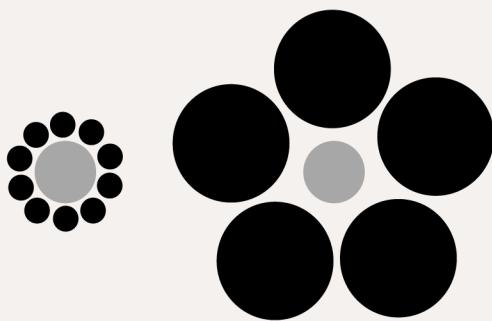

Investor Behavior

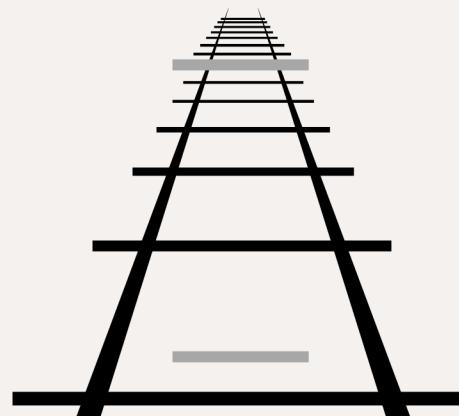


Seeing Is Not Believing

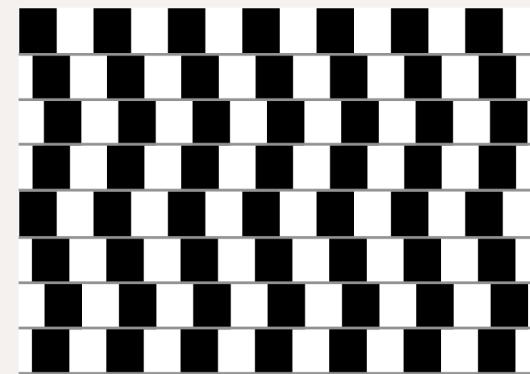
Which gray circle is bigger?



Which gray bar is longer?



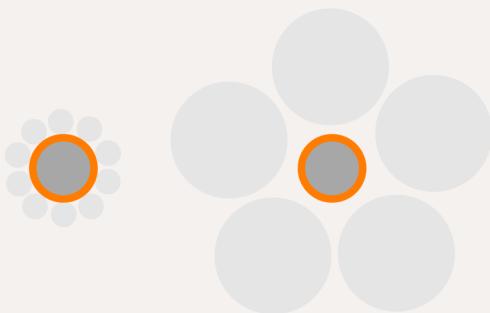
Are the gray horizontal lines parallel?



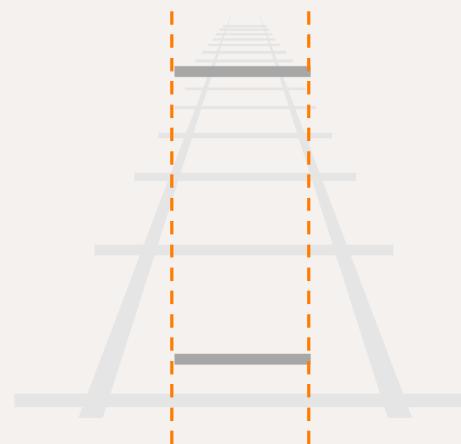


Rational Minds Can Act Irrationally

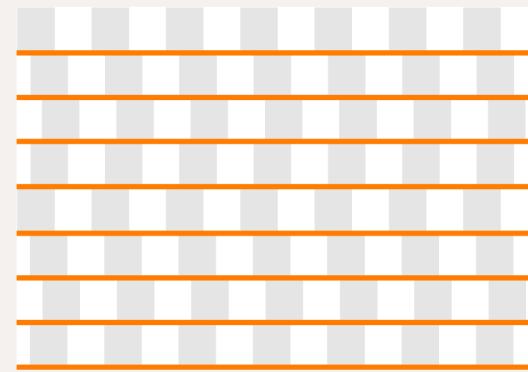
They are the same size.



They are the same size.



The horizontal lines are parallel.





