



Science & innovation investment framework, 2004-2014 - A view from the City

European Equity Strategy

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Question 1

Is the UK stock market an asset or a liability?

“The share of business R&D accounted for by small and medium sized firms.... is high in the UK compared to other major OECD economies... Analysis by the OECD suggests that R&D intensity is correlated with the size distribution of distribution of R&D performing firms. This suggests that the UK’s lower R&D intensity is, at least in part, due to lower levels of R&D amongst larger UK firms...”

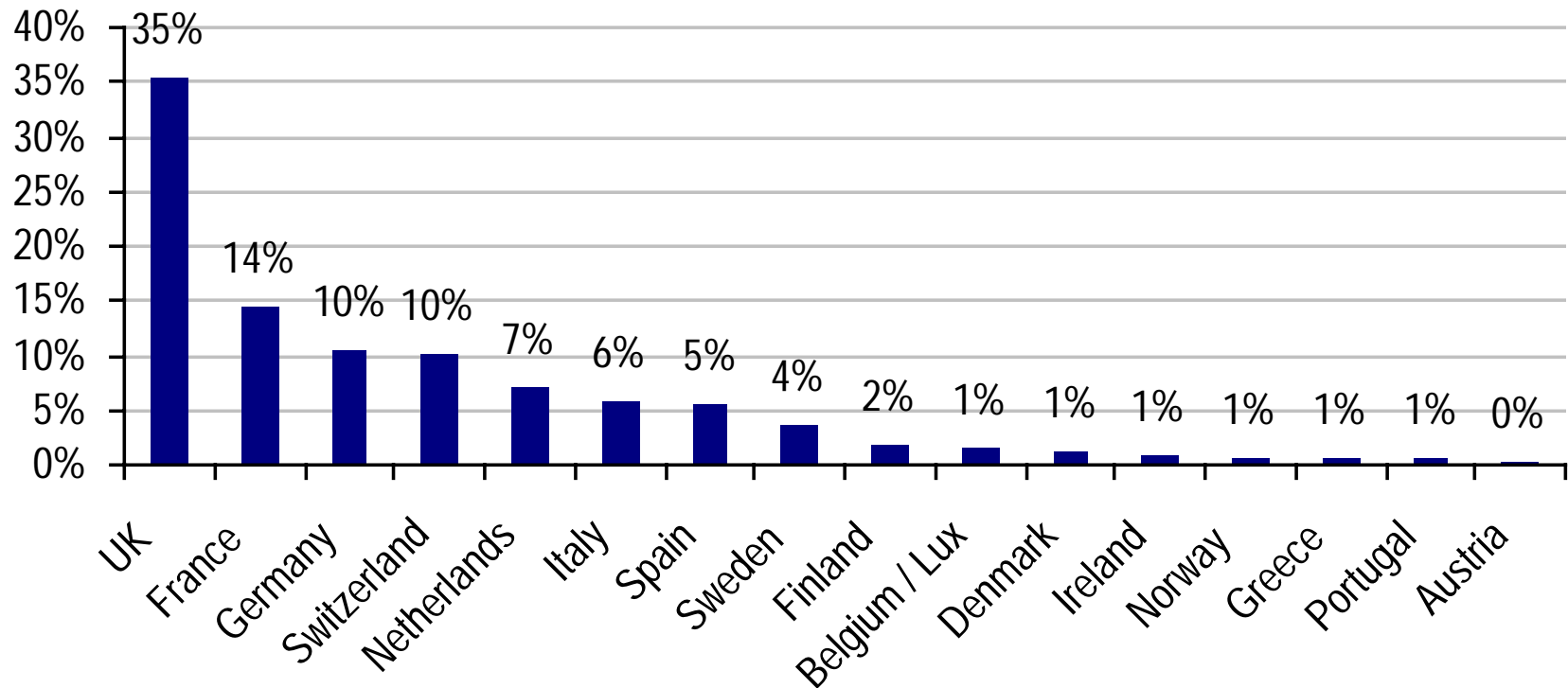
Science & innovation investment framework, p. 60

“Capital markets may also provide insufficient opportunities for companies to shift risk, owing to the asymmetric information between investor and company, and the difficulty of securing finance on intangible knowledge assets.”

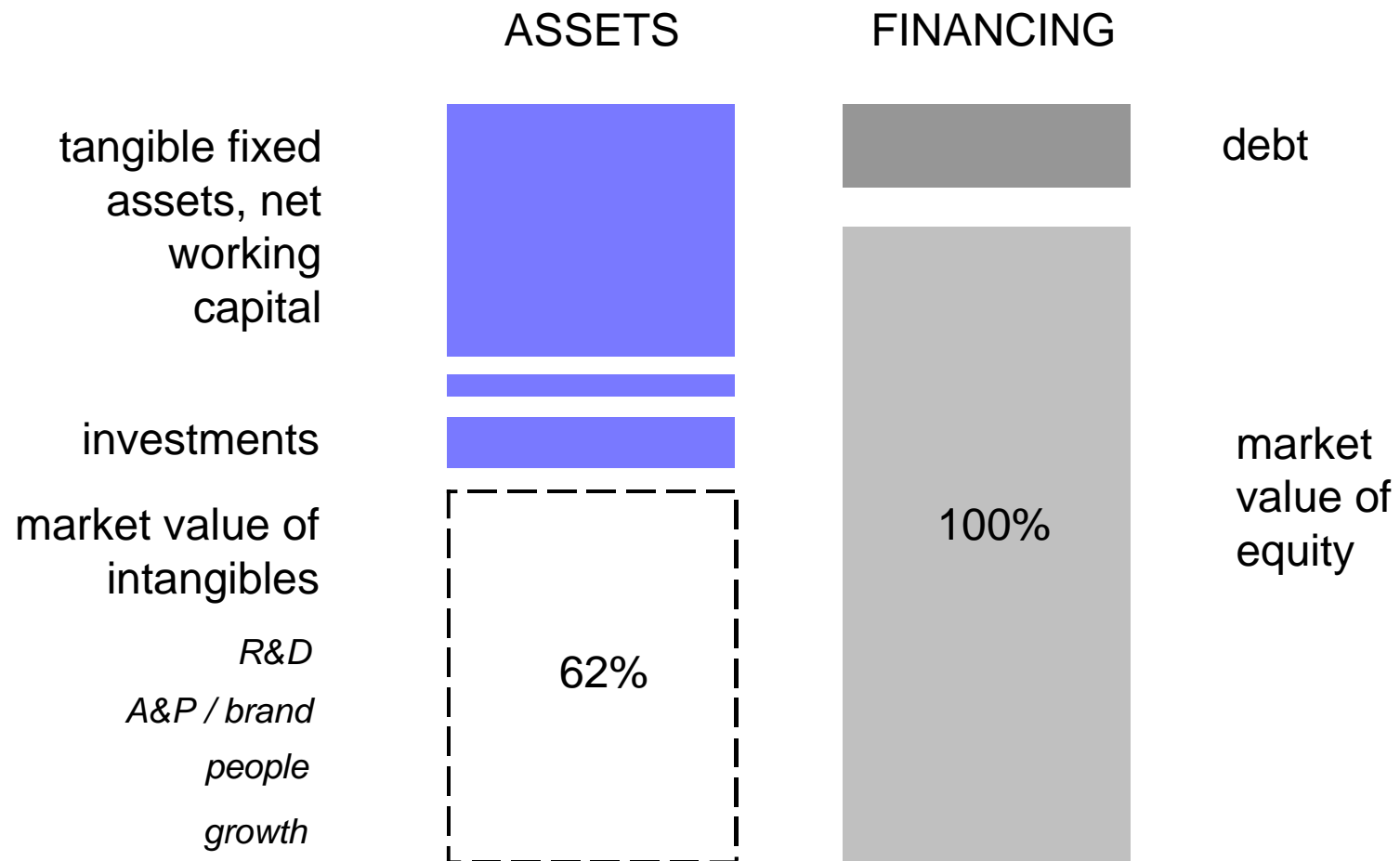
Science & innovation investment framework, p. 63

