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Comparison of Three Different Companies in the US. Retail Industry Based on Beta (β-risk) Analysis and Financial Statement Analysis: Costco vs. Walmart vs. Target

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Abstract: The purpose of this paper is to analyze the capital structure, business risk (levered vs. unlevered beta β), and financial statements in the U.S. grocery retailers to determine how their unique capital structure, risks, and financial characteristics explain the differences in their performance and investment returns. We chose three U.S. grocery stores: Costco, Walmart, and Target, each with a unique business structure. We conducted a detailed beta (β) analysis, both leveraged and unleveraged, as well as a dedicate financial statement analysis focused on ratio analysis. Liquidity, profitability, and solvency abilities were examined to determine if they depend on each retailer's specific capital structure, risks, and characteristics, and how they would affect investors' investment decisions. Our results reveal that the capital structure, or the level of financial leverage, and size of market capitalization play key roles in determining a company's levered and unlevered beta (β). In addition, we found that Target has the highest investment return but exhibits substantially weaker sales and has a high liquidity risk. Costco exhibits significant low margins in both gross and operating, but has a lower level of debt and a greater ability to generate free cash flow. Walmart has the largest market capitalization, the lowest business risk (β) and return, but the large amount of debts it currently holds limits its free cash flow and ability to grow rapidly. Above all, it is advisable to invest in Costco rather than Target and Walmart under today's unprecedented (post) Covid-19 pandemic context.

Keywords: grocery retailers, capital structure, business risk (β) analysis, financial statement analysis, investment decision

1. Introduction

1.1. Background

The U.S. grocery retailing industry is constantly changing. Competitions continue to be intensively driven by several giant players with low profit margins. History shows that chain retailers achieving economies of scale, consumer 'share of mind', and an enduring loyalty program can bring investors improved returns that last for decades. Top participants in the U.S. grocery retailers include Amazon, Walmart (including Sam's Club), Kroger, Costco, Target, Albertsons, and Publix [1]. In recent years, the fast-developing Internet technologies, smartphone penetrations, and Covid-19 pandemic have

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accelerated the development of e-commerce. Consequently, most traditional bricks-and-mortar retailers have successfully transformed to clicks-and-mortar model. Also, social media channels such as Facebook, Instagram, and email subscriptions have become mainstreams for marketing at a much lower cost compared to traditional TV advertising.

According to a recent study by USDA Economic Research Service [2], grocery stores in United State, including supermarket and smaller convenience stores, accounted for the largest share of store sales, around 92.1 percent in 2019. The study noted that grocery store food sales increased following the 2007 – 2009 Great Recession – a period of economic uncertainty in which traditional grocery retailers experienced negative inflation-adjusted growth. Since 2010, grocery store food sales growth exceeded the rate of inflation. Inflation-adjusted food sales growth from 2010 to 2019 averaged 1.31 percent per year, compared with -0.19 percent per year from 2000 to 2009. Advanced estimates in the U.S.retail and food services sales for December 2022 from the U.S. Census Bureau [3] were up 6.0 percent above December 2021 not adjusted for price changes. As the inflation closed out 2022 with a 6.5 percent annual reading, as measured by the consumer price index [4], the inflation-adjusted growth for year 2022 on U.S. grocery sales turned negative again under the Covid-19 disruption since 2020.

1.2. Literature Review

Regarding the analysis of the U.S. grocery industry in the 2020s: who will come out on top, Maamoun stated that a lack of switching costs and limitations in product differentiation leads to buyer mobility forcing retailers to maintain attractive pricing schemes, ultimately, the retailer that responds proactively to changing customer preferences and serves them in the best possible way will survive and thrive. Millennials prefer small grocery stores compared to big box retailers and are more value & health consciousness with an increasing demand for ethical and organic range of goods, this leads to the growth of a new group of highly focused small grocers targeting on niche market across the country by selling organic and other niche groceries online. Aldi, a small grocer originated from Germany, relies on exclusive private store brands to boost store loyalty, enhance image and draw in customers. With improved quality control under its small size, more pricing flexibility, and fewer restrictions on product display and promotion, the grocer earns potentially greater gross margin opportunities [5].