The Efficient-Market Theory

- ▶ Security prices efficiently incorporate all public information
- ▶ They reflect their true investment value at all times
- ▶ Asset allocation relies on market efficiency and rational investor behavior
- ▶ However, investors do not always behave rationally



Patterns of Investor Irrationality

- ▶ Overconfidence
- ▶ Hindsight bias
- ▶ Short-term focus
- ▶ Regret
- ▶ Mental accounting
- ▶ Hot-hand fallacy



Overconfidence

Definition

- ▶ Rating oneself as above average when it comes to selecting investments

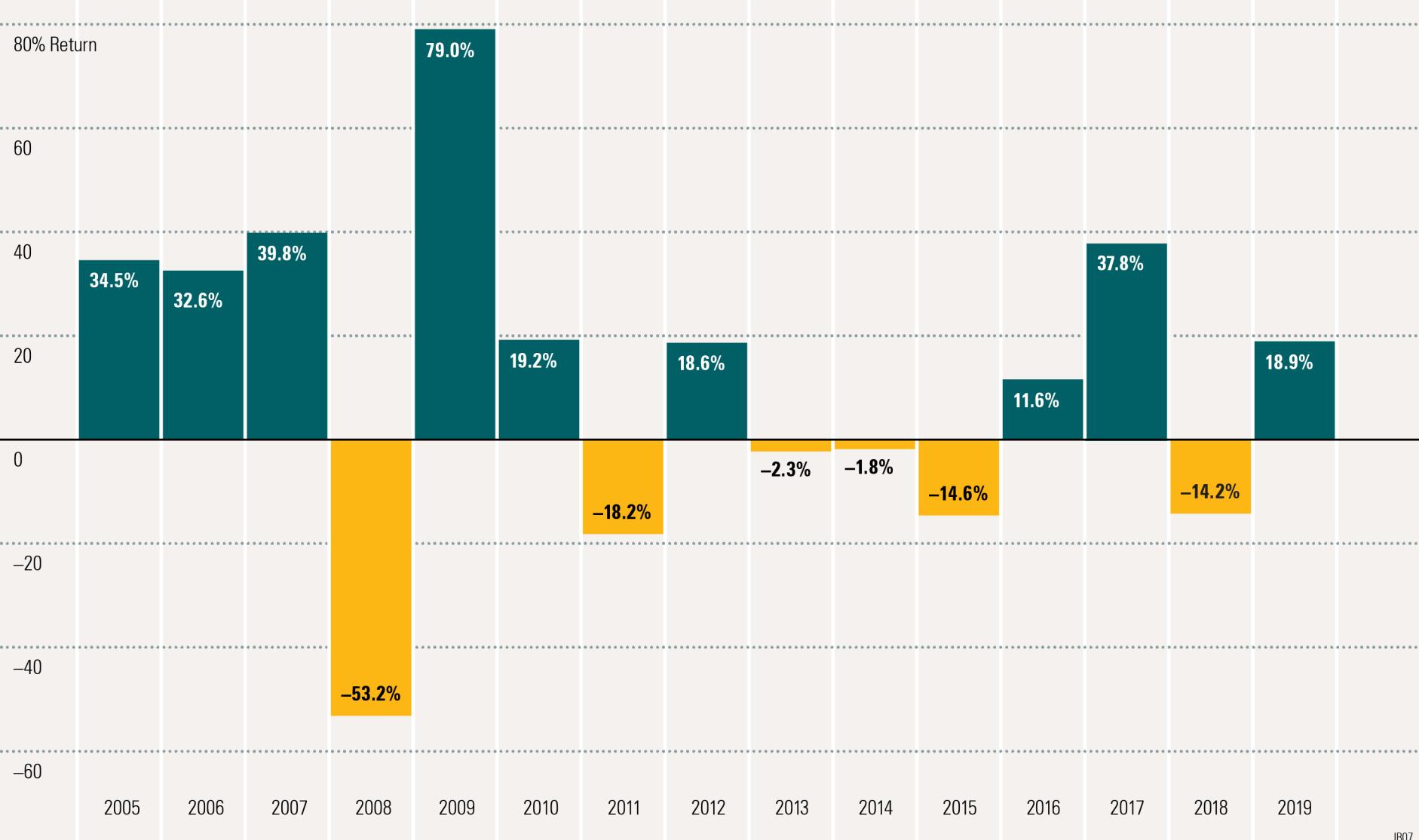
Implications

- ▶ Miscalculating the probability of good outcomes
- ▶ Focusing on the potential upside of investments
- ▶ De-emphasizing the potential downside of investments