The UK equity market – pre-eminent in Europe

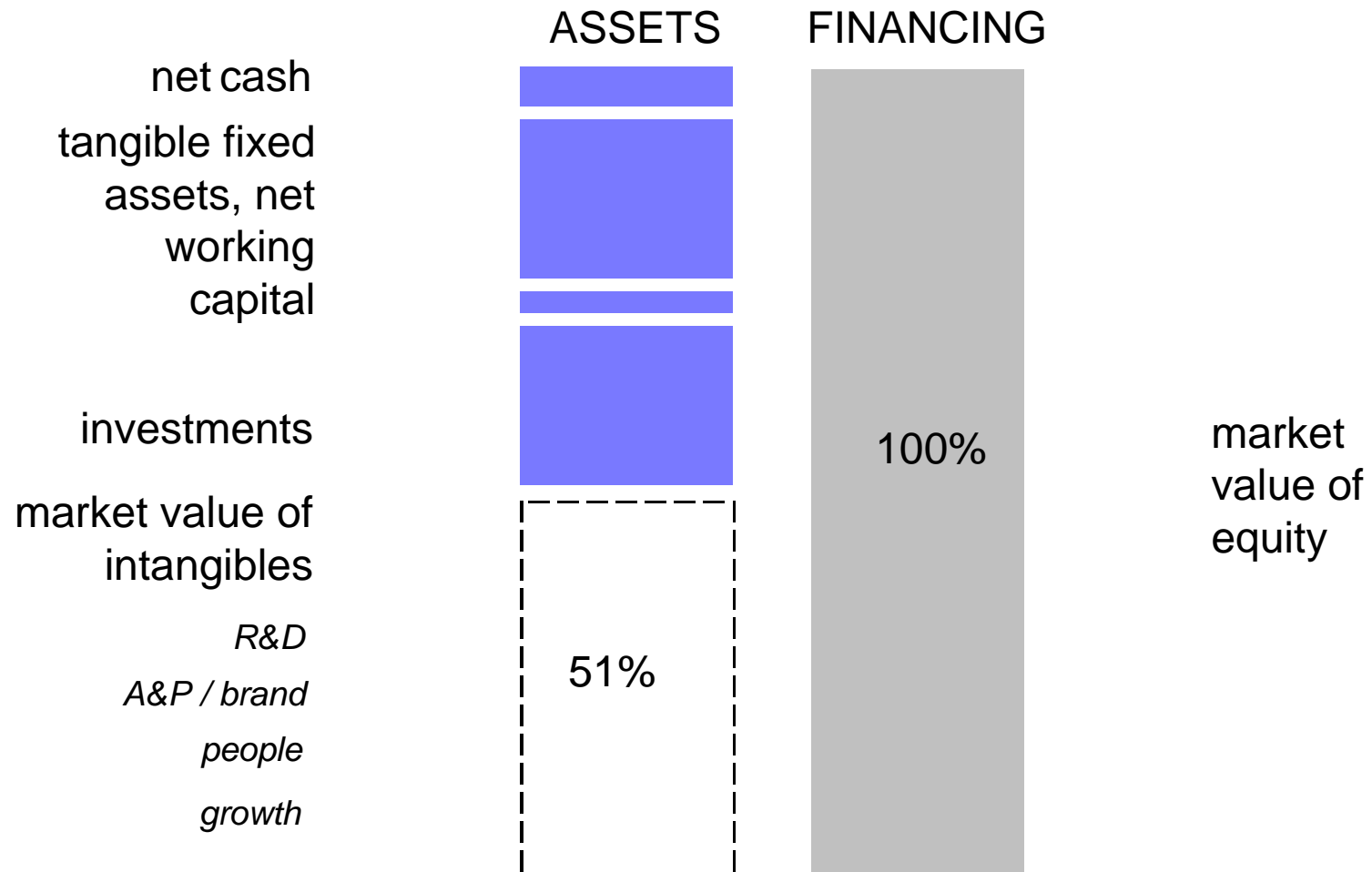
The market capitalisation of Europe: UK accounts for €1.7tr out of total €4.8tr



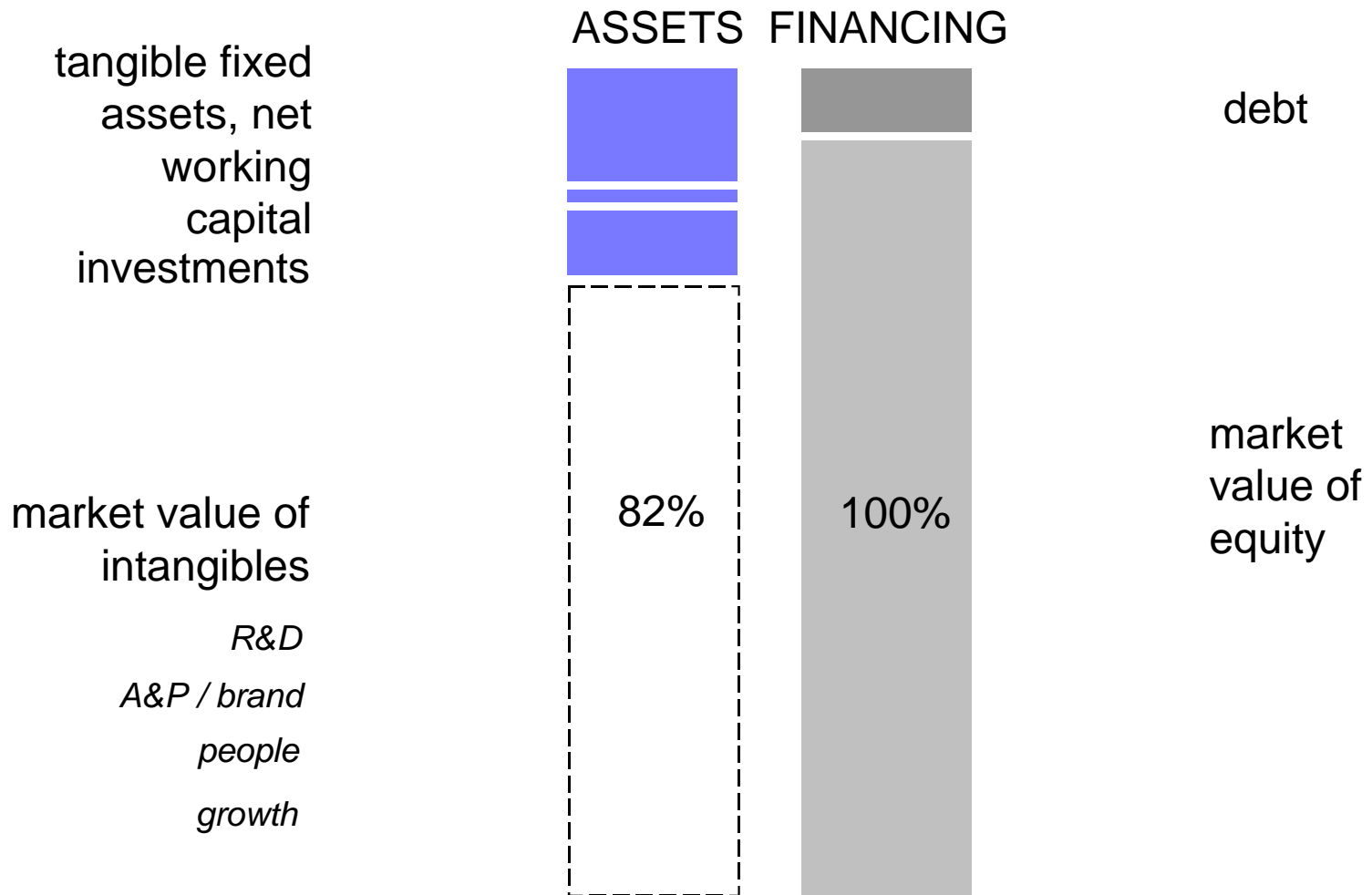
The innovation balance sheet: UK non-financials



The innovation balance sheet: Honeywell (US)