Fidel and John use Prisoner's Dilemma game model theory and an empirical analysis applying the Profit Concentration Model (PCM) to assess whether market concentration in grocery retailing affects retailers' prices to demonstrate the existence of cooperative collusion among retail chains. According to game theory analysis, collusion within an oligopoly industry, e.g., grocery retailing has a high degree of concentration. Since a retailer's profit is related to price, it means that retailers tend to adopt cooperative games to obtain higher profits. The PCM model shows that market concentration is positively dependent on store size, population, population growth, average household income, past profits of stores, and metropolitan area. Higher concentration of food markets leads to higher average food prices, suggesting that high concentration may lead to price collusion among retailers. It was pointed out that food prices may fall as the number of stores in an area increases, possibly due to increased supply and competition, so that stores located in metropolitan areas tend to be less expensive compared to non-metropolitan areas [6].

An equilibrium analysis between bricks-and-mortar (B) and clicks-and-mortar (C) was conducted by Fernando, Jing-Sheng, and Xiaona. The study shows that in an oligopoly industry, C model becomes the new equilibrium and is a dominant strategy for any retailer. Those who remain as B retailers will lose market shares to C retailers.

When all retailers adopt a dual channel, in equilibrium they keep the same retail price and choose the lower online price, so their total market share is the same as they would be as a pure traditional

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retailer. This balance doesn't necessarily mean higher margins for retailers, rather, it emerges as a strategic imperative because consumers are often better off with this new model. When it comes to the effect of Internet penetration on industry equilibrium, it was found that as the additional market reached by Internet usage increases, firms' profit from online sales increases. but at the same time their profit from the original market decreases. In addition, Internet prices are lower than store prices due to expanded consumer reach and reduced transaction costs. In return, the additional Internet model allows a retailer to charge higher store prices and capture a greater total market share, resulting in higher profits [7].

Knowing how to use technology as a tool to reinvent company brand and engage with shoppers' expectations is becoming important to modern marketers according to Dr. S. Catherine & Dr. S. Joyce. Augmented reality (AR), one such technology that overlays images and data on user's view of real world through dedicated gear like headsets and smart glasses or with smartphones, is creeping and implemented in today's marketing strategies that incentivizes business growth [8].

Peter and Ming discussed that smart companies perceive opportunities rather than threats during a recession to outmaneuver rivals and become leaders in the market. These companies developed value-for-money strategies: they grew by delivering products and services that enabled customers to do more with the same resources (effectiveness); to do the same with fewer resources (efficiency); or to do less with far fewer resources (frugality). The research suggests that instead of refining cost-cutting techniques, companies should develop cost-innovation capabilities by reengineering their cost structures to offer customers dramatically more for less to unlock market of value-conscious customers [9].

1.3. Objectives and Framework

The research is based on U.S. grocery retail industry. The following are the key aspects on which this research aims to focus on: 1. factors that determine a company's business risk β with and without effect of debt, and its impact on the company's cost of capital and return to investors; 2. Calculate and compare ratios of the selected three retailers Costco, Walmart, and Target, eventually provide an investment ranking among those three players.

The rest of the paper is organized as follows. Part 2 introduces sources of data collected and methods used for calculation. Part 3 displays all the calculation results along with a comparison and discussion. We discuss limitations and future outlooks in Part 4 and conclude the paper in Part 5.

