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Empirical Analysis of the Cost of Equity for Costco Wholesale Corporation Using the CAPM Framework

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Abstract

The cost of equity of Costco Wholesale Corporation (NASDAQ: COST) is estimated empirically. Cost of equity is the cornerstone of modern finance that stipulates expected return required by investors for taking on systematic risk. However, this project quantifies COST'S cost of equity, conducts sensitivity analysis, and crosschecks its results with known benchmarks by utilizing available public information such as Costco's 5-year beta coefficient, US 10-year Treasury yield, and US market risk premium. Empirical estimates derived from the input assumptions show that Costco's cost of equity ranges from 8.8% to 9.8%. This result is contextualized by explaining how corporate finance theory applies to Costco's cost of equity within the framework of the company's risk structure, business stability, and financial strategy. The conclusion of the study is that CAPM works well as a first-order valuation model, but faces practical challenges that need modifications and fine tuning before it can be used for helpful first-order decision-making.

Keywords

Costco; CAPM; Cost of Equity; Beta; Systematic Risk; Empirical Analysis.

1. Introduction

Cost of equity is the expected return that equity investors require as compensation for purchasing firm's common stock. Corporate finance cannot be done without it, particularly in relation to capital budgeting, valuation, and investment decisions. The Capital Asset Pricing Model (CAPM) has been the most popular tool of determining the cost of equity due to its simplicity and sound theoretical basis [1,2]. In this work, cost of equity of Costco Wholesale Corporation, one of the largest international warehouse retail companies operating the warehouse is calculated and the implications of cost of equity to financial and investment strategies are considered. Costco presents a strong case to investigate empirically due to its steady expansion, predictable cash flows, and reduced systematic risk in comparison to its competitors since it operates more than 800 warehouses throughout the world, and its annual revenues are over US$275 billion [3].

2. Literature Review

Capital Asset Pricing Model (CAPM) was created independently by Sharpe, Lintner, and Mossin to build upon the portfolio theory by Markowitz [1,2,4,5]. It established the connection between expected return and systematic risk in which investors would only be paid to take on market-related risk (beta) and not idiosyncratic risk, which can be eliminated through diversification. The CAPM equation is expressed as $E(Ri) = Rf + \beta i \times [E(Rm) - Rf]$, *where E(Ri) represents the expected return on asset i*, Rf is the risk-free rate, βi is the beta of the asset and (E(Rm)-Rf) is the risk premium in the market.

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The cost of equity calculation in corporate valuation models is developed on the basis of the CAPM, which is the simple and linear method of valuing assets [6]. Nonetheless, empirical research has revealed a number of shortcomings. According to Black, Jensen and Scholes, the empirical relationship between beta and returns is less steep than the CAPM [7]. The multifactor models were also advanced when Fama and French observed that beta is not the only factor which can influence returns, such as the size of the firm and book-to-market ratios [8,9].

Due to its conceptual simplicity and simplicity of application, CAPM is still commonly used in corporate finance practice even despite its disadvantages [10]. As other models like the Fama-French three-factor model and Arbitrage Pricing Theory (APT) require even more detailed data to run, they face similar estimating challenges. That being said, CAPM is still used as an academic model and in investment appraisal to estimate equity's required returns.

Furthermore, recent empirical studies and academic criticism of CAPM have shown that CAPM is a good starting point but fails to explain asset returns on its own. For example, if the Fama-French five-factor model is used, two more factors are added: profitability and investment. This would suggest that market beta may not explain the totality of expected returns [11]. And behavioural finance suggests that market sentiment, mispricing and irrational biases might influence prices, and therefore the rational-investor assumptions of CAPM may not always apply in practice [12,13].

3. Company Overview: Costco Wholesale Corporation

Costco Wholesale Corporation (NASDAQ: COST) is a warehouse retail enterprise which operates under a business model of membership-based retailers of bulk goods at favorable prices. Established in 1983, Costco has its headquarters in Issaquah, Washington, and has expanded globally. Costco net sales at the end of fiscal year 2025 were 275.2 billion US Dollars which is 8 percent higher than in the previous year [3].

The business strategy of Costco puts a lot of emphasis on the membership fee as a stable income. The strategic role of membership to maintain financial resilience is proved by the fact that the membership fees comprised nearly 70 percent of the net income in spite of occupying just 2 percent of the total sales [14]. The beta of Costco, a measure indicating systematic risk, has been less than 1.0 over the last years with a five-year beta of 0.96 [15], which indicates that the stock price of the company is slightly less volatile than the market.