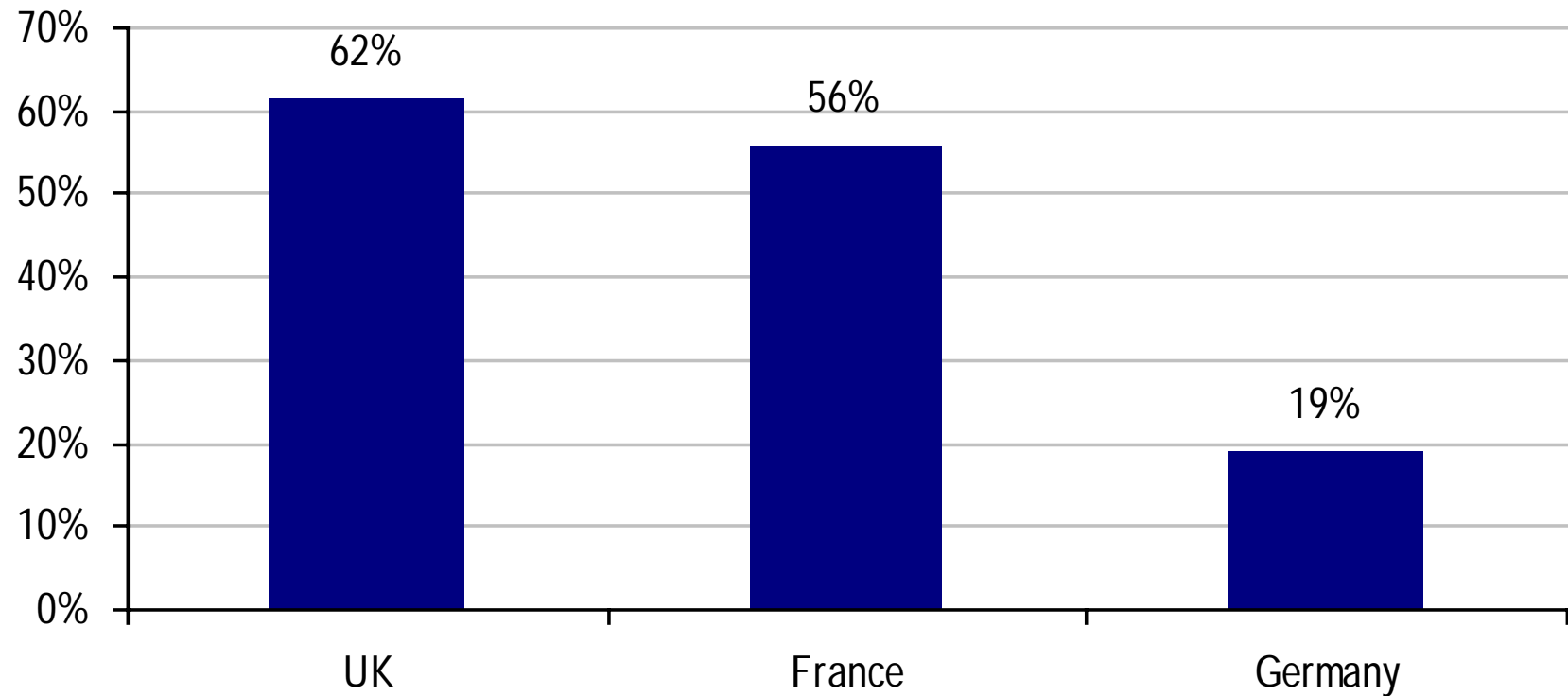


The innovation balance sheet: Smiths Group (UK)



The value of innovation: UK vs France vs Germany

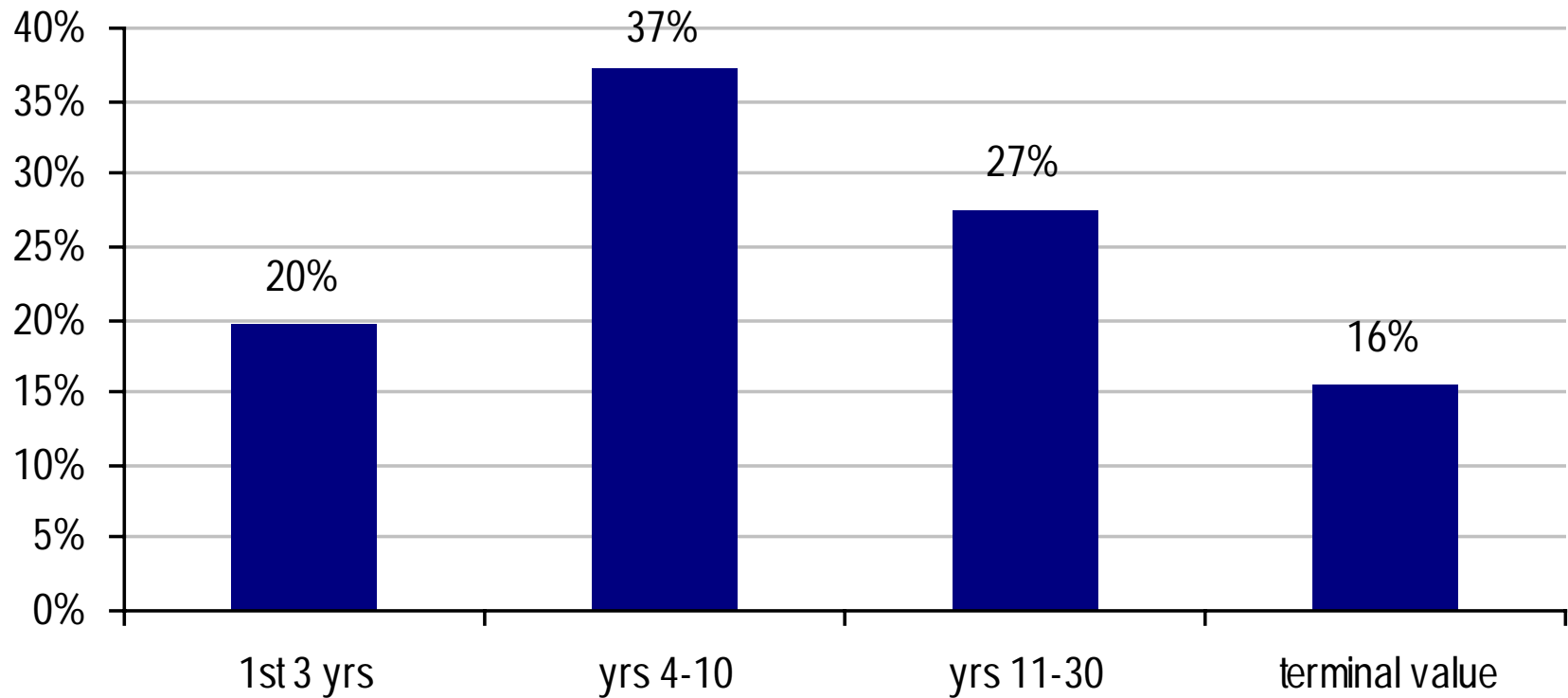
% of market capitalisation accounted for by intangible assets



(based on non-financial companies in Eurotop 300 index, and UBS 2004 forecasts)

The time value of innovation: Smiths Group

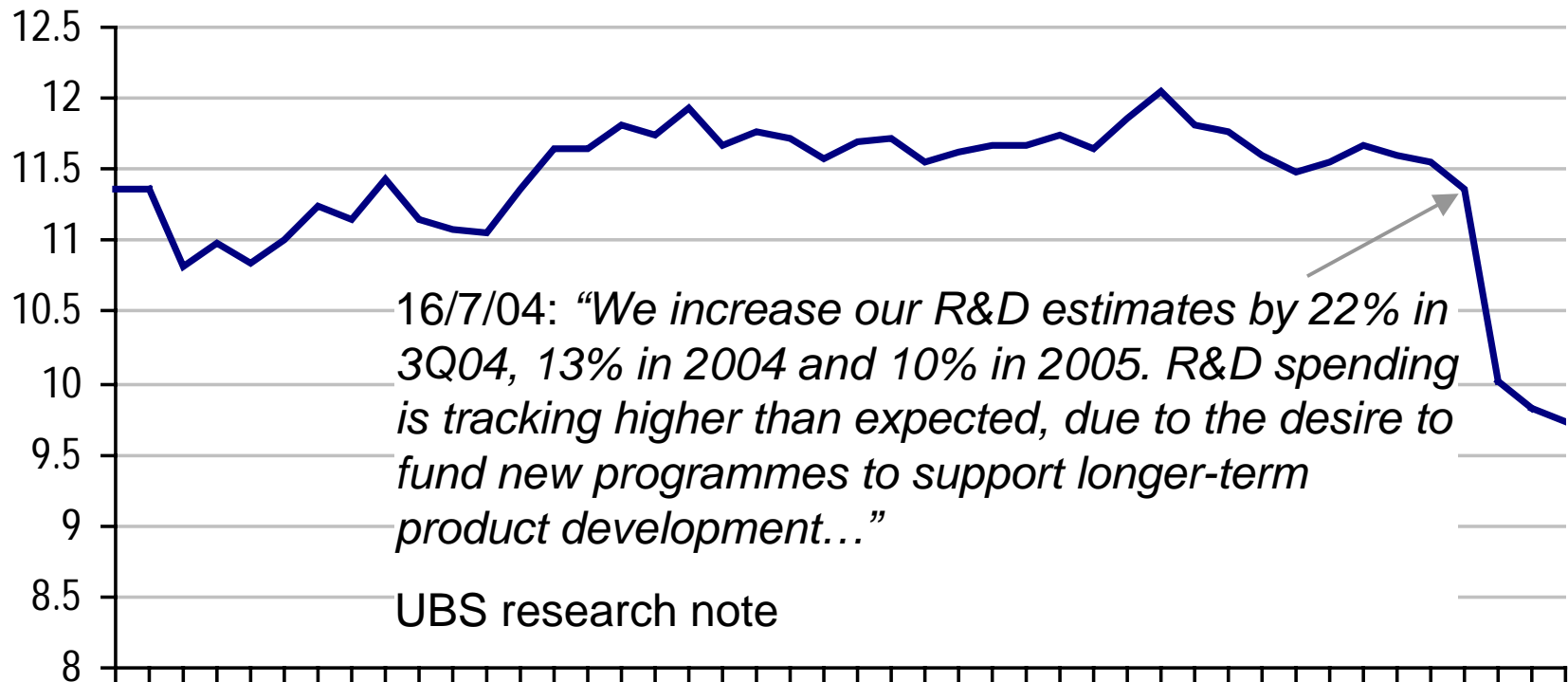
% of today's market value accounted for by cash flows from different future periods