Overconfidence: False Perception

Historical Performance of Emerging-Markets Stocks 2005–2019



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Hindsight Bias

Definition

- ▶ Believing that unpredictable past events, in retrospect, were obvious and predictable

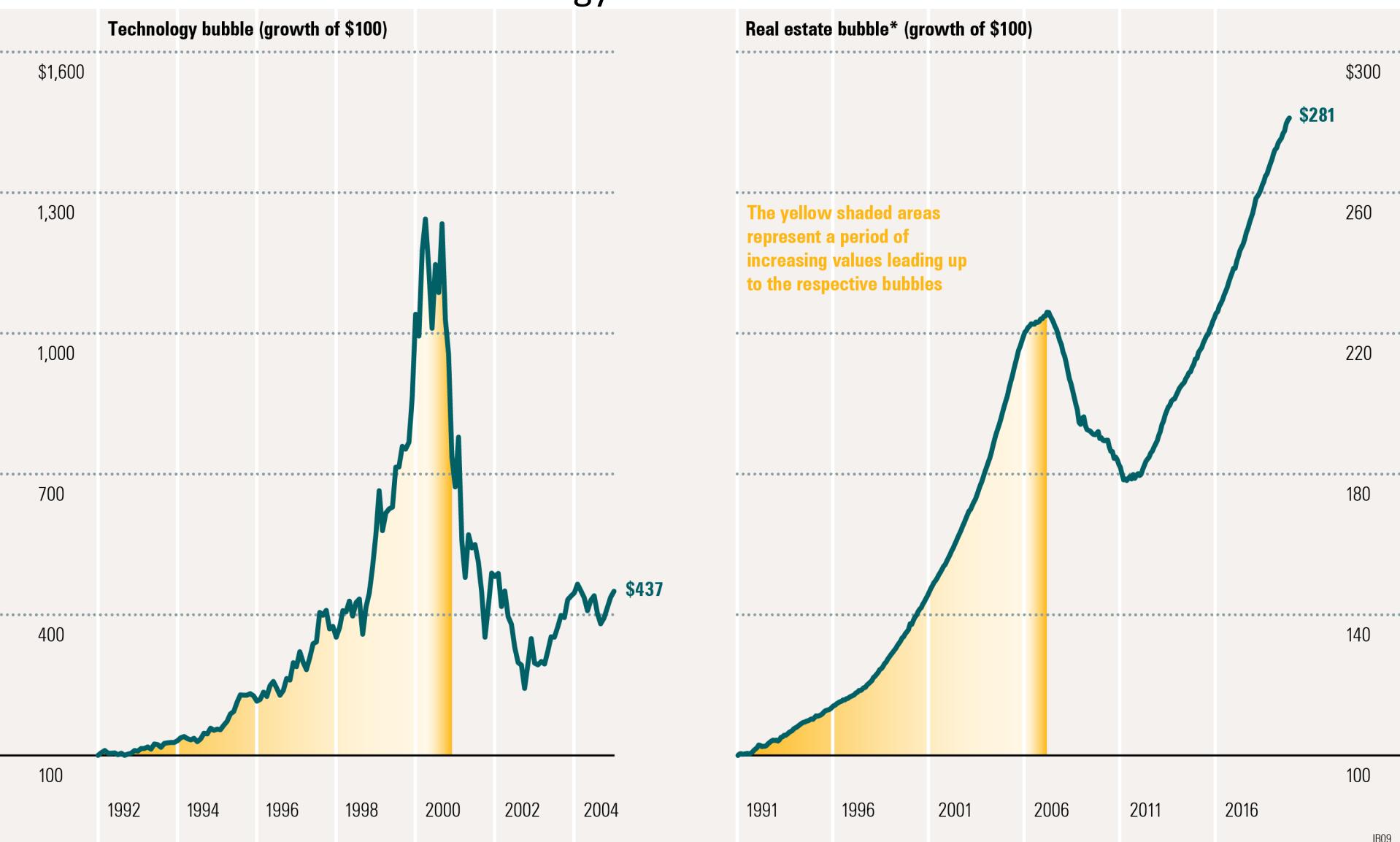
Implications

- ▶ Feelings of anger and regret
- ▶ Failure to avoid what appears to have been foreseeable
- ▶ Overconfidence



Hindsight Bias: Technology and Real Estate Bubbles

An examination of technology stocks and home values



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Short-Term Focus