Given its stable business model and consistent performance, Costco serves as an ideal case study for analyzing CAPM performance in large-cap established retail companies.The reason why the company has such a low-risk profile is further enhanced by its strong balance sheet, growth of the dividends, and the wise capital structure.

4. Methodology and Data Sources

In this study, the cost of equity for Costco is estimated using the Capital Asset Pricing Model (CAPM) through the Capital Asset Pricing Model (CAPM) that converts to:

$$Ke = Rf + \beta\,(Rm - Rf)$$

where Rm - Rf is the market risk premium; Ke is the cost of equity; Rf is the risk-free rate; and β is the beta coefficient. Finbox, GuruFocus, Damodaran Online and Macrotrends are only a few of the credible financial databases that have brought all the information used in this analysis into the public eye [3,15-17].

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Table 1. CAPM Input Assumptions

Parameter	Value / Source
Risk-free rate (Rf)	4.0% - 10-year U.S. Treasury yield [16]
Beta (β)	0.96 - 5-year beta [15]
Market risk premium (Rm - Rf)	5% - 6% - U.S. equity premium [17]

When these parameters are substituted in the CAPM formula, then:

$$Ke = 4.0\% + 0.96 \times 5.0\% = 8.8\%$$

$$Ke = 4.0\% + 0.96 \times 6.0\% = 9.76\%$$

Therefore, the cost of equity of Costco is estimated to be between 8.8% and 9.8%.

Table 2. Sensitivity of Cost of Equity (%)

Risk-free rate / Market risk premium	4%	5%	6%	7%
3%	6.84%	7.80%	8.76%	9.72%
4%	7.80%	8.76%	9.72%	10.68%
5%	8.76%	9.72%	10.68%	11.64%

The sensitivity analysis indicates the sensitivity of the estimated cost of equity to the changes in the macroeconomic variables including the changes in interest rates or the volatility in the market. The model is sensitive as indicated by the fact that a one percent movement in the risk-free rate or the market premium may influence the cost of equity by approximately 1 percentage point.

5. Results and Discussion

The baseline CAPM estimates the cost of equity of Costco to be 8.8% to 9.8%. This is according to low volatility and large-cap nature of the company. Contrastingly, the cost of equity in AlphaSpread is 7.3, whereas the valueInvesting.io estimate is 6.65 [18,19]. Our higher forecasts are based on a conservative risk-premium assumption and more recent Treasury yields.

The medium estimate of the cost of equity suggests that investors require a 9 percent annual return to compensate for market risk. This volume of the expected return to Costco is an indicator of the risk environment of the larger market and its stable operations. This is used as a project evaluation and performance measurement benchmark as far as corporate finance is concerned.

The results reinforce the sound core values of Costco, which consist of the constant increase in revenues, low leverage, and expansion abroad. Nonetheless, since the model CAPM is just one-factor, it fails to consider other factors that may have an influential effect on the true required return, including the size and value effects. Nonetheless, the concept is still applicable to high-market cap businesses that have consistent risk profiles.

6. Limitations and Implications

The CAPM has weaknesses in spite of being a simple and theoretically clear approach. To start with, in a volatile retail industry, beta might not give a proper indication of risk in the future since it is determined with the help of the current data. Second, the model does not focus on the

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firm-specific risks since it is assumed that all investors possess different portfolios. Third, market risk premium is arbitrary and subject to variations depending on the macroeconomic conditions.

Nevertheless, CAPM has its shortcomings, but it still has an application in the practical finance. To investors it provides a reference point on expected returns and decisions of portfolio diversification. In the case of corporate managers, it helps in setting discount rates to be used in capital budgeting and evaluation of investment opportunities. In the case of Costco, the cost of equity is stable which favors its expansion and dividend growth policies.

7. Conclusion

In this study, the CAPM was used in estimating the cost of equity of Costco Wholesale Corporation. The cost of equity basing on publicly available data is between 8.8% and 9.8%, which is consistent with the good performance of the company and minimal systemic risk. The research study confirms that CAPM provides a valuable approximation to be used in investing and valuation practices although it has not been applied optimally. For future studies, the COST' CAPM-based cost of equity could be compared to other models such as Fama-French three factors or multi-factor models.

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