1-2 questions

Answer to the question on the previous classroom slide

Try each in turn. B, 4%, gives an NPV of zero, and hence the IRR is 4%.

Answers to the questions on the previous slide:

C

$$\frac{£1{,}000}{1.05}+\frac{£3{,}000}{1.05^2}+\frac{£6002}{1.05^3}-£8{,}858.22=£0$$

C

$$\frac{£14{,}000}{1.03}+\frac{£17{,}000}{1.03^2}+\frac{£11{,}000}{1.03^3}-£39{,}682.92=£0$$

2. Indices: Uses

Indices: headline news

- A simple way of summarising market movements

Indices: tracker funds

- Match the movements of a chosen benchmark
- Benchmark? Many use a specified index

Further information

A stock market index is a method of measuring a section of the stock market. Many indices are cited by news or financial services firms and are used as benchmarks, to measure the performance of portfolios and to provide the general public with an easy overview of the state of equity investments. Their methods of construction vary according to whether they are capitalisation weighted or price weighted.

2. Indices: Uses

Benchmark indices

Appropriate benchmarks

- Specified in advance
- Appropriate
- Measurable
- Unambiguous and clearly defined
- Investable (free float indices)

Further information

Alternatives benchmarks include:

- Peer group comparisons: this method compares performance to the performance of a set of other managers chosen from a broad range of managers.
- The median manager: where the performance is compared to the median manager of a number of similar managers.
- Two-horse race: where the performance of a fund is compared to just one other manager – usually the closest competitor.

3. Construction of Indices

Creating an index

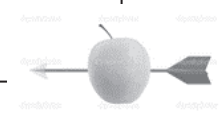
Year	Price of eggs (per ½ doz.)	Index calculation	Index value
1995 (Base year)	58p	58 x 100/ 58	100 (Base value)
1996	55p	55 x 100/58	94.8
1997	62p	62 x 100/58	106.9

Eggs are now 62/58ths of their 1995 price; the index must be worth more than its base value.

Keeping on target

Scottish Energy prices were 10p per kwh in 2010, 12p per kwh in 2011 and 16p per kwh in 2012. If the index was based at 1000 in 2010 what was the value in 2012?

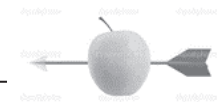
A. 1300
B. 1400
C. 1500
D. 1600



Keeping on target

The UK population was 59,435 in 2004, 59.697 in 2005, 60,038 2006 and 60,409 in 2007. If the index was based at 1000 in 2004 what was the percentage change and the points change between 2006 and 2007?

A. 6.17%, 6.24pts
B. 6.24%, 6.17pts
C. 0.62%, 6.24pts
D. 6.17%, 6.17pts



3. Construction of Indices

Rebasing an index

Calculate the value of the re-based index for the year 1996:

Year	Price of eggs (per ½ doz.)	'Old' index value	Re-basing calculation	Re-based index value
1995	58p	100		
1996	55p	94.8		?
1997	62p	106.9	106.9 x 100/106.9	100

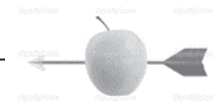
The 'new' value of the 1996 index is calculated by multiplying the re-basing factor:

94.8 x 100/106.9 = 88.7

Keeping on target

Scottish Energy prices were 9p per kwh in 2010, 12p per kwh in 2011 and 15p per kwh in 2012. The index was 120, 160 and 200 respectively. If the index is rebased at 100 in 2012, what would be the value for 2010 under the new index?

A. 60
B. 75
C. 95
D. 110



Answer to the questions on the previous slide:

D

16 x 1000 / 10 = 1600

C

60,409 / 60,038 – 1 = 0.617%

2006 index 60,038 / 59,435 x 1000 = 1010.15

2007 index 60,409 / 59,435 x 1000 = 1016.39

1016.39 – 1010.15 = 6.24

4. Indices for Financial Markets

Index weightings

Price/Unweighted weighted

- Assumes an **equal number of shares** in each constituent stock
- DJIA / Nikkei 225

Market value-weighted

- Assumes a **proportionate value investment** in each constituent stock
- S&P, Nasdaq, FTSE, Amex, MSCI

Equally weighted

- Assumes an **equal cash investment** in each constituent stock
- FT 30

Further information

	Name	Weighted	Average
UK	**FT 30**	**Equally**	**Geometric**
	FTSE (various)	Market	Arithmetic
US	**Dow Jones Industrial Average (30)**	**Unweighted**	**Arithmetic**
	Dow Jones STOXX (regional variations)	Market	Arithmetic
	Standard and Poor's S&P500	Market	Arithmetic
Germany	DAX (various)	Market	Arithmetic
France	CAC 40	Market	Arithmetic
Japan	**Nikkei 225**	**Unweighted**	**Arithmetic**
India	S&P CNX Nifty (50)	Market	Arithmetic
Europe	FTSE Eurofirst (various)	Market	Arithmetic

Answer to the question on the previous slide:

A

120 x 100 / 200 = 60

4. Indices for Financial Markets

Index weightings

Price weighted
- Adjusted for splits

$$\frac{\sum \text{Stock Prices}_{new}}{\sum \text{Stock Prices}_{base}}$$

Market weighted
- Set base year to 100

$$\frac{\sum \text{Price}_{today} \times \text{number of shares}}{\sum \text{Price}_{base} \times \text{number of shares}}$$

Keeping on target

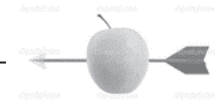
Bob's price weighted index is constructed with 100 Co A, 200 Co B shares and 50 Co C shares. In 2011 the price of the shares was $20, $30 and $10 respectively. In 2012 the prices were $32, $26 and $5. If the index was based at 100 in 2011 what is its 2012 value?

A. 102

B. 105

C. 1018

D. 1050



4. Indices for Financial Markets

Index weightings

Example:

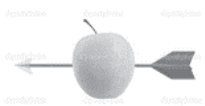
	Number of shares	Base price	New price
Stock A	200	$200	$400
Stock B	2,000	$20	$20
Stock C	20,000	$2	$2

Calculate a price weighted index and a market value weighted index for T0 and T1.

Keeping on target

Bob's market weighted index is constructed with 100 Co A, 200 Co B shares and 50 Co C shares. In 2011 the price of the shares was $20, $30 and $10 respectively. In 2012 the prices were $32, $26 and $5. If the index was based at 1,000 in 2011 what is its 2012 value?

A. 102
B. 105
C. 1018
D. 1050



Answer to the questions on the previous slide

B

2011

$20 + $30 + $10 = $60

$60 / $60 x 100 = 100

2012

$32 + $26 + $5 = 63

$63 / $60 x 100 = 105

Answer to the questions on the previous slide:

C

2011

$20 x 100 + $30 x 200 + $10 x 50 = $8500

$8500 / $8500 x 1000 = 1000

2012

$32 x 100 + $26 x 200 + $5 x 50 = $8650

$8650 / $8500 x 1000 = 1017.65