Definition

- ▶ Inappropriately focusing on short-term risk versus long-term risk

Implications

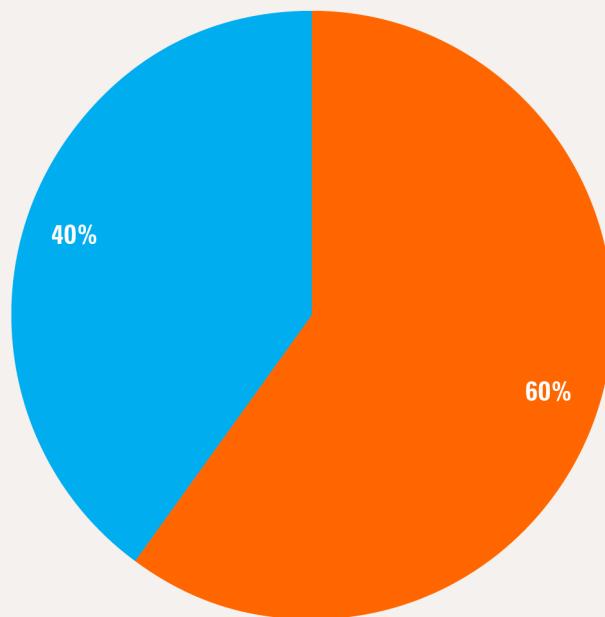
- ▶ Many investors talk long term but act short term
- ▶ Overly sensitive to interim volatility regardless of time horizon
- ▶ May tend to behave as though their time horizon is far shorter than it truly is



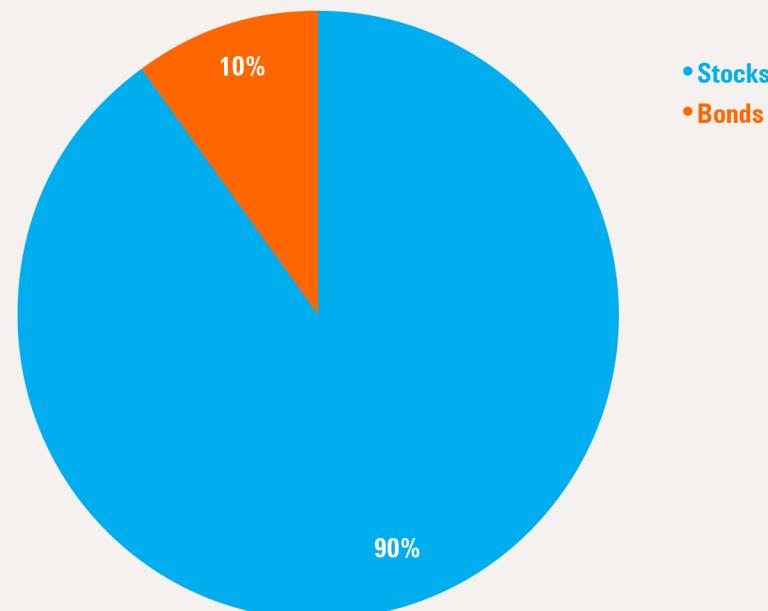
Short-Term Focus: Avoiding Potential Near-Term Losses

Choice of Asset Allocation after Examining Different Return Distributions

When shown a distribution of **one-year returns**, investors allocated 40% to stocks.



