THE UNIVERSITY OF MELBOURNE

Module 2

Corporate Financial Decision-Making for Value Creation

Raising Debt Capital 1: Introducing Financial Risk (Other people's money…)

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BNY MELLON

Setting the scene

To expand your coffee delivery service you need to buy another coffee roaster.

You estimate that the return that you could generate from the new roaster is 17.5% p.a.

You talk to your bank and learn that they will lend you the required funds, charging interest at a rate of 10% p.a. – this looks like a "no-brainer," *right?*

Demonstrating the impact of leverage on returns

Firstly, let's consider your whole coffee business – completely funded by equity.

- 10,000 shares each trading at $40 per share – market capitalization = $400,000.

	Poor	Normal	Great
Operating Profit	10,000	100,000	200,000
less Interest Expense	-	-	-
Net Income before Tax	10,000	100,000	200,000
less Tax (@30%)	3,000	30,000	60,000
Net Income	7,000	70,000	140,000
Return on Equity	1.75%	17.5%	35%

$$= \frac{70{,}000}{400{,}000} = 17.5\%$$

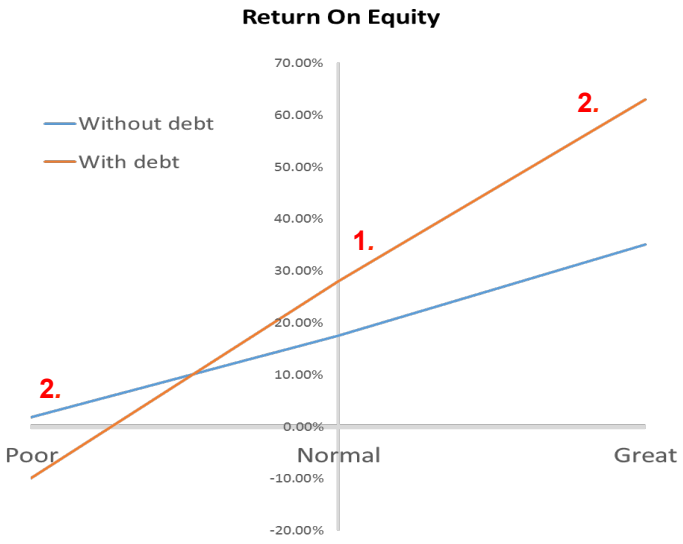
Demonstrating the impact of leverage on returns

Now let's replace half of the shares with debt with an interest cost of 10% p.a.

- So now we have $200,000 of debt and $200,000 of equity [5,000 shares @$40].

	Poor	Normal	Great
Operating Profit	10,000	100,000	200,000
less Interest Expense	20,000	20,000	20,000
Net Income before Tax	-10,000	80,000	180,000
less Tax (@30%)	-	24,000	54,000
Net Income	-10,000	56,000	126,000
Return on Equity $_{\text{WITH DEBT}}$	-5%	28%	63%
Return on Equity $_{\text{NO DEBT}}$	1.75%	17.5%	35%

Demonstrating the impact of leverage on returns



Shareholder's response to increased leverage

So how would a shareholder respond to increased debt?

On the one hand *expected returns* might be higher!

But at what cost …?

Explicit Cost	Implicit Cost
Interest Expense	Increased Risk

The value of any asset (including a share) is:

$$PV = \frac{E(CF_1)}{(1+r)^1} + \frac{E(CF_2)}{(1+r)^2} + ... + \frac{E(CF_n)}{(1+r)^n}$$

Summary

Introducing debt into a firm can increase the expected return to shareholders
– *provided the rate of return on assets exceeds the interest rate of debt.*

It will also increase the variability of returns to shareholders.

This increase in variability is known as *financial risk:*

- Shareholders will demand compensation for exposure to financial risk
  – *they will use a higher discount rate when valuing the share.*

Source list

Slide 2: Pro Coffee Roaster Thermometer by David Joyce (https://flic.kr/p/4jJsGp) CC BY-SA 2.0 (https://creativecommons.org/licenses/by-sa/2.0/)

Slide 5: Return on equity. Graph prepared by Sean Pinder. ©The University of Melbourne.