# Final Data Translation Challenge

## Introduction

The primary objective of this analysis is to assess the financial performance and health of Costco Wholesale Corp (COST). The insights from this financial analysis will be used to provide an effective investment strategy.

Costco Wholesale Corporation is a prominent American multinational corporation within the retail industry. It operates a chain of membership-only big-box warehouse club retail stores that serves both individual customers and small- to medium-sized businesses. Costco was founded in the 1980s by Jim Sinegal and Jeffrey H. Brotman, and opened its first store in Seattle, Washington. Costco’s current CEO and director is Craig Jelinek. As of 2/22/2024, Costco Wholesale operates 875 warehouses worldwide and boasts over 129.5 million members. With the report of annual net sales of $237.7B, it was ranked as the third-largest retailer globally.

The data utilized in this analysis has been sourced from the EDGAR database. To maintain consistency, the timeframe and dataset used for comparison have been carefully aligned. The analysis primarily examines data from Form 10-K and Form 10-Q filings, which offer detailed insights into a company's financial performance on an annual and quarterly basis. To ensure the integrity of the data, any duplicate records have been meticulously removed, and only the latest filed information has been considered. The three key financial ratios -- Current ratio, D/E, and Net Profit Margin -- have been strategically selected for their significance in evaluating crucial aspects and offer valuable insights for investment opportunities. Additionally, this analysis examines revenues, assets, and liabilities to provide a comprehensive understanding of Costco Wholesale Corp’s financial performance and health.

I also I hope that this analysis will provide comprehensive financial insights to guide investment decisions and aid in the allocation of $100,000 for further in-depth analysis.

## Data Retrieval

#### EDGAR API Data Retrieval Process

Data used in this analysis is sourced from the SEC EDGAR database through the "data.sec.gov" platform, which hosts RESTful APIs in JSON-format. The User-Agent specified in the request headers for this connection is “sberg@seattleu.edu”. The initial API call was made to retrieve all company data from <https://www.sec.gov/files/company_tickers.json>. Using the obtained tickers, I then retrieved the Central Index Keys (cik\_str) to retrieve the filling history from the company facts for both Appl Inc (0000320193) and Kroker Co. (0000056873) through API connection to [https://data.sec.gov/api/xbrl/companyfacts/CIK##########.json](https://data.sec.gov/api/xbrl/companyfacts/CIK##).

For each file obtained from SEC EDGAR database, data structure and the content were examined. Univariate visualization and summary statistics were used to understand the data relationship, identify trends, check for patterns or anomalies, and assess the need for data cleanup. Any duplicated data found were removed. For this analysis, our focus will be on data extracted from the 10-K Form, and the data between 2017-2023. The following is a list of filling files retrieved for this analysis.

* **RevenueFromContractWithCustomerExcludingAssessedTax**: This data provides revenue information.
* **Assets**: This data provides the total assets as of the balance sheet.
* **AssetsCurrent**: This data provides current assets as of the balance sheet.
* **Liabilities**: This data provides sum of the carrying amounts as of the balance sheet date of all liabilities that are recognized.
* **LiabilitiesCurrent:** This data provides total obligations incurred as part of normal operations that are expected to be paid during the following twelve months or within one business cycle.
* **StockholdersEquity:** This data provides total of all stockholders' equity.
* **NetIncomeLoss**: This data provided the portion of profit or loss for the period.

#### Financial Ratios

#### Apple Inc.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Current Ratio** | **D/E** | **ROE** | **Asset Turnover Ratio** | **Equity Ratio** |
| 2017 | 1.276 | 1.800 | 0.361 |  | 0.357 |
| 2018 | 1.133 | 2.413 | 0.556 | 0.717 | 0.293 |
| 2019 | 1.540 | 2.741 | 0.611 | 0.739 | 0.267 |
| 2020 | 1.364 | 3.957 | 0.879 | 0.829 | 0.202 |
| 2021 | 1.075 | 4.564 | 1.501 | 1.084 | 0.180 |
| 2022 | 0.879 | 5.962 | 1.970 | 1.121 | 0.144 |
| 2023 | 0.988 | 4.673 | 1.561 | 1.087 | 0.176 |

#### Kroger Co.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Current Ratio** | **D/E** | **ROE** | **Asset Turnover Ratio** | **Equity Ratio** |
| 2017 | 0.804 | 4.448 | 0.295 |  | 0.183 |
| 2018 | 0.783 | 4.371 | 0.275 | 7.207 | 0.186 |
| 2019 | 0.757 | 3.840 | 0.394 | 6.909 | 0.207 |
| 2020 | 0.765 | 4.264 | 0.193 | 6.585 | 0.190 |
| 2021 | 0.814 | 4.084 | 0.270 | 7.790 | 0.197 |
| 2022 | 0.746 | 4.196 | 0.175 | 8.068 | 0.193 |
| 2023 | 0.735 | 3.944 | 0.223 | 7.766 | 0.202 |

#### Data Analysis and Visualizations

#### Apple Inc.

**Current Ratio** = Current Assets / Current Liabilities

A graph with a line and a line

Description automatically generated with medium confidence

Apple Inc.’s average current ratio between 2017-2023 was around 1.2. Their current ratios exceeded 1 for the majority during these years indicates that they had sufficient liquid assets to cover their short-term obligations. However, in recent years, Apple shows a decline in the current ratio compared to earlier periods. The subsequent downward trend from the end of 2019 to the end of 2022 when it dropped below 1 has raised concerns about their future financial standing, specifically regarding short-term solvency risk. A current ratio decrease below 1 indicates negative working capital, which raises concerns on their ability to fund the day-to-day operations, and implies operational inefficiency in managing current assets and current liabilities.