(based on UBS 2004 forecasts; standard dividend discount model)

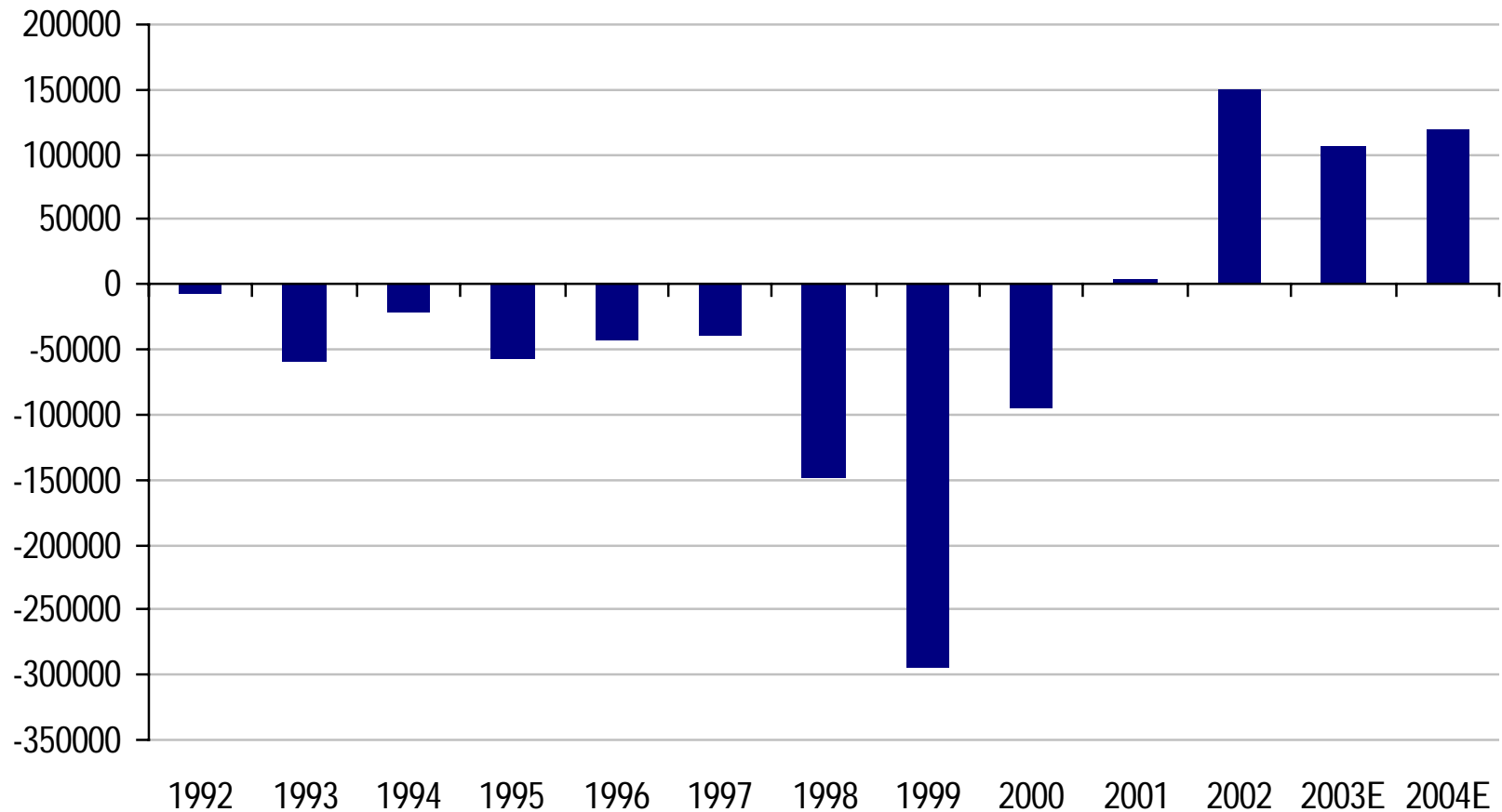
Nokia: a salutary case

In the last 5 trading days, Nokia has lost 16% of its market value, or E8.6bn



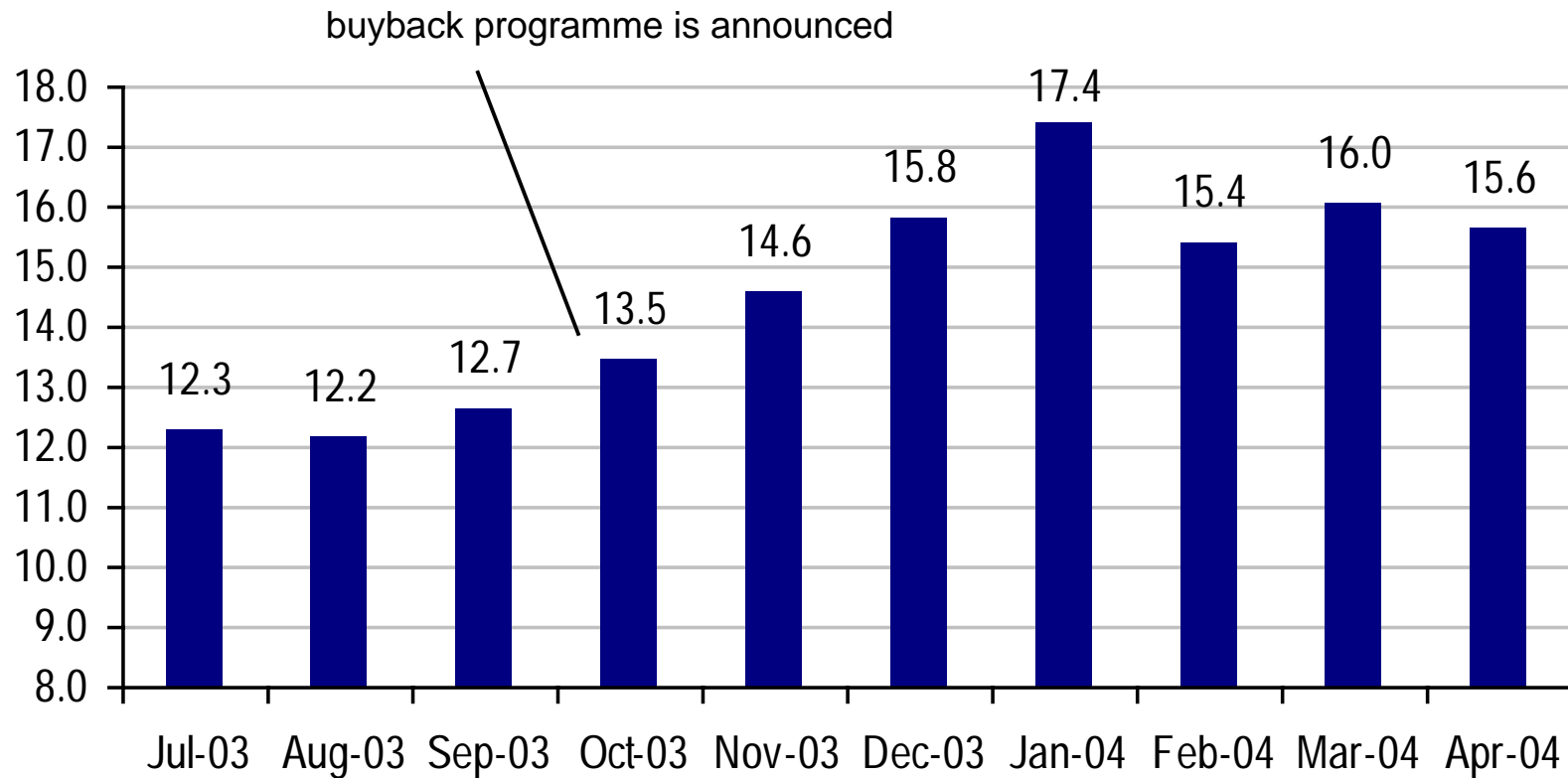
Companies are now unusually conservative

Cash surplus (deficit), European large-capitalisation companies



Conservatism is being rewarded

2004 PE multiple of Portugal Telecom, announcement of share buy-back



Question 2

Is there any evidence in the long-term that investors gain from supporting companies in their R&D efforts?

