset growth are likely improving their financial leverage and stability.
- **Operational Efficiency:**
  - Variations in cash flow from operating activities growth rates highlight differences in operational efficiency and cash management strategies among the companies. High growth in this area typically indicates more efficient operations and better cash management.