2. Data & Method

2.1. Data Collected for Beta (β) Analysis

Most of the data used come from each company's 2021 audited financial report with a few from other sources. Market value of equity and market value of debt are to be calculated to get each company's enterprise value, leverage, and debt to equity ratio. When it comes to market value of equity, data on each company's stock price and number of basic shares outstanding on the last day of its 2021 fiscal year were collected. Book value of total liabilities was used as a base estimate with fair value adjustment on long-term debt to get market value of debt. It is assumed that book values of other liabilities ex. current liabilities, lease obligations, deferred income tax are approximately the same as fair values. Effective tax rate was selected for calculation of weighted average cost of capital and unlevered beta. βE was obtained directly from Yahoo Finance, alternatively, it can be achieved by dividing the covariance between market return and stock return over the variance of market return through regression. RE was estimated using CAPM with risk free rate being 2.17 percent according to 20-year U.S. treasury bond yield and market risk premium being 7 percent based on historical average. RD was estimated using effective yield in the U.S. Corporate bonds in similar rating.

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2.2. Calculation Formulae for Ratio Analysis

Ratio analysis, part of the financial statement analysis, is broadly used to assess a company's risks and performance relative to its peers and industry benchmark by removing the effect of size. It is a good analytical tool which is useful for investment decision making. In this paper, a few ratios are calculated to compare three retailers' liquidity, profitability, and solvency. Below are the formulae used:

Table 1: Formulae used for ratio analysis.

Liquidity: Current Ratio	= Current Assets (CA) / Current Liabilities (CL)
	CA: cash & equivalents, prepaid expense, AR, Inv.. CL: short-term debt, account payable, accrued liabilities and other debts
Quick Ratio	= (Cash & cash equivalents + Account Receivables) / Current Liabilities
Inventory Turnover	= Sales / Avg. (beg. Inventory + end. Inventory)
Account Payable (AP) Turnover	= Cost of Goods Sold (COGS) / Avg. (beg. AP + end. AP)
Days Inventory Outstanding	= 365 / Inventory Turnover
Days Account Payable Outstanding	= 365 / Account Payable Turnover
Profitability:	
Gross Profit Margin	= (Revenue - Cost of Goods Sold) / Revenue
Operating Profit Margin	= Earnings before Interest and Tax (EBIT) / Sales
Return on Asset	= [Net Income+ Interests*(1-Tax)] / Avg. (beg. Total Assets + end. Total Assets)
Return on Equity	= Net Income / Avg. (beg. Shareholder Equity + end. Shareholder Equity)
Earnings per Share (EPS)-basic	= Net Income / Weighted Average Number of Shares Outstanding (FY-2021)
Price/Earnings Ratio(P/E)	= Share price / Earnings per Share
Payout Ratio	= Dividends per Share/ Earnings per Share
Solvency:	
Interest Coverage Ratio	= Earnings before Interest and Tax (EBIT) / Interest expense

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3. Results & Discussion

3.1. Calculation Results

Table 2: Calculation results for Beta (β).

	Analysis & Ratio Analysis.		
	Costco	Walmart	Target
MV of equity	$ 198,971,470,500	$ 385,875,600,000	$ 102,582,227,470
MV of debt	$ 41,351,000,000	$ 157,683,000,000	$ 40,595,000,000
Cash&cash equivalents	$ 11,258,000,000	$ 14,760,000,000	$ 5,911,000,000
V	$ 229,064,470,500	$ 528,798,600,000	$ 137,266,227,470
D/V	0.18	0.30	0.30
D/E	0.21	0.41	0.40
Tc marginal	23.97%	25.40%	22.02%
βE	0.72	0.51	1.02
rf	2.17%	2.17%	2.17%
MRP	7%	7%	7%
rE	7.21%	5.74%	9.31%
rD	2.44%	2.44%	2.51%
WACC	6.24%	4.57%	7.14%
βA	0.62	0.39	0.77
rA(unlevered)	6.49%	4.88%	7.55%
Liquidity:			
current ratio	1.00	0.93	0.99
quick ratio	0.47	0.26	0.31
Inv. turnover	12.90	8.46	6.11
AP turnover	11.21	8.22	5.29
Days Inventory outstanding	0.00	43.16	59.78
Days AP outstanding	32.56	44.41	68.99
Profitability:			
gross profit margin	13%	25%	29%
operating profit margin	3%	5%	8%
ROA	9%	6%	14%
ROE	28%	17%	51%
EPS-basic	$ 11.30	$ 4.90	$ 14.23
P/E	39.85	28.55	15.30
Payout ratio	26%	45%	22%

Table 2: (continued).

