

The castillo products company essay sample



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The Castillo Products Company was started in 2008. The company manufactures components for personal digital assistant (PDA) products and for other handheld electronic products. A difficult operating year, 2009, was followed by a profitable 2010. The founders (Cindy and Rob Castillo) are interested in estimating their cost of financial capital because they are expecting to secure additional external financing to support planned growth. Short-term bank loans are available at an 8 percent interest rate. Cindy and Rob believe that the cost of obtaining long-term debt and equity capital will be somewhat higher. The real interest rate is estimated to be 2 percent, and a long-run inflation premium is estimated at 3 percent. The interest rate on long-term government bonds is 7 percent. A default-risk premium on longterm debt is estimated at 6 percent; plus Castillo Products is expecting to have to pay a liquidity premium of 3 percent due to the illiquidity associated with its long-term debt. The market risk premium on large-firm common stocks over the rate on long-term government bonds is estimated to be 6 percent.

Cindy and Rob expect that equity investors in their venture will require an additional investment risk premium estimated at two times the market risk premium on large-firm common stocks. Following are income statements and balance sheets for the Castillo Products Company for 2009 and 2010. A. Calculate the net profit margin, total-sales-to-total-assets ratio, the equity multiplier, and the return on equity for both 2009 and 2010 for the Castillo Products Corporation. Describe what happened in terms of financial performance between the two years. B. Estimate the cost of short-term bank

loans, long-term debt, and common equity capital for the Castillo Products Corporation.

C. Although, Castillo Products paid a low effective tax rate in 2010, a 30 percent income tax rate is considered more appropriate when looking to the future. Estimate the after-tax cost of short-term bank loans, long-term debt, and the venture's common equity. D. Estimate the weighted average cost of capital (WACC) for the Castillo Products Corporation using the book values of interest bearing debt and stockholders' equity capital at the end of 2010. E. Cindy and Rob estimate that the market value of the common equity in the venture is \$900, 000 at the end of 2010. The market values of interest-bearing debt are judged to be the same as the recorded book values at the end of 2010. Estimate the market value-based weighted average cost of capital for Castillo Products. F. Would you recommend to Cindy and Rob that they use the book value-based WACC estimate or the market value-based WACC estimate for planning purposes? Why?

SOLUTION:

(a) 2009 net profit margin = $-65,000/900,000 = -.0722 = -7.22\%$
2010 net profit margin = $75,000/1,500,000 = .500 = 5.00\%$

2009 total-sales-to-total-assets = $900,000/1,000,000 = .9000$ times
2010 total-sales-to-total-assets = $1,500,000/1,200,000 = 1.2500$ times

2009 equity multiplier = $1,000,000/(150,000 + 200,000 + 80,000) = 1,000,000/430,000 = 2.3256$ times
2010 equity multiplier = $1,200,000/(150,000 + 200,000 + 120,000) = 1,200,000/470,000 = 2.5532$ times

2009 return on equity = $-65,000/430,000 = -.1522 = -15.22\%$ 2010 return on equity = $75,000/470,000 = .1596 = 15.96\%$

Castillo Products improved from an operating loss in 2009 to profitability in 2010. The net profit margin went from negative to positive. The asset turnover (total-sales-to-total-assets) increased indicating improved utilization of assets to support sales. The equity multiplier also increased indicating a higher usage of debt funds. The combined result was a change in the return on equity of -15.22% in 2009 to a positive 15.96% for 2010.

(b) Cost of short-term bank loans:

Current interest rate is given at 8.00%

Cost of default-risk free long-term government bonds: current interest rate is given at 7.00% [The sum of the expected real rate of 2.00% and expected inflation rate of 3.00% is 5.00%. Since this is less than the current 7% long-term government bond rate, current government bond investors are expecting different real interest rates and/or inflation rates amounting to a total of 2.00%.]

Cost of risky long-term debt:

Cost of risky debt = long-term government bond rate + default-risk premium + liquidity premium = $7.00\% + 6.00\% + 3.00\% = 16.00\%$

Large-firm common equity capital:

Large firm cost of common equity (CAPM method) = default-risk free rate on long-term government bonds + (large firm market risk premium) x (market beta) = $7.00\% + (6.00\%)(1.00) = 13.00\%$

Castillo Products common equity capital:

Capital asset pricing model (CAPM) = 7.00% + (6.00%)(2.00) = 7.00% + 12.00% = 19.00%

(c) After-tax cost of short-term bank loans:

$8.00\% \times (1 - .30) = 8.00\% \times .70 = 5.60\%$

After-tax cost of risky long-term debt:

$16.00\% \times (1 - .30) = 16\% \times .70 = 11.20\%$

After-tax cost of Castillo Products' common equity:

19.00%

(d) Percent After-tax Component

Book Values \$ Amount Weight x Cost = Cost Bank loan 100,000 .1031 5.60%

60% .58%

Long-term debt 400,000 .4124 11.20%

Common equity 470,000 .4845 19.00%

Total 970,000 1.000 WACC = 14.41%

Or, WACC = 5.6% (.1031) + 11.20% (.4124) + 19.00% (.4845) = 0.58% + 4.62% + 9.21% = 14.41%

(e) Percent After-tax Component

Market Values \$ Amount Weight x Cost = Cost Bank loan 100,000 .0714 5.60%

60% .40%

Long-term debt 400,000 .2857 11.20%

Common equity 900,000 .6429 19.00%

Total 1,400,000 1.000 WACC = 15.82%

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Or, $WACC = 5.6\%(.0714) + 11.20\%(.2857) + 19.00\%(.6429) = 0.40\% + 3.20\% + 12.22\% = 15.82\%$

(f) Cindy and Rob should use market value-based WACCs for planning purposes. Investors expect entrepreneurs and/or managers to earn expected risk-adjusted rates of return on the current values of their investments. While market values of debt tend to fluctuate around the book values of debt, successful entrepreneurs and/or managers often are able to achieve market values that are multiples of common equity book values. Further gains in market values will depend on the ability to earn risk-adjusted rates of return on current market values.