

FIN 6060: Financial Decision Making
Module 3 - Calculating the Cost of Financing Worksheet (Milestone 1)

Calculating the Cost of Financing	
Step 1.	<p>Weighted Average Cost of Capital (WACC)</p> <p>As determined by the CFI Team (2019), the formula for Weighted Average Cost of Capital (WACC) is as follows:</p> $\text{WACC} = (E/V \times R_e) + ((D/V \times R_d) \times (1 - T))$ <p>Where:</p> <p>E = market value of the firm's equity (market cap) D = market value of the firm's debt V = total value of capital (equity plus debt) E/V = percentage of capital that is equity D/V = percentage of capital that is debt R_e = cost of equity (required rate of return) R_d = cost of debt (yield to maturity on existing debt) T = tax rate</p> <p>Cost of Equity (R_e) = 5%</p> <p>T = Taxes/Taxable Income: 2021 = \$ 2,771M / \$12,716M = 0.22 2020 = \$1,774M / \$8,095M = 0.22 2019 = \$769M / \$7,436M = 0.10</p> <p>Cost of Debts (R_d) = Interest / Total Debt: 2021 = \$8,582M / \$104,495M = 0.08 2020 = \$11,294M / \$105,607M = 0.11 2019 = 12,614M / \$182,080M = 0.07</p>

FIN 6060: Financial Decision Making
Module 3 - Calculating the Cost of Financing Worksheet (Milestone 1)

	<p>Market Value of the Equity (E): Year 2021 = \$65,815M Year 2020 = \$49,677M Year 2019 = \$45,957M</p> <p>Market Value of the Debt (D): Year 2021 = \$104,495M Year 2020 = \$105,607M Year 2019 = \$182,080M</p> <p>Total Value of Capital (V): Year 2021 = \$170,310M Year 2020 = \$155,284M Year 2019 = \$228,730M</p> <p>WACC for the 3 years is calculated below: Year 2021 = $((\\$65,815/\\$170,310) * 0.05) + (\\$104,495/\\$170,310 * 0.08 * (1 - 0.22))$ = 0.0193 + 0.0382 = 0.0575 = 0.06 appr.</p> <p>Year 2020 = $((\\$49,677/\\$155,284) * 0.05) + (\\$105,607/\\$155,284 * 0.11 * (1 - 0.22))$ = 0.0194 + 0.0582 = 0.0776 = 0.08 appr.</p> <p>Year 2019 = $((\\$45,957/\\$228,730) * 0.05) + (\\$182,080/\\$228,730 * 0.07 * (1 - 0.10))$ = 0.0092 + 0.0496 = 0.0588 = 0.06 appr.</p> <p>The GM Weighted Average Cost of Capital (WACC) for 2021, 2020, and 2019 are 6%, 8% and 6% respectively</p>
Step 2.	<p>GM's Expected Return on Investment using the Capital Asset Pricing Model (CAPM)</p> <p><u>Calculated Answer:</u></p>

FIN 6060: Financial Decision Making
Module 3 - Calculating the Cost of Financing Worksheet (Milestone 1)

	<p>The capital asset pricing model's (CAPM) prediction of General Motors' (GM) return.</p> <p>The outcome has been calculated:</p> <p>According to Kenton's (2022) research, the following formula can be used to estimate a financial instrument's expected yield while taking into account the level of risk it entails:</p> <p>The formula below can be used to determine the anticipated return on an investment (E(Ri)): $E(R_i) = R_f + \beta_i (E(R_m) - R_f)$,</p> <p>$R_f$ stands for the risk-free rate, β_i for the investment's beta coefficient, and $E(R_m)$ for the projected return on the market.</p> <p>The expected return on investment is represented by the variable E(Ri).</p> <p>The risk-free rate of interest is represented by the variable "Rf".</p> <p>The symbol β_i stands for beta, sometimes referred to as volatility and used to calculate risk.</p> <p>E(Ri), the market's anticipated return, can be computed as follows: $E(R_i) = 1\% + 1.3\% (5\% - 1\%)$</p> <p>$= 1\% + 1.3\% (4\%)$</p> <p>$= 1\% + 5.2\%$</p> <p>$= 6.2\%$.</p> <p>6.2% is the projected rate of return.</p>
Step 3.	<u>Written Response:</u>