Solvency:			
Interest coverage ratio	39.23	13.01	21.61

3.2. Comparison & Discussion

Beta measures a company's overall business risk. βE measures a company's volatility, or systematic risk, of its stock price movement relative to the movement of the overall market index. A βE more than one represents that the stock moves in more momentum compared to the index (usually S&P 500). Based on our calculation above, it was founded that a company's βE is negatively correlated to its market capitalization. The larger the market value of equity is, the lower the company's stock volatility is. This could be explained that as more shares are issued or price appreciates keeping other factors constant, the proportion of that company's equity value to the overall index value increases, as a result, the movement of that stock is closer to the movement of the market index, so volatility decreases. βA measures a company's market risk removing the effect of debt, also known as unlevered beta. βA is always less than βE as approved by our calculation. An explanation could be that as company removes debt financing, it has to raise capital using more equity financing, as a result, market value of equity increases, systematic risk βE decreases, therefore, βA < βE. Alternatively, as company uses more debt financing relative to equity financing, its volatility or systematic risk βE increases. Using the formula, βA = βE * (1 – L) / (1 – T * L) where L = D / V. L represents a company's level of leverage, 1 – L equals E/V, indicating % contribution of equity to enterprise value. T represents the effective tax rate, usually between 20% and 30%, therefore, T * L represents % contribution of tax shields from debt issuance to the increased value of the business. 1 – T * L measures the value of a business removing the effect of tax benefits from debt compared to the overall enterprise value. Mathematically, 0 < (1 – L) / (1 – T * L) < 1, as a result, βA < βE given that the coefficient is less than one. However, positive coefficient indicates that βA is positively correlated to βE. As βE increases, βA increases as well. Noted that the effective tax rate T is highest for Walmart, then Costco, and lowest for Target. It seems that the tax rate is factored by a company's ability in multination operation. The more diversification of international operation the company held, the higher the effective tax rate as government embeds more tax benefits on income earned domestically. RD, the required return on debt, depends on a company's credit rating. Higher the rating, lower the expected return from debtors. RE, the required return on equity, is estimated using CAPM model, re = rf + βE *(rm - rf). The risk-free rate and market risk premium are fixed and positive for three chosen companies. As a result, RE is positively correlated to βE, so βA, and negatively correlated to market capitalization. Higher the beta risk, higher the expected return from equity investors. Lower market value of equity results in higher beta risk hence higher expected return from equity investors as well. A company's market risk of debt is less than market risk of equity since debtors get fixed return as long as company has enough cash flow covering its interest expense. However, for equity holders, stock price fluctuates with company's performance vs. expected, released news, and changes in overall market conditions. Investors would require higher return on stock relative to debt given its increased risk and volatility. A company's weighted average cost of capital (WACC) represents on average the rate a company is expected to payback its security holders to finance its assets. Based on the formula, WACC= rd*wd*(1-T) + re*we. WACC is positively correlated to βs and negatively correlated to market capitalization & credit rating. The higher the credit rating and market value of equity the company has, the lower the return on assets investors demand. Also, investors expect higher paybacks on those in high beta risk. As investors require higher return on equity relative to