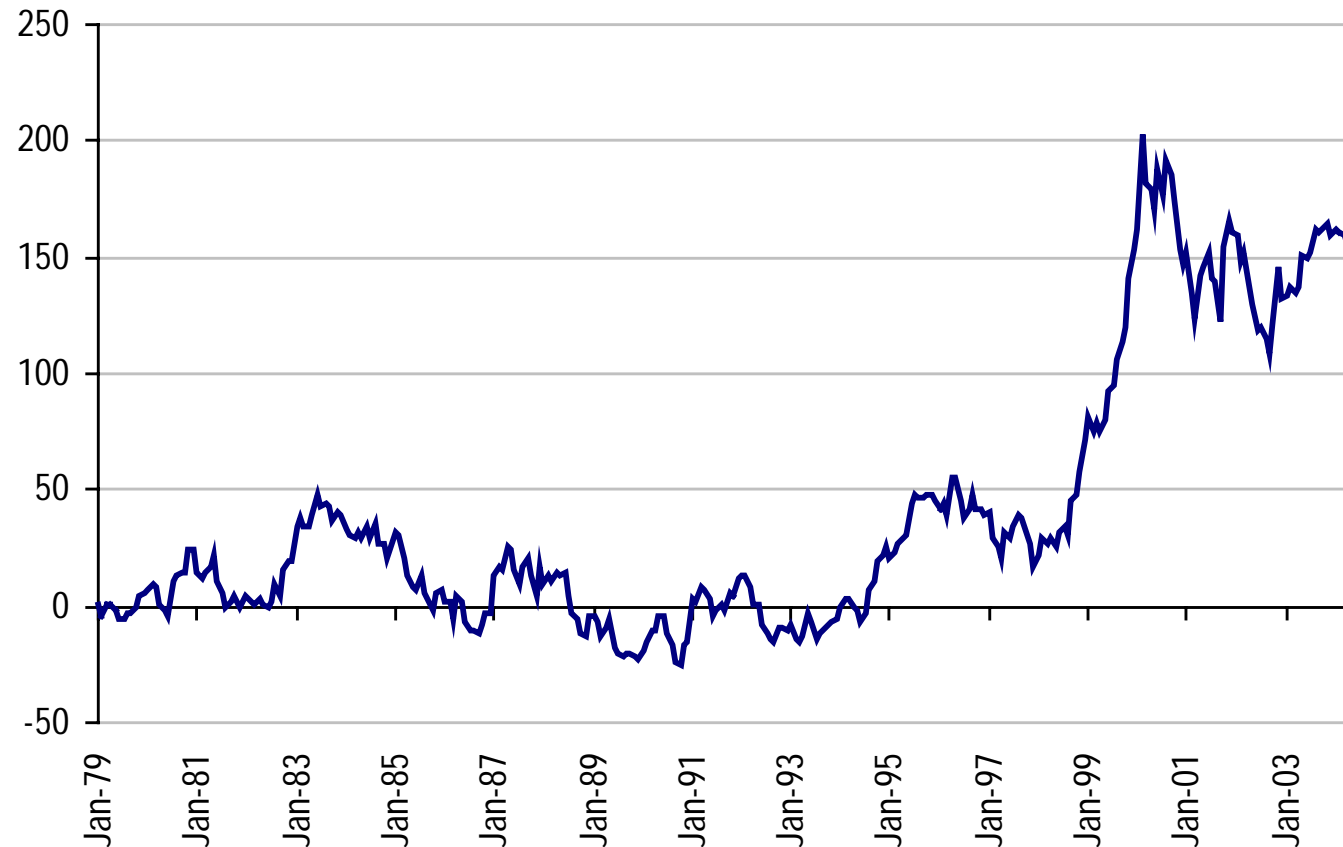
Does science and innovation pay? (investors' view - 1)

Methodology – creating an “R&D portfolio”

- ◆ We ranked all stocks in the US Russell 2000 (index of top 2000 quoted US companies) by their ratio of R&D to total assets, every month for the past 25 years: 600,000 data points
- ◆ We selected the top and bottom quintiles on this measure every month, and constructed a portfolio to go long of the top basket, and short of the bottom one
- ◆ We measured the cumulative returns to this portfolio strategy over time
- ◆ In other words, we have tried to isolate the total returns to an investor in the US stocks that (in each month) are spending the most on R&D. It does not represent the performance of the individual stocks from end to end: the position of the stocks in the rankings may change over time.

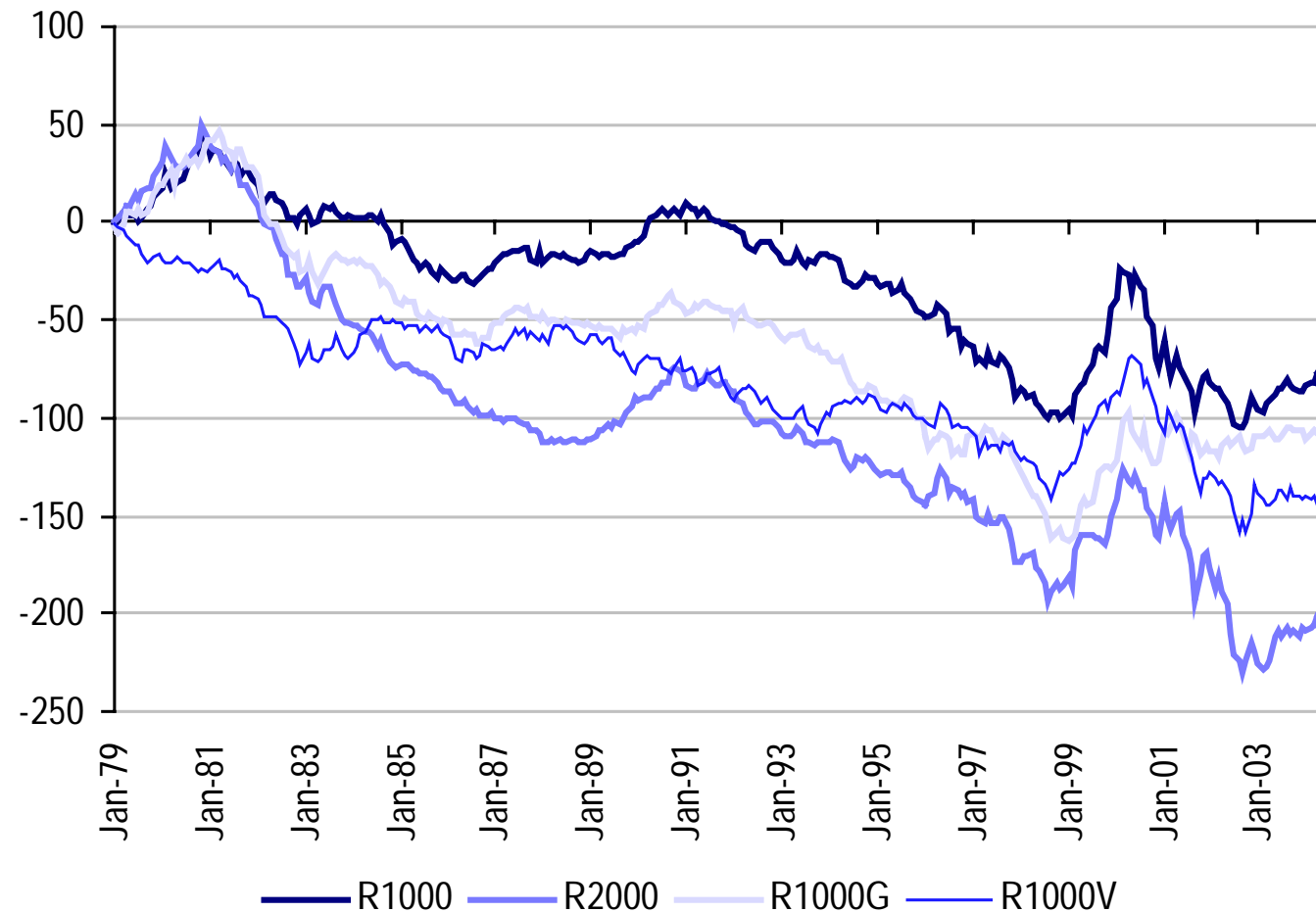
Does science and innovation pay? (investors' view - 2)

How the "R&D portfolio" would have performed over the last 25 years, US Russell 1000 (larger companies)