FIN 6060: Financial Decision Making
Module 3 - Calculating the Cost of Financing Worksheet (Milestone 1)

	<p>The calculation of the cost of capital involves the use of both the Weighted Average Cost of Capital (WACC) and the Capital Asset Pricing Model (CAPM). However, these two methods diverge in terms of their methodology, factors considered, and practicality. The Weighted Average Cost of Capital Written reaction:</p> <p>Both the Capital Asset Pricing Model (CAPM) and the Weighted Average Cost of Capital (WACC) are used in the computation of the cost of capital. However, these two approaches differ in terms of technique, parameters taken into account, and usefulness.</p> <p>The Capital Asset Pricing Model (CAPM) only focuses on the expected return of stock, but the Weighted Average Cost of Capital (WACC) takes into account both debt and equity.</p> <p>While the Weighted Average Cost of Capital (WACC) is frequently used to assess individual assets, the Capital Asset Pricing Model (CAPM) is frequently used to assess a project's or investment's overall viability (Bloomenthal, 2022.).</p> <p>For the years 2021, 2020, and 2019 , the computed weighted average cost of capital (WACC), were determined to be 6%, 8%, and 6% respectively.</p> <p>Additionally, the weighted average cost of capital (WACC) for the years 2019 and 2021 is comparatively lower than the expected return of 6.2% derived using the Capital Asset Pricing Model (CAPM) for GM's shares.</p>
Step 4.	<p>The term "beta" (in the context of stock market analysis) refers to a statistic that expresses how volatile a given stock is in comparison to the overall market.</p> <p>Therefore, a beta score of 1.3 means that investors should expect the stock to be more volatile</p>

FIN 6060: Financial Decision Making
Module 3 - Calculating the Cost of Financing Worksheet (Milestone 1)

	<p>than the market as a whole.</p> <p>More specifically, this implies that the stock is forecast to have a comparable 1.3% increase or reduction for every 1% change in the market.</p> <p>A higher beta coefficient means that there is a greater chance of both enhanced gains and increased risk because the stock is expected to exhibit greater price volatility in response to changes in the general market.</p>
Step 5.	<p>A stock's beta coefficient can be used to measure how volatile it is compared to the entire market. The GM stock's beta value of 1.3 indicates that it is expected to be more volatile than the market as a whole. This implies that owners stand to profit more from positive market movements than from negative ones, and vice versa.</p> <p>General Motors (GM) has recently displayed strong financial performance, as seen by a clear rising trend in both sales and earnings. Additionally, the automobile industry has displayed impressive adaptability in the face of both economic downturns and technological revolution. Given these details and the increased volatility associated with GM's beta rating of 1.3, it is prudent to state that purchasing GM stock involves a moderate amount of risk.</p> <p>This investment choice may be considered suitable for those who demonstrate a willingness to accept significant levels of risk in the hopes of potentially achieving higher financial benefits.</p> <p>However, before making any investing decisions, investors should conduct independent research and analysis. People should carefully consider their own risk tolerance, investing</p>

FIN 6060: Financial Decision Making
Module 3 - Calculating the Cost of Financing Worksheet (Milestone 1)

	objectives, and a number of other important factors before deciding whether to purchase GM stock or any other investment.
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References

Bloomenthal, A. (2022, April 8). *How Do I Use the CAPM to Determine Cost of Equity?* Investopedia.

<https://www.investopedia.com/ask/answers/022515/how-do-i-use-capm-capital-asset-pricing-model-determine-cost-equity.asp#:~:text=How%20Are%20CAPM%20and%20WACC>

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