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debt (RE > RD), issuance of additional debt relative to equity lower a company's overall cost of capital. High tax rate reduces the tax benefit or return from debt financing resulting in lower WACC. The more diversified the company is in its multinational operation, the lower the return on assets investors demand. One explanation could be that retailers operating in multiple countries are usually giant retailers with higher market capitalization and lower beta risk compared to smaller retailers. Ra, the unlevered cost of capital removing the effect of debt, equals rf + βA *(rm - rf). Ra is positively correlated to βs, re, so WACC as well and negatively correlated to market capitalization. Ra is always greater than WACC as additional debt financing reduces a company's overall cost of capital. When it comes to the comparison of the three companies, Walmart has the largest market cap, lowest βs, and least required return from investors. It is one of the top grocery retailers worldwide with operations highly focused on oversea market especially in developing countries. The high effective tax rate and D/E ratio lower its overall cost of capital. Costco has the 2nd largest market cap, mid-level βs, and mid-level required return from investors. The company is mid-diversified with target mainly focused on families from North America. The tax rate and cost of capital are both in the mid-range. Noted that Costco has super low D/E ratio compared to its peers. The low debt limits a company's growth and deprives its value from tax shields. Reversely, high D/E ratio leads to high default risk. Target has the smallest market cap, highest βs and required return from investors. It is least diversified with stores only operated within U.S. The tax rate is lowest, and cost of capital is highest. The company has similar D/E ratio to Walmart. Removing its high reliance on debt would decrease the company's value and increase its overall cost of capital.

Liquidity ratios reflect a company's ability to repay its short-term debt obligations. In our study, liquidity is proxied by current ratio and quick ratio. Current ratio compares a company's current assets to its current liabilities. Higher the ratio, greater the level of liquidity. Generally, a current ratio of 1.0 is acceptable and 1.5 is considered to be healthy. Noted that the three companies chosen in our study all have relatively low current ratios with Costco barely meets the acceptable level. One explanation could be that the retail industry is capital intensive in nature requiring compelling investments in real estate, transportations, and technologies in supply chain management. A company's high reliance on operating cash flow and outside financing to meet its short-term obligations indicates low liquidity which is usually accompanied by low current ratio. This could be caused by a company's existing high level of debt which requires significant amount of cash flow to be paid each year towards its interest expenses. Low liquidity limits a company's capacity to take on more debt. Costco has a better current ratio than the other two players. The main reason is that Costco has much lower debt to equity ratio compared to Walmart and Target (0.18 vs. 0.30) and Costco earns robust cash flow during the Pandemic as evidenced by a special one-time dividend of $10 per share at the end of 2020 resulting in an aggregate payment of $4,430M which in turn supports its ability to take on more debt in the near future. Goods from all three players are sold within one to two months. Costco exhibits magnificent turnover with goods sold in less than a month. In situations where there is a wide gap of inventory liquidity among competitors, quick ratio may be a better and more conservative indicator for comparison than current ratio as it only includes the most liquid current assets such as cash & cash equivalents, and marketable securities in relation to current liabilities. Similar to current ratio, higher the quick ratio, greater the level of liquidity. By comparing quick ratio, rank of liquidity among three players remains the same, however, disparity widens. Still, Costco is a top performer in liquidity, followed by Target, then Walmart. Inventory turnover measures a company's operating effectiveness in inventory management. It indicates how well the resources are been used in inventory such as the carrying costs. Costco's remarkable inventory turnover combined with above average revenue growth (17%) reveals its great inventory management efficiency. Walmart's inventory turnover is around industry norm; however, its revenue growth for year 2021 is only 2%, moving it towards a value stock. Target has the lowest inventory turnover, but its revenue grows at 13%. One possible explanation could be that the company makes excessive efforts to align its inventory with sales trends during the pandemic and elevates in-transit inventory related to import supply chain delays. Besides, Target sells more non-food items which are durable and less demanding in nature resulting in low inventory turnover. Accounts payable turnover, computed as cost of goods sold over average inventory throughout the year, measures how many times per year the company pays off all its creditors. Costco exhibits high payable turnover indicating that the company is not making full use of its available credit facilities and is potentially taking advantage of early payment discounts. Walmart's payable turnover is near the average. Target unveils lowest turnover (high days payable) inferring that the company is making use of lenient supplier terms. Noted that under the environment of rising inflation, Target's implication of last in first out accounting policy overstates cost of goods sold and understates inventory as shown on its financial statement, resulting in overstatement of both turnover ratios. Applying the adjustments to first in first out same as Costco and Walmart, this would further lower Target's inventory turnover and accounts payable turnover. The excessively low turnover ratios could also indicate that Target is having some problem with its inventory management resulting in higher liquidity risk than its peers.

