

Capital asset pricing model and nike essay sample



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Joanna began her calculation of Nike's WACC by finding the necessary weights of debt and equity to be used. To begin, Joanna found Nike's debt by combining the book values of current long-term debt, notes payable, and long-term debt, which were all found on Nike's balance sheet. The values were \$5.4 million, \$855.3 million, and \$435.9 million respectively. This calculation gave Nike a total debt of \$1,296.9 million. To find Nike's equity, Joanna used the book value of total shareholders' equity which was also found on the balance sheet. The value was \$3,494.5 million. Therefore, Joanna found Nike's debt plus equity to be \$4,791.4 million. Dividing the values for debt and equity each by \$4,791.4 million gave Joanna the weights to be used in the WACC formula. Debt was weighted as 27% and equity as 73%.

Joanna then proceeded to calculate Nike's costs of debt and equity. She found Nike's cost of debt by dividing total interest expense, which was found on the income statement, by her previous calculation for debt. Nike's total interest expense was \$58.7 million, so their cost of debt was found to be 4.3%. Joanna used a tax rate of 38% in her calculations, making Nike's cost of debt after tax to be 2.7%. Joanna decided to use the CAPM model in her calculation of Nike's cost of equity. She used the risk-free rate of 5.74% on a 20-year Treasury bond, the geometric mean for market risk premium from 1929 to 1999 which was 5.9%, and Nike's average beta from 1996 to 2001, which was 0.80 to make her calculations. Using these values, she obtained a cost of equity of 10.5%. Joanna then took the weights and costs of debt and equity that she found and calculated Nike's WACC to be 8.4%.

Joanna made several errors in her calculation of Nike's WACC. To begin, she used book values when finding Nike's debt and equity rather than market values. If markets are efficient, market values will equal present value of cash flows. Book values, on the other hand, represent historical cost. Therefore, market values appear to be a superior basis for developing weights (Seitz, Ellison 556).

For untraded bonds or for long-term debt not in the form of marketable securities, the market value can be estimated by finding the present value of remaining principal and interest payments, discounted at the yield to maturity (Seitz, Ellison 557).

The market value of common stock is the value of the common stockholders' total claims, which equals the number of shares outstanding, multiplied by the market price per share (Seitz, Ellison 557).

Using the values given regarding Nike's publicly traded debt, the analysis found the yield to maturity to be 7.13%. The values used in this calculation were: a present value of \$416.7 million, a coupon rate of 6.75% semi-annually, a time period of 25 years, and a future value of \$435.9 million. By discounting long-term debt of \$435.9 million by the yield to maturity, a value of \$406.9 million was obtained. Combining this value with the current long-term debt and notes payable gave a total debt for Nike of \$1,267.6 million, as compared to Joanna's calculation of \$1,296.6 million. Nike had 271.5 million shares outstanding and was selling at a share price of \$42.09. Therefore, using the proper calculation for market value of equity, the analysis found Nike's equity to be \$11,427.4 million, whereas Joanna found

a total of \$3, 494. 5 million. Using these values of Nike's debt and equity, debt plus equity was found to be \$12, 695 million. By dividing the proper values for debt and equity by this value, the analysis found the weights for debt and equity to be 10% and 90% respectively.

Joanna's use of total interest expense divided by debt as a measure of Nike's cost of debt is incorrect.

Interest expense and flotation costs are tax-deductible expenses in that they reduce taxable income. Thus, the after tax cost of existing debt (k_d) is approximately: $k_d = YTM(1 - \text{tax rate})$ where YTM is the yield to maturity (effective interest rate) on existing debt (Seitz, Ellison 548).

By using the correct formula for after tax cost of debt, the analysis found Nike's cost of debt to be 4. 4%. Joanna's calculation was 2. 7%.

Although the dividend growth model and the earnings yield model were also available to Joanna for her use in calculating Nike's cost of equity, the analysis concluded that her decision to use the CAPM model was sound due to the CAPM's ability to be used in nearly all situations.

Cost of debt

The dividend growth model analysis began with an observed price and last year's dividend, so the only item difficult to estimate is the dividend growth rate. If dividends have grown steadily in the past and there is reason to believe that pattern will continue, the historical growth rate can be used as g . Unfortunately, historical dividend growth is seldom that steady (Seitz, Ellison 551).

A problem with the earnings yield model is that it is based on accounting income rather than cash flow. Furthermore, it is based on earnings per share for a past period while the stock price reflects investors' expectations of future performance (Seitz, Ellison 552).

The mean-variance capital asset pricing model approach differs from the cost of equity approaches previously discussed in that it focuses on market returns for investments of similar risk rather than investor response to a particular security. Thus, it can be used when earnings and dividends are unstable and when the stock is not publicly traded so there is no market price (Seitz, Ellison 552).

The analysis also found that Joanna's decision to use the geometric mean of market risk premium, 5.9%, rather than the arithmetic mean was correct as well due to the geometric mean's inclusion of growth, which is a real world occurrence, making geometric mean a better representation of actual performance.

In finance, the geometric mean is associated with rates of return and represents the expected long-run growth rate of money, given repeated investments with the same probability distribution of returns (Seitz, Ellison 353).

Joanna used the rate on a 20-year Treasury bond of 5.74% for her calculations. This was found by the analysis to be acceptable as Nike's publicly traded long-term debt matures in a similar amount of time, 25 years. Joanna's use of the average beta for Nike, 0.80, was incorrect. Nike's beta had fluctuated throughout the years used in finding the average and was <https://assignbuster.com/capital-asset-pricing-model-and-nike-essay-sample/>

very volatile, ranging from 0.63 to 0.98. A better measure to use would have been the most recent beta of 0.69. By using the CAPM model and the same measurements for risk-free rate and market risk premium that Joanna used in her calculations, and by using the recent beta of 0.69 rather than the average of 0.80, Nike's cost of equity was found by the analysis to be 9.8%. Joanna's calculation was 10.5%. Using the new calculations for Nike's weights and costs of debt and equity the analysis found Nike's WACC to be 9.3% as compared to Joanna's finding of 8.4%.

Kimi Ford's discounted cash flow statement used a discount rate of 12% and found an equity value per share of \$37.27, making Nike overvalued at its current price of \$42.09. By replacing the discount rate of 12% with the WACC of 9.27%, the analysis found an equity value per share of \$55.66. This means that at a share price of \$42.09 and a discount rate of 9.3%, the analysis found Nike to be undervalued.