When shown a distribution of **30-year returns**, investors allocated 90% to stocks.





Short-Term Focus: Coping With Near-Term Fluctuations

Probability of Losing Money in the Market 2000-2019

50% Probability

40

30

20

10

0

46%

35%

30%

25%

Daily

Monthly

Quarterly

Annually

IB12

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Regret

Definition

- ▶ Having feelings of guilt because of a poor outcome

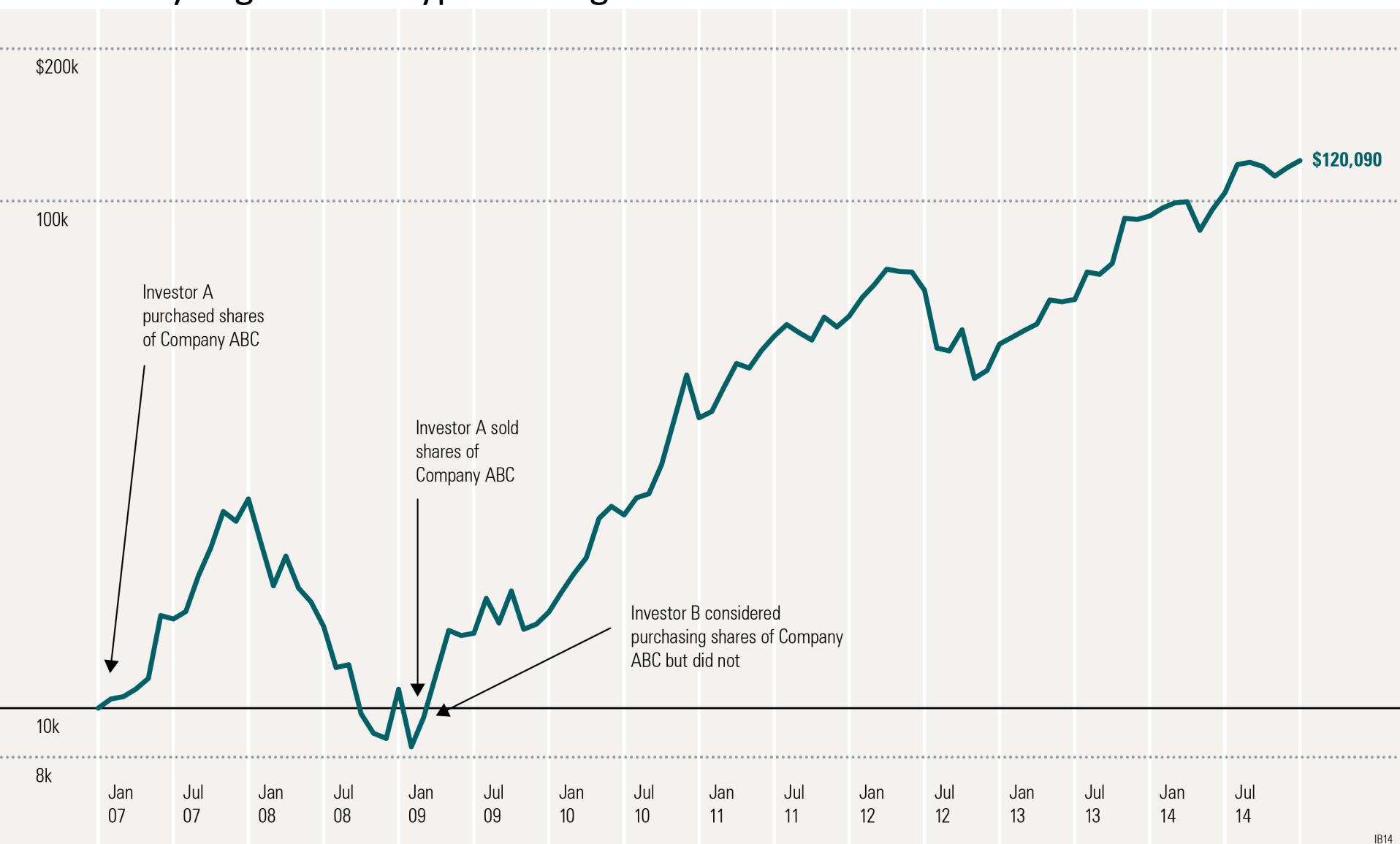
Implications

- ▶ Investors' future investment decisions might be affected
- ▶ Can cause investors to become more risk averse/risk tolerant
- ▶ These individuals may blame advisors for perceived mistakes



