



DCF Template

Capital Structure:

- **TTM Price/Earnings** - Market capitalization/trailing-twelve-month earnings (last four quarters of net income)
- **TTM EV/Earnings** - Which one do we care about more? we care about this one more because we are looking at the company on a cash and debt basis, this is the actual price we would pay.
- **TTM EV/EBIT** - This is also commonly considered. But which one do we care about more as equity investors? TTM EV/Earnings, because as equity investors we get paid through dividends, not interest.
- **Trailing Average PEG Ratio ($P/E / (RG * 100)$)** - both factor in growth (keep in mind it is historic growth, we will forecast growth and calculate a forward PEG, fairly valued would equal 1 if it doesn't market is pricing in more growth)

Income Statement:

Gross Margin – Gross Profit/Revenue

R&D Margin – R&D/Revenue

G&A Margin – G&A/Revenue

EBIT Margin – EBIT/Revenue

Tax Rate – Taxes/Pretax Income

Net Margin – Net Income/Revenue

Revenue Y/Y – New Rev/Old Rev – 1

Balance Sheet:

Net Cash = cash-debt (cash that they have available to invest)

Working capital = current assets – current liabilities, the measure of operational efficiency and short term financial health, we are looking at the capital that they have available to invest and expand operations on a less liquid basis

Tangible Equity = Shareholders Equity – intangibles

Return on Equity = TTM earnings/equity, how much is the company making for every dollar invested in equity?

Return on Assets = TTM earnings/assets, how profitable are the companies assets?

Return on Tangible Assets = TTM earnings/tangible assets, what is the companies return for every dollar invested in tangible assets?

Return on Tangible Equity = TTM earnings/tangible equity, how much is the company making for every dollar invested in tangible equity?

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Current Ratio = current assets/current liabilities, the relative amount of current assets to liabilities, >1 means more assets than liabilities (which should be the case, otherwise there would be a shareholders deficit)

Quick Ratio = current ratio – inventory and prepaid, more conservative view, doesn't include current assets that are hard to liquidate.

Debt/Earnings (Years to Pay Off) = Debt/TTM net income – A its current rate of earnings, the number of years it will take to pay off debt

Debt/EBITDA (Years to Pay off) = Debt/TTM EBITDA

Total Debt/Equity = all debt/equity (how much of the company is financed by equity relative to debt, compared to industry average)

Short Term debt/equity – short term debt/equity (how much of that debt is short term relative to equity)

Long Term Debt/Equity – long term debt/equity (how much of that debt is long term relative to equity)

Quarter Inventory Turnover = Cost of Sales/Average Last 2 quarters inventory) (how many times does the company replenish inventory)

Days Sales Outstanding = (A/R / Revenue) * days in the quarter (how long does the company get paid back after making a credit sale on average)

Days Sales of Inventory = Days in quarter/inventory turnover (how long does it take to convert inventory to sales)

Days Payable Outstanding = (accounts payable/cost of sales)*days in the quarter (how long does it take to pay off accounts payable) ideally we would like this to be higher than days sales outstanding. Why?

Cost of Debt = - (if interest expense is recorded as a negative) TTM Interest Expense/Trailing Average Debt, this is the average interest rate they are paying on their debt

Then explain the cash flow statement. Free cash flow is operating cash flow minus and how it relates to working capital, cash flow statement is net income minus working capital (why?) and adding back other noncash expenses and subtracting noncash revenues ie D&A, restructuring, etc.

Discount Rate

Discount Rate = WACC

WACC = (Cost of Equity * (Equity/(Debt+Equity)))+(Cost of Debt*(Debt+Equity))

Cost of Equity = beta * (market premium-risk free rate) + risk free rate Cost of debt – cost of debt * (1-tax rate)

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Beta – look up 3-year beta on Yahoo Finance

Market Premium – S&P 500 performance over the past year

Risk-Free Rate = 10-year Treasury bill yield

Calculating WACC:

To calculate WACC, we multiply the cost of equity and cost of debt by their respective debt and equity weights. To calculate the weights, we use the market value of debt and market value of equity. The market value of equity is just the company's market capitalization. **The amount of debt on the balance sheet is the BOOK VALUE of debt, not the market value of debt.**

Similarly, the shareholders' equity on the balance sheet to calculate the market value of debt, you must do the following:

First, you must calculate the Cost of Debt.

There are three ways to do this depending on the information you have available:

1. First, if the company only has public debt (the financial statements will tell you this), then calculate the weighted average yields of each bond. Take the carrying value of each outstanding note, divide it by the total carrying value of all bonds, and multiply that relative amount by its yield, then add up the multiplied yields. That would be your cost of debt.

2. Second, if the company has any private debt, you can't find the yield. So, look up the company's credit rating on Moody's then look up "**NYU stern credit rating default spread**". Find the companies respective default spread according to its credit rating and market capitalization. Default spread means risk premium, so add it to the risk-free rate. That is the companies cost of debt.

3. Third, if there is private debt and public debt, and there's no Moody's rating, you have to create your own rating. You can see on the same NYU Stern chart that it mentions the interest coverage ratio. That's how you create a rating. The interest coverage ratio is EBIT/interest expense. Find the respective default spread on the chart according to the companies market capitalization and interest coverage ratio.

The final cost of debt that you will use in your WACC calculation is $(1 - \text{Marginal Tax Rate}) \times \text{cost of debt}$. **This is because the company can write off the interest it pays up to its marginal tax rate. The marginal tax rate is disclosed in the financial statements, it is not the tax rate you calculate as part of your income statement ratios – that is the effective tax rate**

Now, you must **calculate the market value of debt**. This is will be the most difficult aspect of calculating WACC. There are **two ways to do this**, one easy way and one hard way, and it depends again on whether the company only has public debt or private debt. The market value of debt is the price that investors would be willing to pay for any debt at this moment, whereas the book value is the price at the issuance date. If all the company's **debt is publicly traded** (this is rarely the case), then just add up the prices of all issued bonds multiplied by the amounts outstanding. If the company has only **private or both private and public debt**. So, we need to

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treat the debt in the company as one giant note or bond and figure out what investors would be willing to pay for it currently, based on their required yield. The way we can do that is by using the bond pricing formula.

Bond pricing formula – $\text{coupon} * ((1 - (1 / ((1 + \text{required rate of return})^{\text{payment periods}})) / \text{required rate of return}) + (\text{book value of debt} / ((1 + \text{required rate of return})^{\text{payment periods}}))$

In our case, what would each part equal? The coupon would equal interest expense, the required rate of return would be our pretax cost of debt, and payment periods would be years until maturity.

To calculate years until maturity, you need to calculate the weighted average maturity of all disclosed outstanding debt (this is found in the latest financial statement). This is calculated the same way weighted average yield is, except years to maturity are multiplied by relative carrying value amounts instead of yields.

Valuation

Terminal Free Cash flows = $\text{last free cash flow} * (1 + \text{terminal growth rate})$

Discounted Cash Flows = $\text{npv}(\text{discount rate}, \text{all future free cash flows})$

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