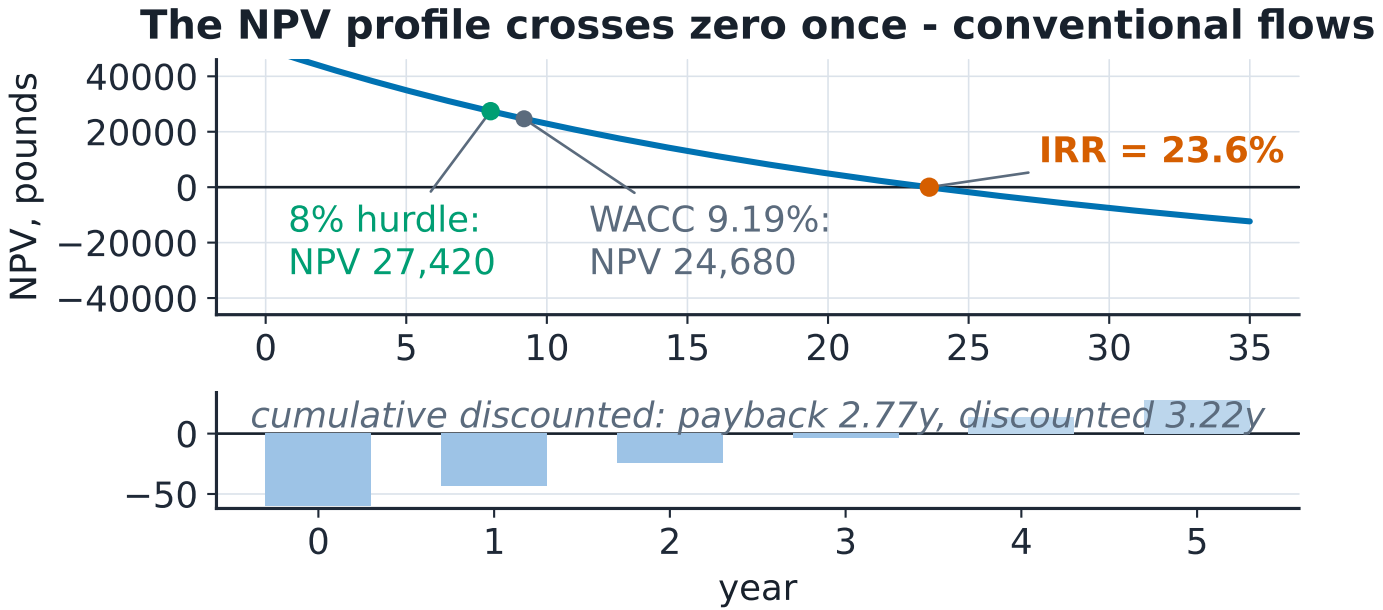
Exercise walk-through

9.3
Investment appraisal

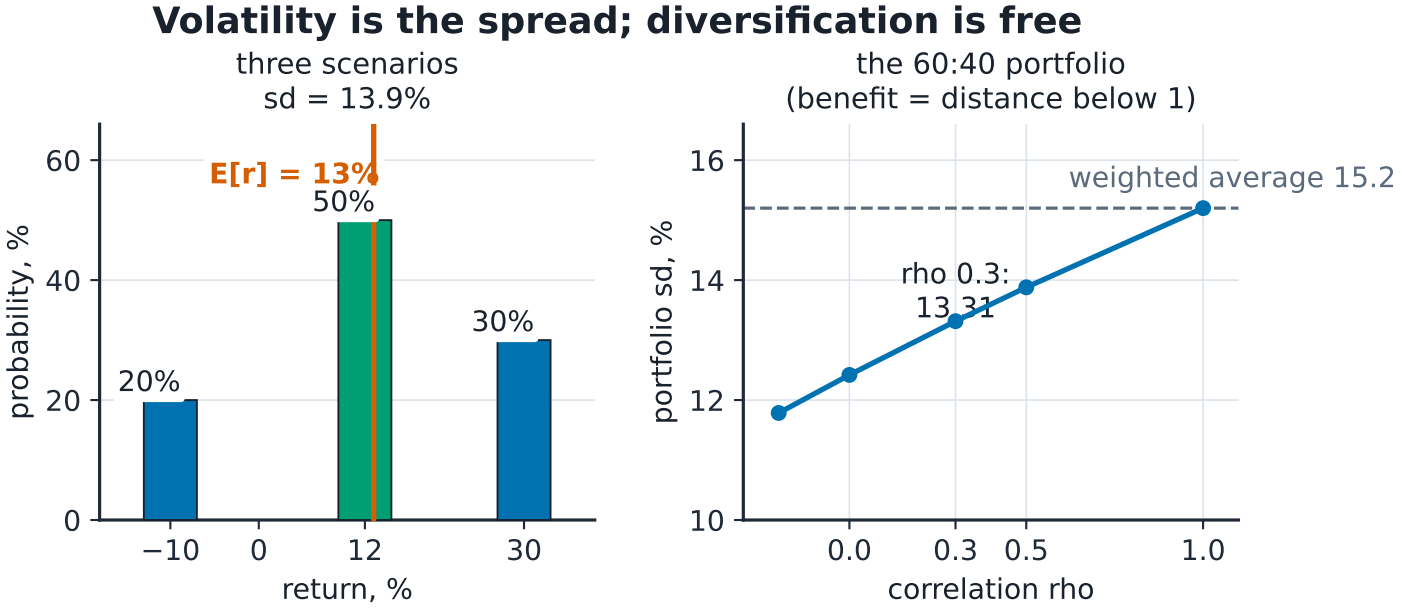
University Business

Appraisal: NPV is the referee



IRR 23.6%; NPV 27,420 at 8% and 24,680 at the 9.19% WACC.

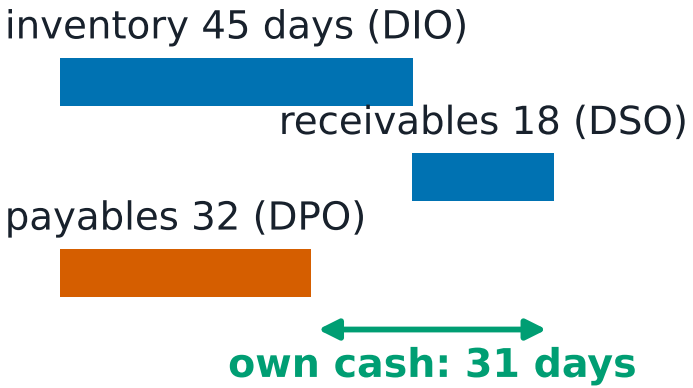
Risk: the free lunch and its knife



E[r] 13.0%, sd 13.9%; **diversification** shrinks as correlation rises.

Working capital: the cash the growth eats

The 31-day bridge of own cash



CCC = 45 + 18 - 32 = 31 days of sales tied up

Overtrading, one table

sales	100	**160**
NWC/sales	20%	**25%**
NWC	24,000	**48,000**

NWC DOUBLES
(1.6 x 1.25)

sales +60%, not +60% cash

A 31-day cash cycle; 60% growth doubles working capital.

Exercises 2.1·2.2

2.1 Compute the NPV at 10% (nearest pound). [3]

2.2 The IRR is 18.0% and payback is 2.67 years – verify the payback, showing the cumulative recoveries. [3]

Exercises 2.1·2.2

2.1 Compute the NPV at 10% (nearest pound). [3]

2.1

- $9{,}000/1.1 + 11{,}000/1.21 + 12{,}000/1.331 + 10{,}000/1.4641$.
- $= 8{,}182 + 9{,}091 + 9{,}016 + 6{,}830 = 33{,}119$.
- NPV $= 33{,}119 - 28{,}000 =$ £5,119.

2.2 The IRR is 18.0% and payback is 2.67 years – verify the payback, showing the cumulative recoveries. [3]

2.2

- Cumulative: 9,000; 20,000; 32,000 – $20{,}000 < 28{,}000 < 32{,}000$.
- Payback $= 2 + 8{,}000/12{,}000 = 2.67$ years.

Exercises 2.3·2.4

2.3 A rival project needs −6,000 and returns 2,400 a year for four years: NPV 1,608, IRR 21.9%. Which project does the firm choose if only one fits, and which rule says so? [3]

2.4 In one line each: what question does each of the three rules answer? [3]

Exercises 2.3·2.4

2.3 A rival project needs −6,000 and returns 2,400 a year for four years: NPV 1,608, IRR 21.9%. Which project does the firm choose if only one fits, and which rule says so? [3]

2.3

- Both positive NPV; the oven's 5,119 beats the rival's 1,608.
- Choose the oven – NPV says so (pounds of value).
- IRR prefers the rival (21.9%) – IRR ignores scale.

2.4 In one line each: what question does each of the three rules answer? [3]

2.4

- NPV: how much richer, in pounds today?
- IRR: what rate of return?
- Payback: how long is the money exposed?