Module 4

Corporate Financial Decision-Making for Value Creation

Why Manage Risk?
(How can insurance have a positive NPV?)

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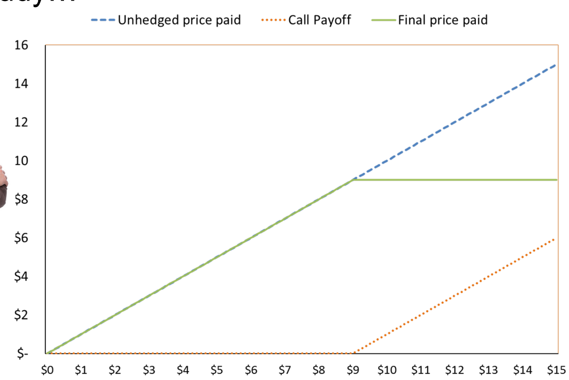
Setting the scene

Recall Judy…



she spent $0.50 buying an option to manage risk – the option was worth $0.50 so the NPV = 0.

Setting the scene

Christine Brown – in an article that reviewed the literature on why risk management might create value for shareholders – highlighted four reasons:

1. Managerial self-interest
2. The non-linearity of taxes
3. The costs of financial distress
4. The existence of capital market imperfections.

1. Managerial self interest

As a CEO – it is extremely difficult to hedge the risk associated with the human capital I have tied up in the firm.

[As an aside: Takeovers anyone?]

As a consequence – managers will demand a risk premium reflecting the risk associated with their human capital.

By allowing managers to hedge the risk of the firm's cash flows – you might be able to pay them less which increases the returns to shareholders.

2. Non-linearity of taxes

Most tax codes in the world are progressive – tax rate is higher for higher pre-tax income.

A reduction in volatility of taxable income can lower expected taxes for firms facing non-linear tax functions.

Therefore, by reducing the effective long-term average tax rate, any strategies that reduce volatility in reported earnings will enhance shareholder value.

2. Non-linearity of taxes

To illustrate – let's consider a firm facing the following situation:

1. If it doesn't hedge – it expects to generate $300,000 of income this year and $700,000 of income next year.

   Tax levied: $72,000+$392,000 = $464,000

2. If it does hedge – it expects to generate $500,000 of income in each year.

   Tax levied: $200,000 + $200,000 = $400,000

Income level	Tax rate on all income	Tax paid on income
0	0	0
$100,000	8%	$8,000
$200,000	16%	$32,000
$300,000	24%	$72,000
$400,000	32%	$128,000
$500,000	40%	$200,000
$600,000	48%	$288,000
$700,000	56%	$392,000
$800,000	64%	$512,000
$900,000	72%	$648,000
$1,000,000	80%	$800,000

3. Costs of financial distress

Recall the trade-off theory of capital structure:

$$V_{Debt} = V_{No\ debt} + PV(Tax\ Shields) - PV(Financial\ Distress\ Costs)$$

Where:

$$PV(FDC) = Probability\ of\ Distress \times Costs\ incurred\ in\ distress$$

Hedging can reduce the probability of financial distress and hence reduce the PV(FDC) and increase the value of the firm!

4. Costs of financing

Start with the reasonable assumption that there are greater transaction costs associated with using **external** financing rather than **internal** financing.

If you don't hedge – then you are more likely to have to access those more costly external capital markets when business conditions change.

Hence – preventing cash-flow deficit years by hedging can reduce the cost of financing and hence increase the value of the firm.

Summary

- In a perfect capital market – free of transaction costs and taxes – there is no reason why hedging should be expected to create value for shareholders.
- We identified four reasons why hedging might create value:

1. Managerial self-interest
2. Non-linearity of taxes
3. Costs of financial distress
4. Costs of financing.

Risk Management

1. Using forwards and futures
2. Introducing options
3. Drivers of option values
4. Caps, floors and collars
5. Creating value with risk management

Key decisions

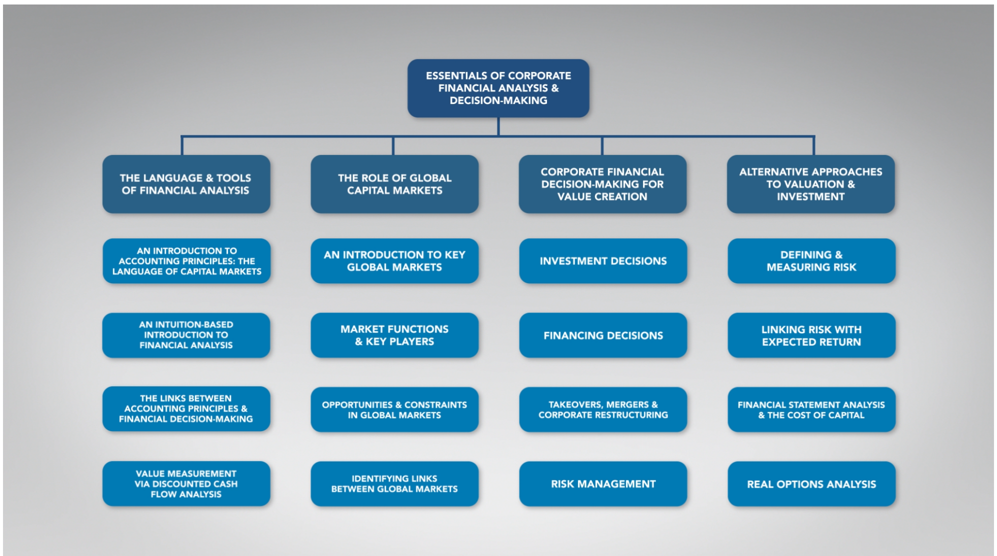
Project Evaluation
What do we invest in?

Financing and Payout
How do we pay for investment and how should profits be distributed?

Takeovers and Corporate Restructuring
When should we acquire other business units or sell our own?

Risk Management
When should we manage risk, and what instruments should we use?

Essentials of Corporate Financial Analysis and Decision-Making



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Slide 3:
Christine Brown, 2001, The Principles of Capital Risk Management of a Large Corporation, in *Enhancing Shareholder Value Through Risk Management*, edited by Neil R. Britton.

Slide 4:
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