Regret: Action Versus Inaction

Analyzing Various Types of Regret



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Mental Accounting

Definition

- ▶ Mentally compartmentalizing investments while ignoring the aggregate portfolio

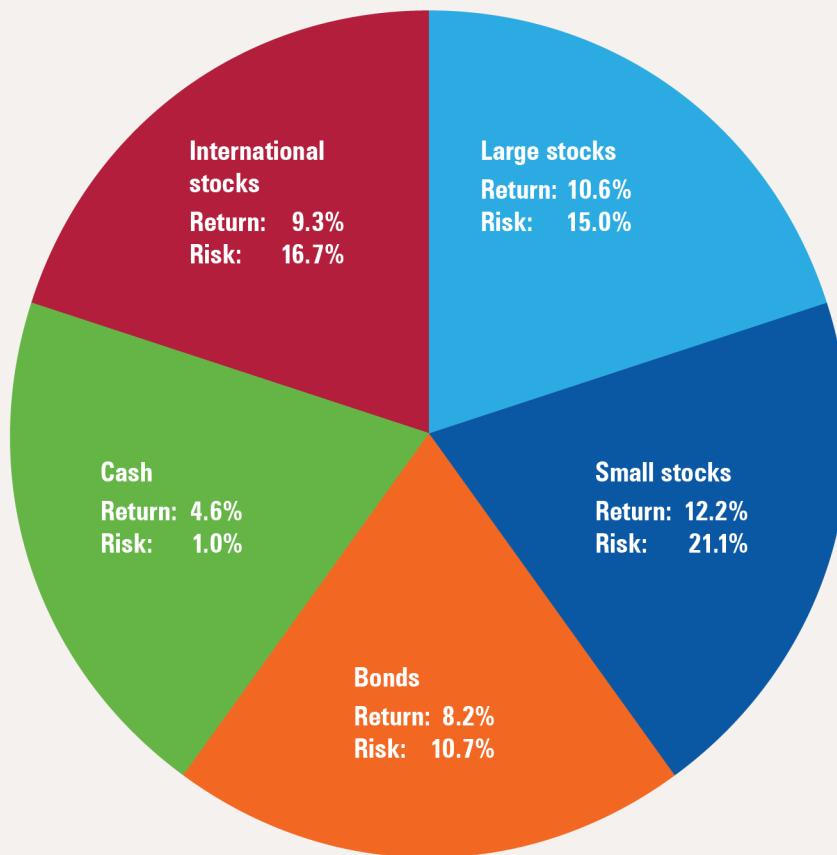
Implications

- ▶ Investors tend to disaggregate a diversified portfolio
- ▶ Risk and return components viewed in a vacuum
- ▶ Leads to heightened concern about the riskiness of a component of a portfolio



Mental Accounting: Sum of the Parts

Risk and Return Characteristics 1970–2019



Total portfolio

Return: 9.6%
Risk: 9.5%



Hot-Hand Fallacy

Definition

- ▶ Perceiving trends where none exist and consequently taking action on this faulty observation