Profitability ratios assess a company's ability to generate profit and value for its shareholders. Gross margin represents the percentage of revenue that can be used to cover the cost of goods sold and make a profit. A high gross margin indicates high product pricing and low product cost. The ability to charge a high price is limited by market competition and categories of items being sold. Companies are more likely to charge more for a product if it has a competitive advantage in terms of low cost or high differentiation, such as superior branding, better quality, or exclusive technology. Among the three players, Target exhibits the highest gross margin. One explanation could be that the company sells more on general merchandise such as entertainments, household essentials, beauty and apparels with selected exclusive brands increasing every year. Such strategy improves the company's ability in product differentiation compared to traditional grocery retailers. Walmart's gross margin is bit lower than Target but still outstanding as the company is known for its excellent distribution network and economies of scale to achieve low product cost. Costco's gross margin is only 13 percent compared to Walmart 25 percent and Target 29 percent. The reason for the low margin is as follows: first, the company insists on providing the best pricing while continuously procuring high quality organic products, with a selection of mid to high-end brand to meet its targeted consumer's changing tastes. It has been researched that nowadays consumers' grocery shopping attitudes are changing to be more value-conscious, which means they are finding the best value in an effort to stretch dollars in the pocket and more focused on healthy eating, nutritious and environmentally friendly products; second, most of Costco's physical stores are located in metropolitan areas where there are lots of other stores as well, as a result, the price of food decreases leading to lower gross margin, probably due to either an increase in supply of food or an increase in competition; Third, a portion of the price promotion is attributed back to membership fees, and the aggregate annual renewable membership fees cannot cover the overall annual revenue losses if sold in regular market price resulting in lower gross margin. Also, spending too much on merchandise costs reveals issues on dealing with its suppliers. One explanation could be that organic retailer may have no choice but to work with long term suppliers at a higher product cost in order to secure a steady supply, quality, or specifically prepared products to its customers. Turning gross margin to operating margin by deducting sales general & administrative expenses, Costco's profitability was reduced by 10 percent to its sales of $195,929 for year 2021. Walmart's profitability was reduced by 20 percent to its sales of $572,754. Target's profitability was reduced by 21 percent to its sales of $106,005. The reduced percentage represents a company's operating efficiency rate by dividing operating expenses over sales. The smaller the rate, the better the company is at managing its operation to generate revenue. Costco exhibits outstanding operating efficiency compared to its peers and the key attribute would be its