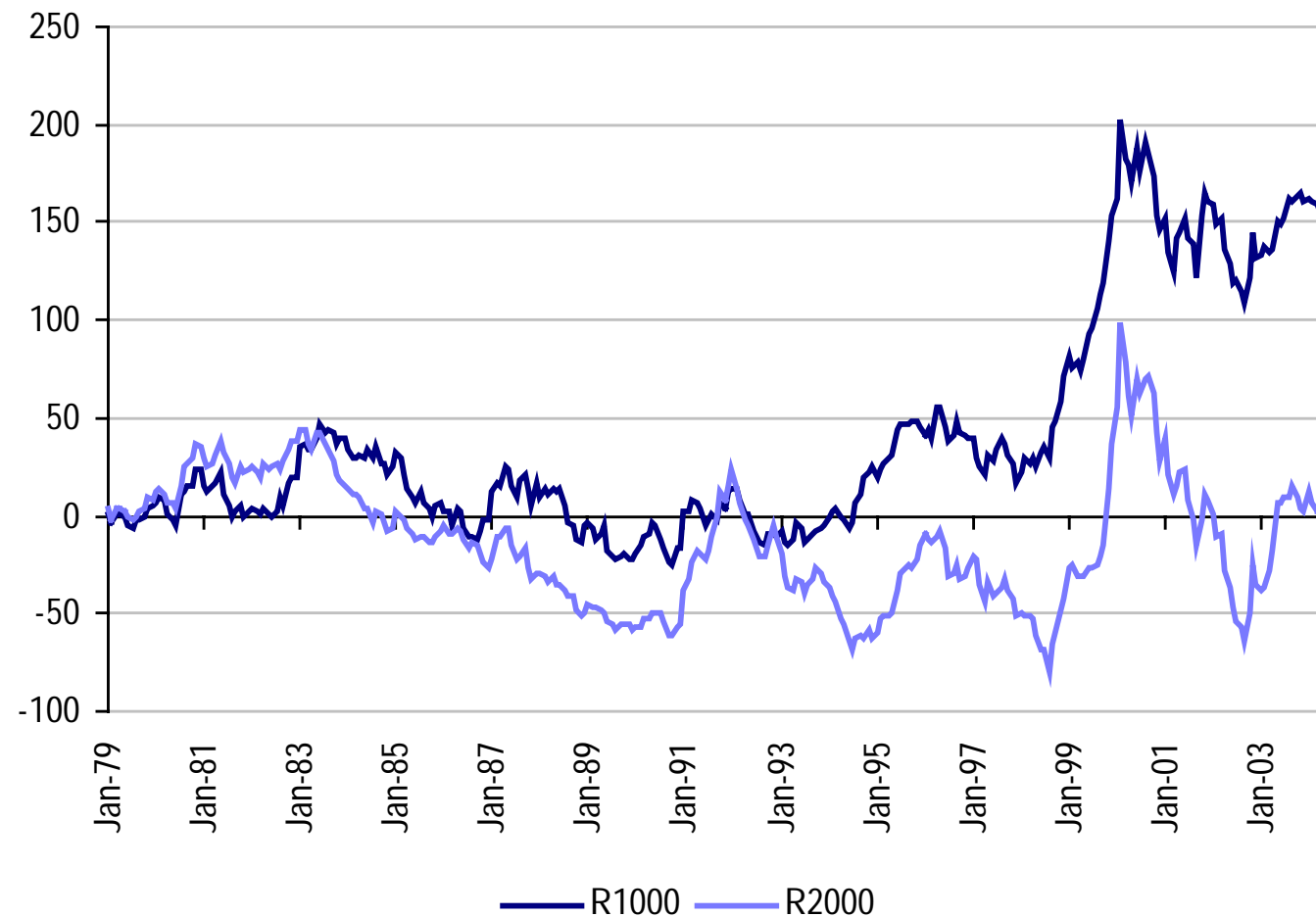
Does science and innovation pay? (investors' view - 3)

..substituting capital spending for R+D



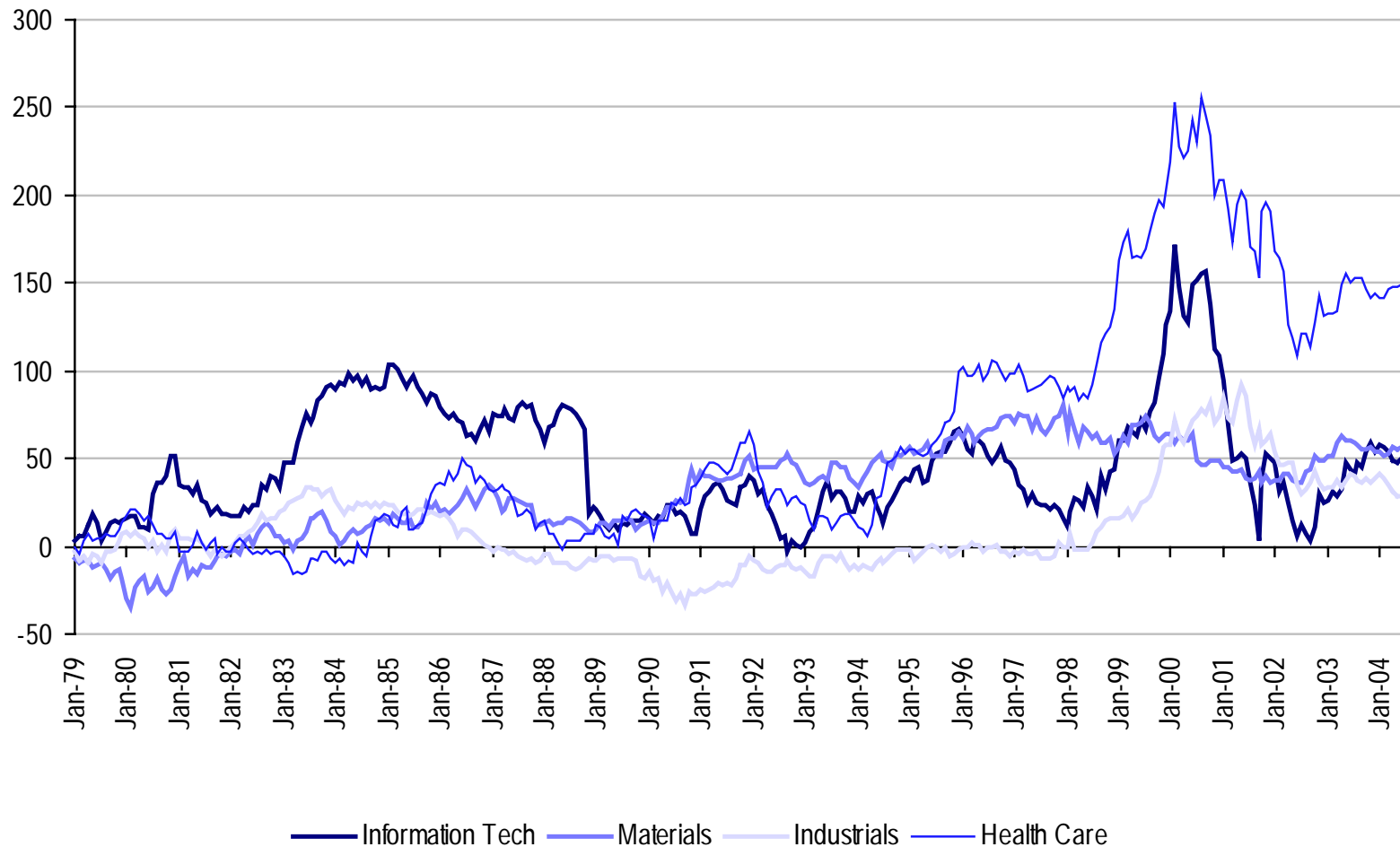
Does science and innovation pay? (investors' view - 4)

Investors prefer large company R+D over small company R+D



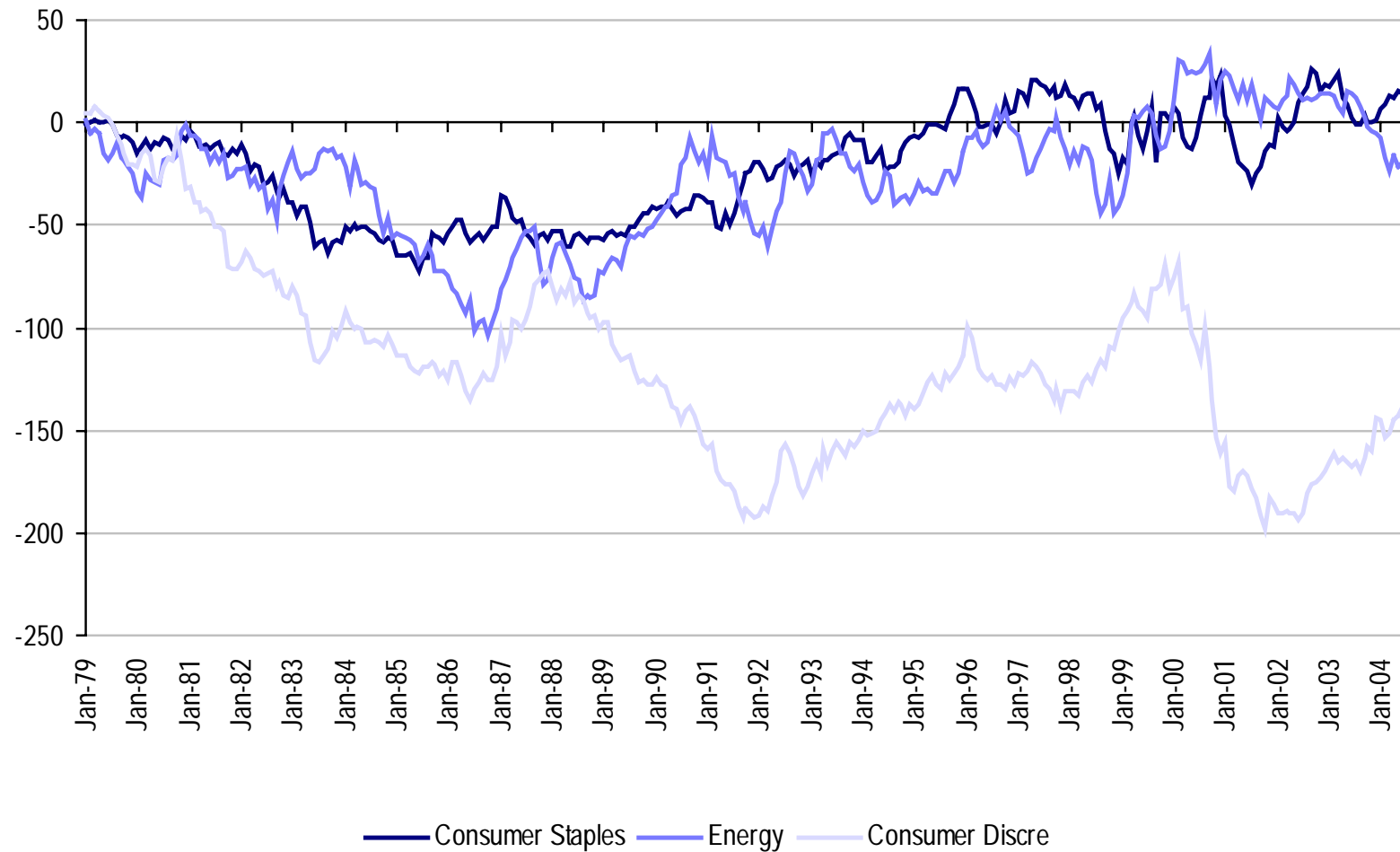
Does science and innovation pay? (investors' view - 5)