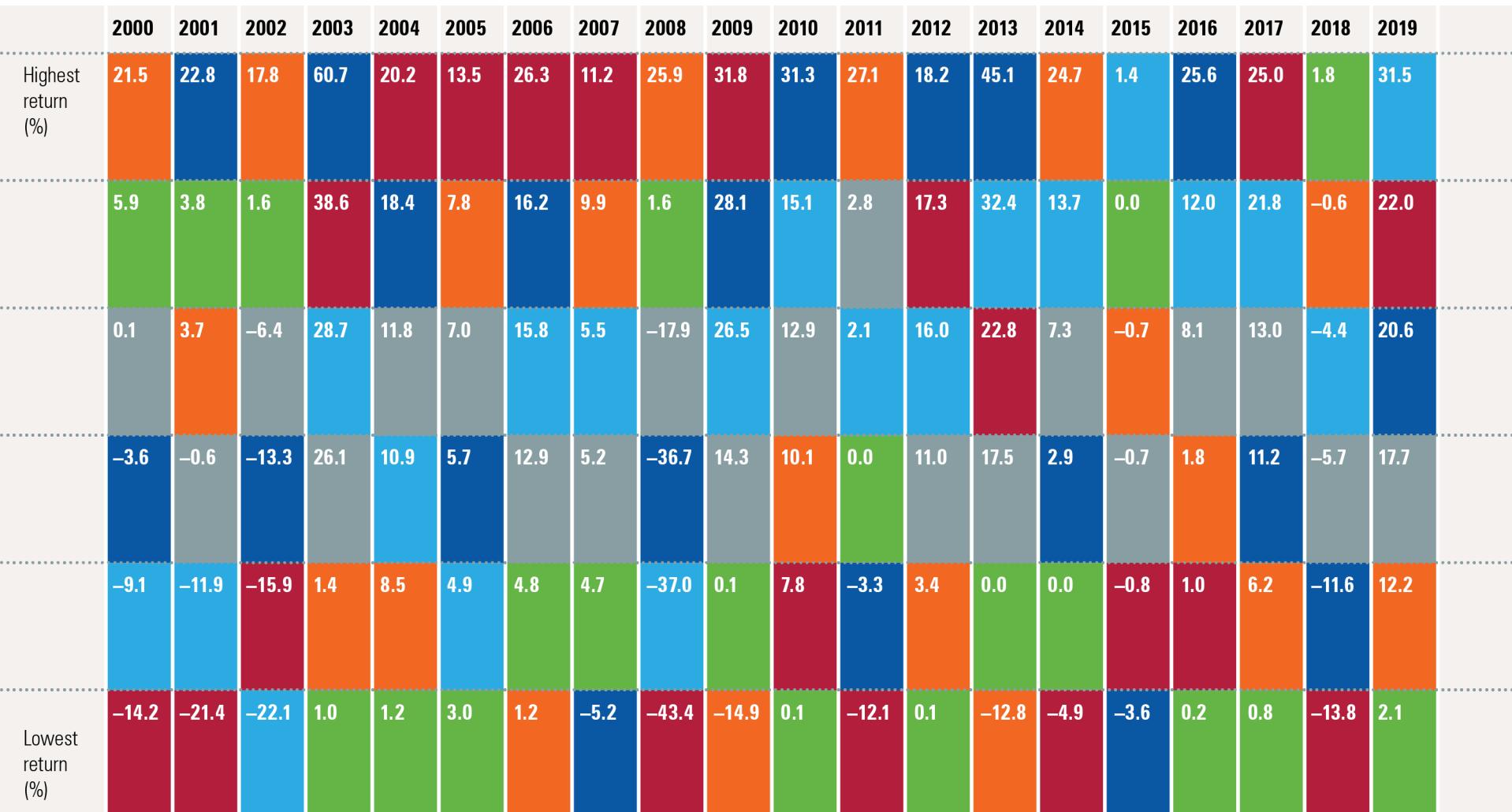
Implications

- ▶ Investors desire to invest in last year's winners
 - ▶ Favoring a "hot" money manager or asset class
- ▶ Skill is inferred from a random pattern of chance
- ▶ Can lead to erroneous assumptions and predictions