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magnificent inventory management as reflected on its inventory turnover. Dividing the reduced amount of percentage by the sales and then multiply by 10,000, the adjusted rate of change (improvement) in operating efficiency is 0.51 for Costco, 0.35 for Walmart, and 1.98 for Target. Higher the sales, lower the retailer's rate of improvement in operating efficiency. Large retailers tend to have high sales volume. The larger the retailer is in its size as reflected by its annual sales, number of physical stores worldwide, and so far as to market capitalization, the more mature the company is at its business life cycle. Mature retailer tends to have less growth opportunities, with stabilized customer base, line of products & services, locations of physical stores, and well-established system on supply chain management, as a result, the rate of improvement in its operating efficiency is lower. Retailer at growth stage experiences highest rate of improvements in its operating efficiency as it spends significant amount of capital in innovation and technology building up relationship with suppliers, expanding distribution network, at the same time, lowering SG&A expenses to improve its breakeven and ability in offering lower price to customers for more market share and profitability. Return on assets measures the return a company earns in respect of its total assets. The higher the ratio, the more efficient and productive the company is good at managing its balance sheet to generate profits. In other words, the company is able to earn more money relative to its peers given the same level of invested capital. In 2021, Target's return on assets to its investors was fourteen percent, followed by Costco's nine percent, and Walmart's six percent. Target had similar level of asset base with Costco, however, for every dollar that Target invested in, it generated five percent more of net income, meaning that it was better at converting investments into profits compared to Costco. One attribute to Target's high return on assets could be its application of last in first out accounting treatment on inventory as permitted by US GAAP, which understates its total assets on balance sheet compared to Costco's and Walmart's, under which inventory is valued based on first in first out as required under IFRS in an inflationary environment. Comparing return on asset to WACC, all the three retailers achieved a realized return of capital above investors' expectation, making each of them a capital project worthwhile. Return on equity assess a company's ability in generating earnings to its equity holders including minority shareholders, preferred shareholders, and common shareholders. The ratio is calculated by dividing net income over shareholders' equity. Decomposing the formula under Dupont Analysis, return on equity also equals profit margin times assets turnover times equity multiplier, which represents a function of profitability, operating efficiency, and use of financial leverage. In 2021, Target's return on equity was 51 percent, followed by Costco's 28 percent, and Walmart's 17 percent. Comparing return on equity to cost of equity, Target generated an excess return nearly four times more than its equity holder's expectation, the highest among the three chosen retailers. The high return attributed to its high margin achieved by selling a large portion of general merchandise with a selection and partnership of exclusive brands and creating shop-in-shop experiences for additional occupancy income. Also, its soaring improvement in operating efficiency during the pandemic contributes to its success in generating exceptional return to equity holders. During the Pandemic, Target took various actions in response to industry-wide transportation delays on procurement, including ordering merchandise earlier, securing ocean freight routes, and increasing use of air transport for certain merchandise. Besides that, Target deployed multiple channels such as using common carriers, self-owned subsidiary Shipt, and guest pick-up at stores to catch up the delivery with surging online orders. At the same time, the company upgraded its inventory management by using various forms of replenishment, maintaining positive relationships with suppliers, and carefully budgeting inventory levels for seasonal and apparel items to minimize markdowns. Target only operates its business within the U.S., therefore, its lower tax rate compared to multinational retailers' helps improve its return on equity. Noted that Target's market capitalization is the smallest among the three retailers, however, it has a high debt-to-equity ratio similar to the largest retailer Walmart. As a company takes on more debt, its financial leverage increases. An