Results by sector are very different – the R&D-sensitive ones



Does science and innovation pay? (investors' view - 6)

Results by sector are very different – the less R&D-sensitive ones



Question 3

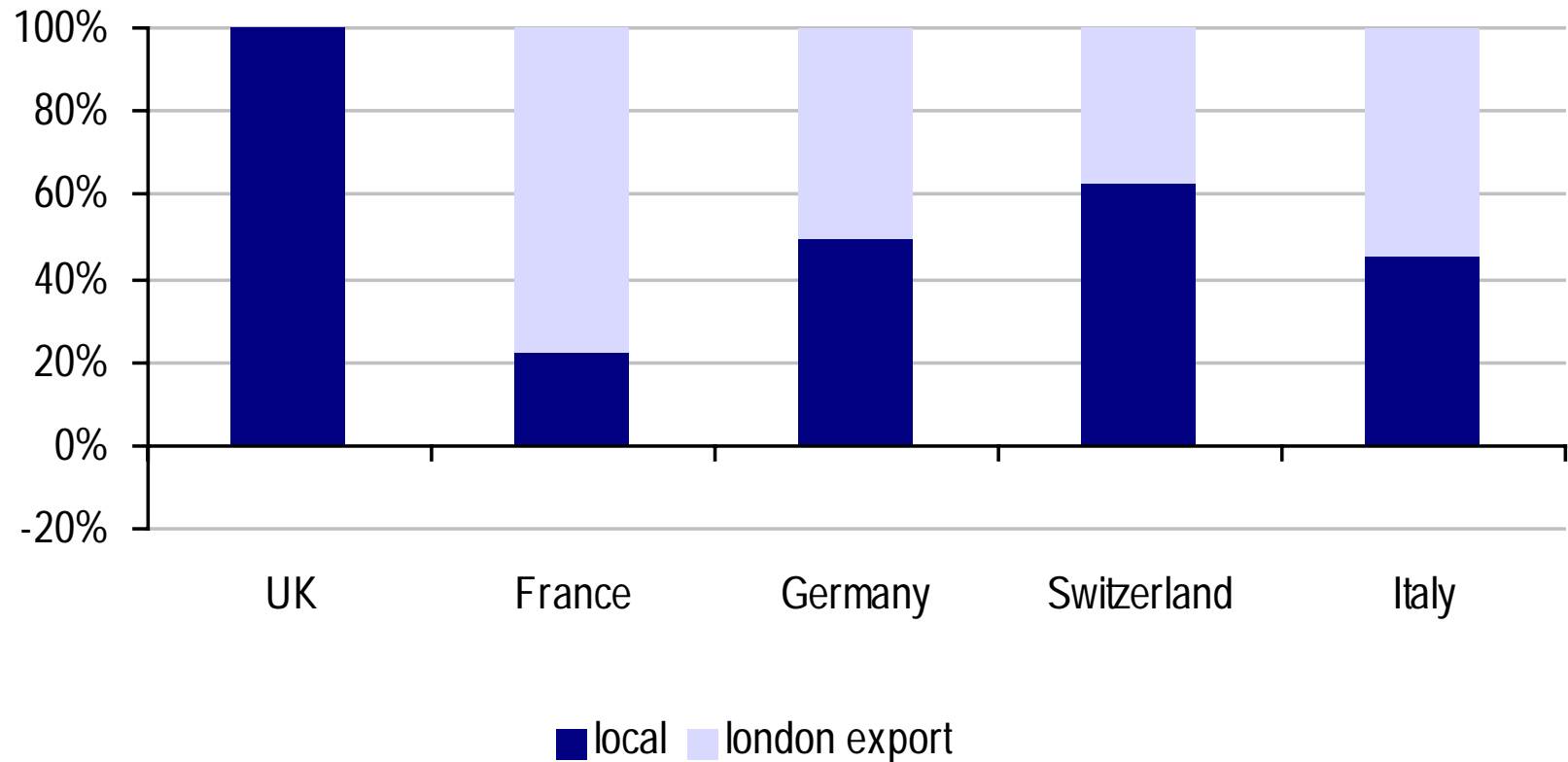
Is the UK financial services industry an asset or a liability?

“The City of London is one of the most competitive financial services clusters in the world. The UK ranks 1 in the Global Competitiveness Report on the sophistication of its financial markets. Its equity markets in particular are rated highly...”

UK Competitiveness: moving to the next stage, (Porter and Ketels) p. 60

The UK finance industry – pre-eminent in Europe

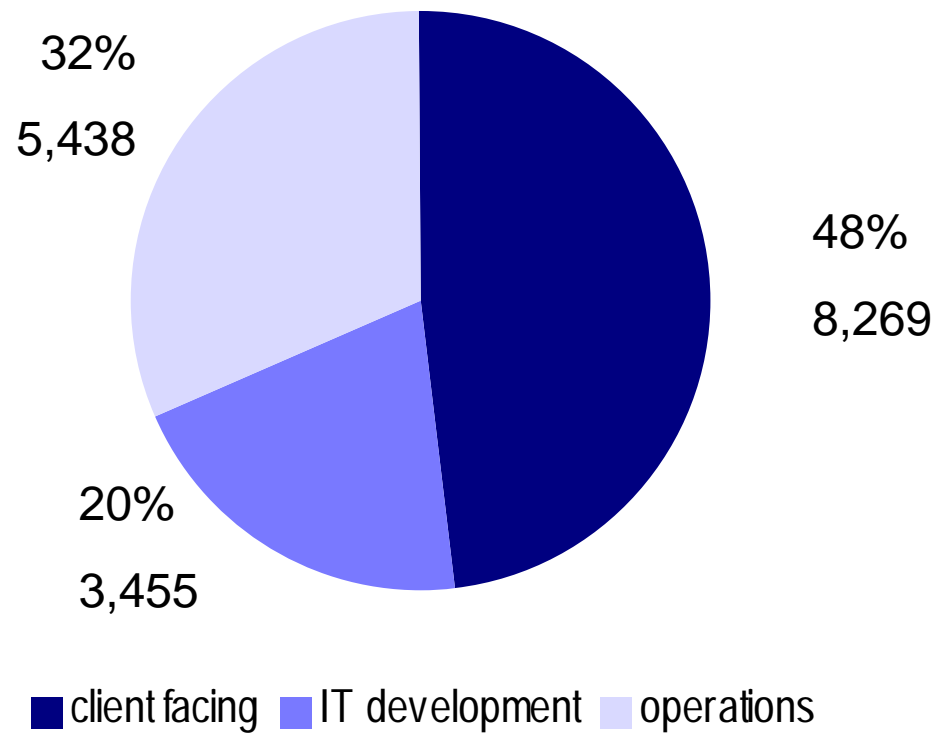
European equity markets – location of intellectual capital



(according to UBS equity analyst location)

