FIRM VALUATION

Based on future cash flows, how much is the company worth today?

The Problem

Suppose that a firm has estimated free cash flows over the next 5 years to be:

Year 1	$250M
Year 2	$325M
Year 3	$275M
Year 4	$425M
Year 5	$375M

After year 5, the company expects to grow at a constant rate of 4.5%.

Their weighted average cost of capital is 10.75%.

What is the value of the firm today?

The Book's Stupid, Time-consuming Way to Do It

Our beloved book tells you to "simply" apply this formula:

$$V_{firm} = \sum_{t=1}^{T} \frac{FCFF_t}{(1 + WACC)^t}$$

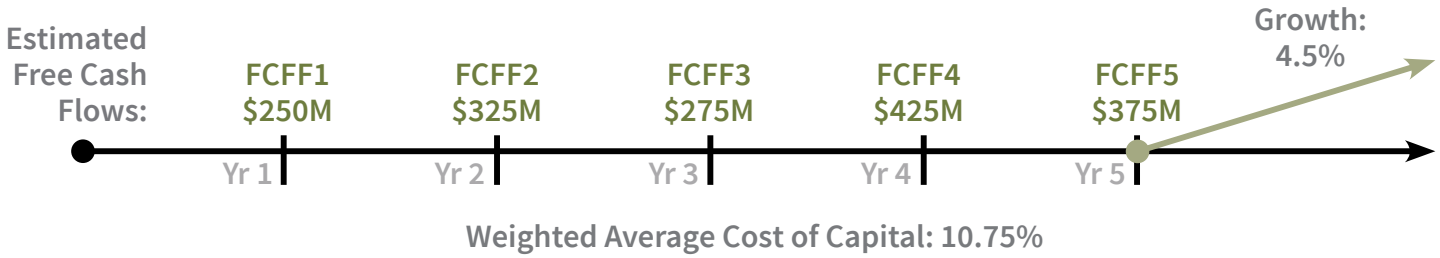
Yeah, good luck with that. If you can even figure out what that big crazy E is, your work ends up looking like this:

V_{firm} = (250M / 1.1075^1) + (325M / 1.1075^2) + (275M / 1.1075^3) + (425M / 1.1075^4) + (375M + ((375M x 1.045) / (.1075 – .045)) / 1.1075^5)

V_{firm} = (250M / 1.1075) + (325M / 1.2266) + (275M / 1.3584) + (425M / 1.5044) + (6645.4M / 1.6662)

V_{firm} = 225.734M + 264.96M + 202.444M + 282.505M + 3988.357M

V_{firm} = $4.964B



The Wonderfully Delightful, Fast & Easy, "Why Does the Book Have to Be Such a Jerk" Way to Do It

1) Use the Gordon Growth Model to find the value of all future cash flows that happen after year 5:

$$V5 = \frac{FCFF6}{WACC - g}$$

They only gave us FCFF5, but we need FCFF6 to use the GGM*. How? See "Finding FCFF6" over on the right.

*If you need help understanding why we need FCFF6 to find V5, check out my sheet on the Gordon Growth Model.

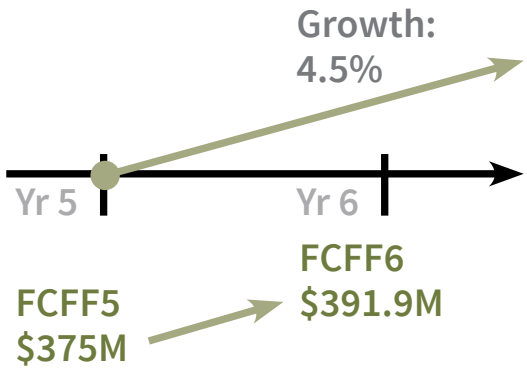
V5 = $391.9M / (10.75% - 4.5%)
V5 = $6270.4M

2) Add that number to year 5 cash and then solve for NPV.

CF0 = 0
C01 = 250M
C02 = 325M
C03 = 275M
C04 = 425M
C05 = 6645.4M (375M + 6270.4M)
I = 10.75 (WACC)
NPV = $4.964B

Boom. Done. Big crazy E can go jump in a lake.

FINDING FCFF6



You know FCFF5, and that cash flows will increase 4.5% per yer after that. This means finding FCFF6 is as easy as increasing FCFF5 by the growth rate: $375M x 1.045 = $391.9M