Hot-Hand Fallacy: Asset-Class Winners and Losers

Annual Performance of Various Asset Classes 2000-2019



• Small stocks

• Large stocks

• International stocks

• Long-term government bonds

• Treasury bills

• Diversified portfolio

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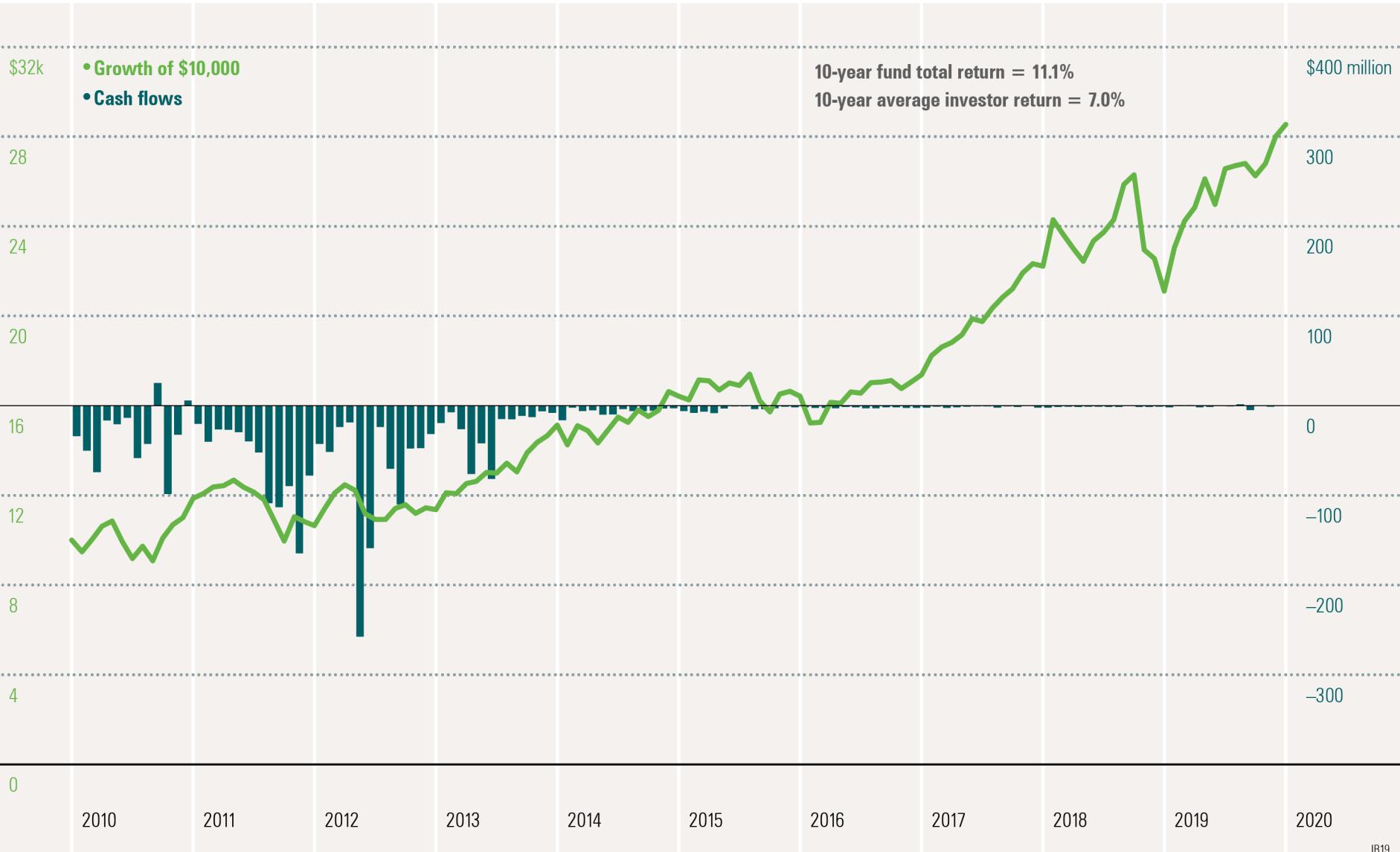
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Hot-Hand Fallacy: Chasing Fund Performance

Wealth Versus Cash Flows 2010-2019



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Summary

- ▶ Investor misconceptions can be dangerous to one's investments
- ▶ They need to be identified early and countered in an appropriate manner
- ▶ Markets and investing must be viewed in a rational and productive manner