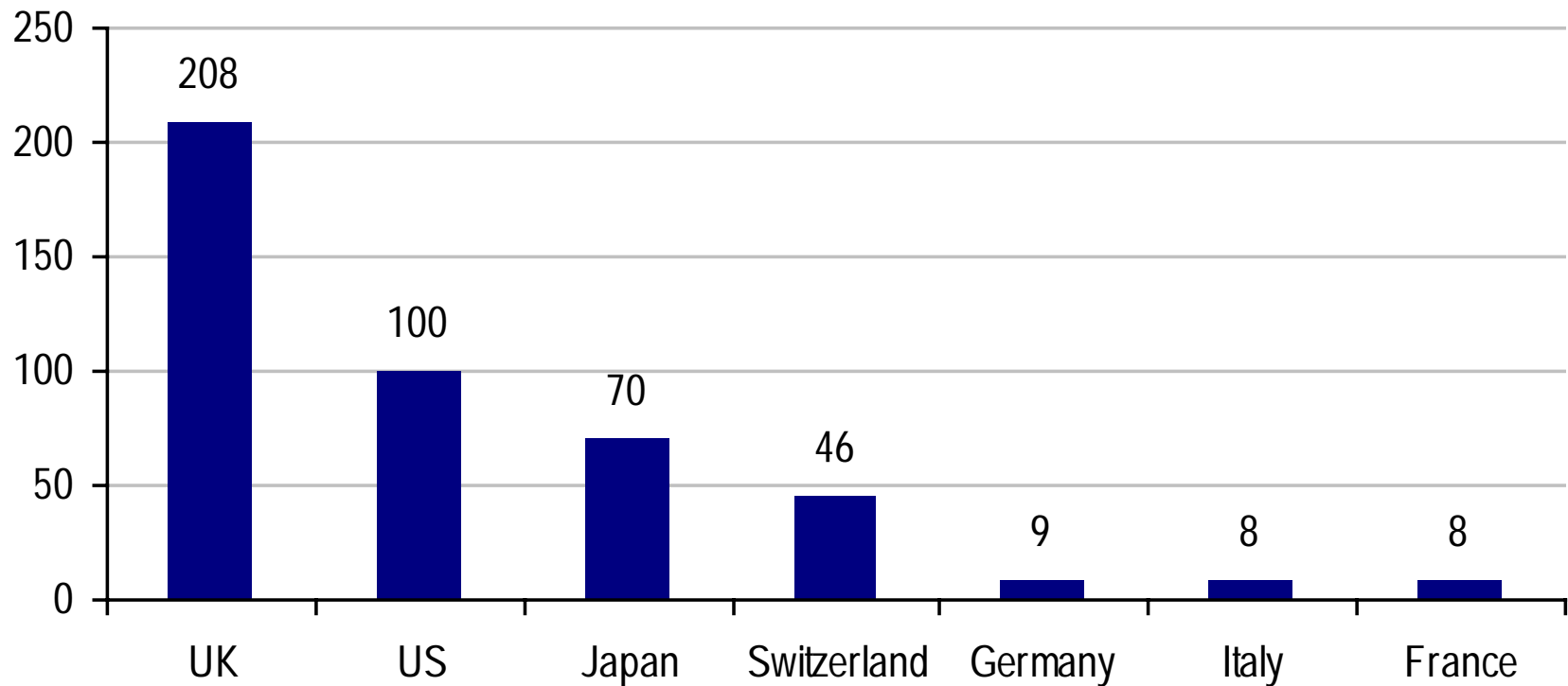
UK finance industry – major development spenders

UBS Investment Bank – global headcount by category



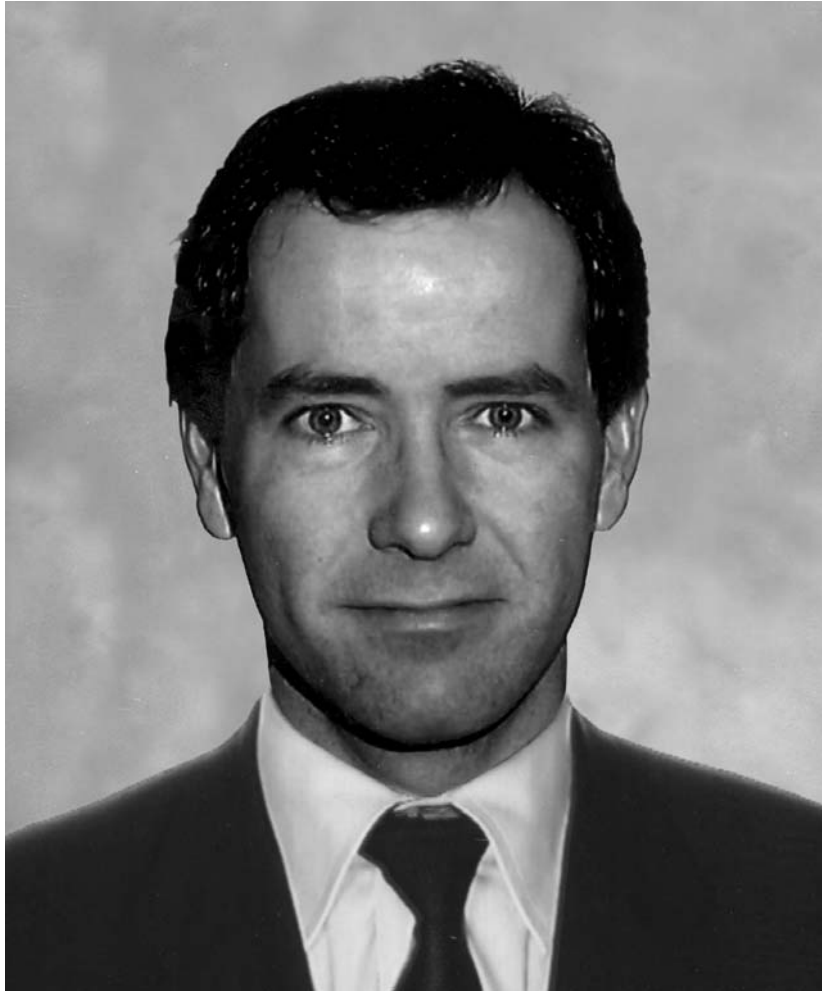
The UK finance industry – shading out the rest?

The relative significance of stock market careers: US = 100



(according to UBS equity analyst location, market share)

One investment analyst / engineer's career path



- ◆ Graduated from University of York in 1986, with BSc, electronic engineering
- ◆ Joined Plessey Electronics, in Electromagnetics Consulting Group, specialising in advanced electronic designs of military equipment
- ◆ *"I decided to leave Plessey after my first annual review, when I was told that I could not achieve the next grade because the minimum age requirement was 24"*
- ◆ Became investment analyst following electronics and industrials companies
- ◆ Was voted in top 3 aerospace / defence analysts in the world, 2000 and 2001, and best analyst in Europe
- ◆ Now UBS Managing Director and head of Telecom research team

Conclusions

- ◆ Question 1: The UK has a noticeably larger and more liquid stock market than those of its competitors. This market takes a long-term view, and already values science and innovation highly. It should be in a position to facilitate, rather than hinder, UK business R&D. At the moment though, market conditions around the world are hostile towards any kind of long term investment.
- ◆ Question 2: in the long run, the US experience suggests that equity investors should profit from a policy of favouring firms with high R&D, although this is most true for larger companies, and for certain sectors.
- ◆ Question 3: The UK wholesale financial services industry is highly productive, and exports successfully. It is itself, though, a major pull on the UK's scientific / innovative talent pool: is there any way of redressing the careers imbalance?

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Global ratings: Definitions and allocations

UBS rating	Definition	UBS rating	Definition	Rating category ¹	Coverage ²	IB services ³
Buy 1	Excess return potential > 15%, smaller range around price target	Buy 2	Excess return potential > 15%, larger range around price target	Buy	47%	35%
Neutral 1	Excess return potential between -15% and 15%, smaller range around price target	Neutral 2	Excess return potential between -15% and 15%, larger range around price target	Hold/Neutral	47%	32%
Reduce 1	Excess return potential < -15%, smaller range around price target	Reduce 2	Excess return potential < -15%, larger range around price target	Sell	6%	26%

Excess return: Target price / current price - 1 + gross dividend yield - 12-month interest rate. The 12-month interest rate used is that of the company's country of incorporation, in the same currency as the predicted return.

US Closed-End Fund ratings and definitions are: Buy: Higher stability of principal and higher stability of dividends; Neutral: Potential loss of principal, stability of dividend; Reduce: High potential for loss of principal and dividend risk.

UK and European Investment Fund ratings and definitions are: Buy: Positive on factors such as structure, management, performance record, discount; Neutral: Neutral on factors such as structure, management, performance record, discount; Reduce: Negative on factors such as structure, management, performance record, discount.

1: UBS Buy 1/Buy 2 = Buy; UBS Neutral 1/Neutral 2 = Hold/Neutral; UBS Reduce 1/Reduce 2 = Sell.

2: Percentage of companies under coverage globally within this rating category.

3: Percentage of companies within this rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS; as of 31 March 2003.

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