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increase in financial leverage through debt financing helps improve a company's return on equity as long as the return on investing the borrowed funds in business exceeds the cost of borrowing. Target effectively uses high leverage through additional debt financing while keeping its market value of equity low, making it a top performer in generating return to equity holders. Walmart has the same level of leverage as Target; however, its high level of market capitalization limits its ability in generating substantial high return to equity holders. Costco's debt-to-equity ratio is only half of Target's and Walmart's with a mid-level market capitalization. By controlling similar existing level of equity on balance sheet and continuously maintaining strong operating cash flow, gradually adding more debt would improve the company's return on equity in the long-term making it an idea candidate for equity investments. Also, Costco's strong ability in generating cash flow makes it an ideal candidate for debt investors as well. Earnings per share (EPS) is another indicator of a company's profitability and is frequently used by equity investors in making investment decisions. There are various forms of EPS such as basic vs. diluted, cash vs. retained, and book value earnings per share, with each being analyzed for different purposes. According to a study researched by Natasha, Rikus, and Lana, basic EPS correlated best with the changing behavior of share prices. Higher the EPS, higher the potential growth in share price. For year 2021, Target's basic EPS was $14.23, followed by Costco's $11.30, and Walmart's $4.90. Considering the potential in stock appreciation, Costco and Target are better investment choices than Walmart. P/E ratio is another common indicator in measuring a company's growth potential by comparing current stock price with earnings. By comparing a company's P/E ratio to the industry average or its peers, it measures whether the company's stock is fairly valued, overvalued, or undervalued at a specific point in time. Here, the stock price used is based on the closing price at the end of each retailer's 2021 fiscal year. Costco earned a P/E ratio of 39.85, followed by 28.55 for Walmart, and 15.30 for Target. Based on the dividend discount model, Costco's high P/E ratio implied that equity investors were expecting a potential higher dividends (earnings) growth relative to the other two retailers making it an idea candidate for long-term investments [10]. The high P/E compared to the average of its peers may also infer that the company's stock price was overvalued at that point in time. Target's low P/E could be explained that the company performed extraordinary well better than market expectation as a consequence of its improved operating efficiency and supply chain management during the Pandemic. As a result, its stock price was undervalued at that time, providing an opportunity for short-term arbitrage. Noted that as more and more individual investors are participating in equity market investment, a company's current stock price may be distorted and become more volatile due to information asymmetry and misinformation in social media. Stock price will reflect a company's performance only if the market is efficient and investors are reasonable with a certain level of investment knowledge. Considering in long-term investments, a five-year P/E average would be better than P/E ratio as it removes the effect of short-term price fluctuation in assessing a company's potential future growth. Otherwise, EPS may be more preferrable making Costco and Target better long-term investments for equity investors. Payout ratio represents the proportion of earnings (NI) which was paid out as dividends to common shareholders while the rest is retained within the company either to pay off debts or to continue reinvesting in core operations. In 2021, Walmart achieved a payout ratio of 45 percent, about two times higher than the other two comparatives. This suggests that the company is probably at mature stage with its share price less likely to appreciate rapidly compared to other smaller retailers turning it into a value stock. Costco and Target retained a lower payout ratio of 26 percent and 22 percent respectively, meaning that the two retailers are more likely at a growth stage with a high retention rate aiming to expand, develop new technology, and move into new markets. Listed companies with payout history tend to have a sustainable dividend growth rate as they are reluctant to cut dividends, which will drive stock price down and reflect poor management abilities. Prior to economic recession, share repurchase plan could be implemented by giant retailers with additional borrowing for a certain number of years to reduce the number of shares outstanding in the market and boost share price while at the same time maintaining an imperishable dividend growth rate.

Solvency ratio measures a company's ability to cover its long-term debt obligations. One of the key indicators used to assess a company's solvency ability is interest coverage ratio, which measures a company's ability in covering its interest expense against its outstanding debts. Higher the ratio, lower the risk of default. The ratio is used by lenders to assess a company's capability on taking more debts and is part of a stress-test to predict a company's ability to survive during economic downturn. A coverage ratio of over three is considered to be idea for investors. Overall, all three retailers exhibit high interest coverage ratio indicating low risk of default. In addition, Costco's outstanding interest coverage support its ability to take more debt in the foreseeable future.

4. Limitations

There are certainly some limitations in this paper. Since most of the data collected were from fiscal year 2021, the results and discussions are limited to cross-sectional analysis only. To facilitate more in-depth comparisons overtime, trend analysis with data collected for a continuous number of years may be added. Specific accounting numbers may need to be further adjusted to remove differences in valuation resulting from inconsistent selection of accounting policies for better comparison. As the lines between grocers and general retailers blur, so do the lines between stores and warehouse clubs, a segmentation analysis considering other factors may be conducted when making investment decisions.

5. Conclusion

As Walmart turns into a valued stock, it is most advantageous to invest in when stock price is low enough to have its dividend yield cover the required return on fixed income portfolio sharing similar level of risk and investment horizon. Target generates the highest dividends with a strong future growth as exhibited by its outstanding EPS. Its low P/E ratio and higher than average beta-risk provide arbitrage opportunities for short-term investors. Costco pays similar dividends as Target. However, its higher than industry average P/E ratio indicates that the stock could be overvalued at that point in time. Despite its high P/E ratio, the company's strong inventory management, low leverage level, and high EPS makes it an ideal long-term investment for those preferring stocks with steadily growth, less volatility, and sustainable dividend payout. Considering the growth potential associated with beta risk, it is recommended to invest in Costco over Target over Walmart.

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