**Debt-to-Equity Ratio (D/E)** = Total liabilities / Total shareholders' Equity

A graph showing a line going up

Description automatically generated

Apple Inc.’s Debt-to-Equity steadily increase between 2013 to the end of 2022. This suggests that Apple was in a risky financial position, with their liabilities increasing for every dollar of shareholder equity. This trend could be interpreted as Apple having an unstable capital structure or a reduction in solvency, futher indicating an increasing reliance on external liability relative to equity. The reduction in solvency raises concerns about their ability to cover their obligations from their equity.

**Equity Ratio**

A graph with a line going up

Description automatically generated

Apple’s equity ratio had a downward trend but increased after the end of 2022 with an average of 0.23. The decrease in equity ratio suggests the company has been leveraging its debts rather than equity from shareholders. This also indicates the company is taking more risk in funding their asset requirements.

**Return on Equity Ratio (ROE)** = Net Income / Shareholder Equity

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Description automatically generated

Apple’s Return on Equity gradually increased between 2017 to the end of 2018 with approximately 10% growth. A significantly increased in their ROE can be observed between the end of 2019 to 2022 at an average 48.64% increase rate. This indicates that Apple performed very well during these four years, as the increase in ROE reflects Apple’s ability to efficiently turn shareholder equity into net income and effectively use equity capital to generate profits. However, the drop after 2022 signals a change in their direction and we need to continue monitoring their financial status to assess whether this trend will persist, including looking for signals of potential sustained decline, and whether Apple can reverse the trend and increase their ROE in the following year.

**Asset Turnover Ratio** = Total Revenue / (Beginning Assets + Ending Assets)/2)

A graph of a graph showing the growth of a company

Description automatically generated with medium confidence

Apple’s asset turnover ratio gradually increasing YoY with a jump of approximately 30.79% between 2020-2021 suggests the company was able to generate more revenues during this time. It does not appear, however, to have a lasting effect but has remained flat over the past few years. This suggest that the spike could be due to the release of new Apple’s products or services at this period.

#### Kroger Co.

**Current Ratio**

A graph with a line and a green line

Description automatically generated with medium confidence

Kroger Co.’s current ratio between 2017-2022 has been below 1 and lower in the recent year of 2023 falling below their average of 0.77 over the past 6 years. This indicates that Kroger may have acquired more inventory or debt. This could mean more investment and potential growth; however it could signal that the company are having difficulty meeting their current obligations.

**Debt-to-Equity Ratio (D/E)**

A graph with a line

Description automatically generated

Kroger’s Debt-to-Equity ratio has remained consistent with an average around 4.14. This ratio has decreased in the past few years, however, which suggests a recent reduction in the company’s debt levels.

**Equity Ratio**

A graph showing a line

Description automatically generated

Kroger’s equity ratio has shown consistency between 2017-2023, averaging around 0.19. The peaks in their equity ratio occurred in 2019 and 2023, reaching approximately 0.20. The lower equity ratio implies that the company is more likely to take risks by utilizing debt to acquire assets.

**Return on Equity Ratio (ROE)** A graph with a line

Description automatically generated

Kroger’s return on equity remains relatively stable before 2018 and then experienced a siginificant increase of approximately 43.33% between 2018-2019. The increase in ROE indicates a boost in profit generation during that period. However, their equity ratio exhibited flutuations after 2019 signifies that the= increase in 2018 might have been influenced by a major event that occurred around that time but did not have a lasting impact.

**Asset Turnover Ratio**

A graph with numbers and lines

Description automatically generated

Kroger’s asset turnover ratio did better after 2020 than the prior year indicating that the company is effectively using their assets to generate sales. There is a noticeable increase in their asset turnover ratio between 2020 to 2021 and the ratio continues increasing in 2022 before trending down in 2023.

## Conclusion

Financial ratios for both Apple Inc. and Kroger have remained relatively consistent in the year prior to 2018. Both companies are also taking risks, relying more on borrowing from external resources to fund assets rather than utilizing shareholder equity. Based on current ratios, Apple appears to be in a better financial position with sufficient liquid capital to cover short-term obligations. However, downward trends in the recent year have caused concerns about their future standing and this is something we should continue monitoring to observe the company’s solvency status. The return on equity coupled with the asset turnover ratio shows a positive signal for Apple’s financial standing as we can see a boost after 2020 and continues until 2023, however, the return on equity ratio drops afterward. The increase in return on equity could be due to the release of new products and services as Apple operates in the highly competitive market and relies on their consumer demand which can fade away over time.

For Kroger, an increase in debt has impacted current ratios. This could be due to increased obligations related to maintaining their operations and an additional Kroger delivery customer fulfillment center opened during 2022 as stated in Form 10-K (Co., 2023), which also has potential to spur growth in their business and future financial opportunities. Kroger’s return on equity and equity ratio had a noticeable boost during 2018 and 2019, however return on equity fluctuated afterwards, which indicates the earlier increase may be due to a specific event. For example, the pandemic may have led to an increase in consumer consumption. Kroger’s asset turnover ratio has increased YoY since 2020 suggesting that they are more effective at using their assets to drive sales than in prior years.

In summary, both Apple and Kroger’s financial health appears to be positive. Kroger may be a better investment opportunity for those who are looking for a stable investment with low volatility over time. It also has growth opportunities in 2024 given an in-progress merger with Albertson and expansion of their delivery customer fulfillment centers. Apple’s financials fluctuate more and appear to react to release of new or upgraded products and services. Apple could be a good fit for those investors who believe in Apple products and technology and have the time to benefit from share price increases as products are released over time.

# References

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