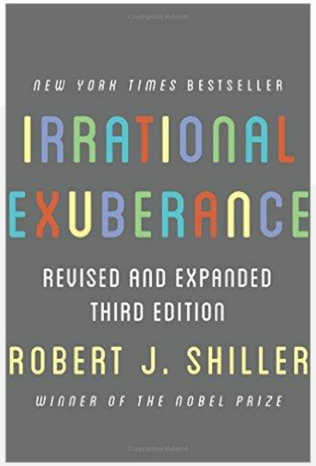


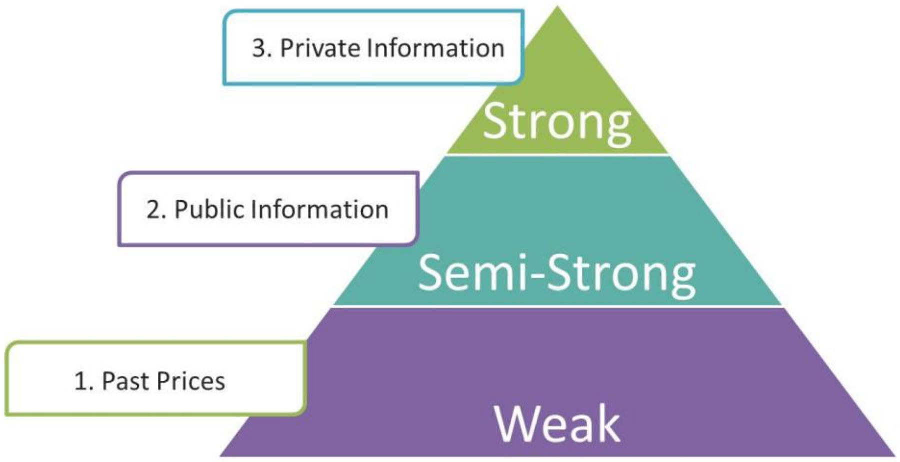
MARKET EFFICIENCY & ROBERT SHILLER'S *IRRATIONAL EXUBERANCE*

KELLY JIANG

ECON4905: FINANCIAL FRAGILITY OF THE MACROECONOMY

AGENDA

- **Eugene Fama and Robert Shiller**
- **Efficient Market Hypothesis**
- **Robert Shiller's *Irrational Exuberance***
- **Bubbles and Market Efficiency**



WHAT IS MARKET EFFICIENCY AND WHY IS IT IMPORTANT?

- Market efficiency is "is a state of affairs whereby the price in the stock market reflects all the available information"
- Market efficiency is important for investors because it helps them make more sensible investments
  - To obtain above average profits, investors need to exploit abnormalities
  - In an efficient market, it will not be possible for investors to make above average profits but abnormalities can be exploited

EUGENE FAMA

"Markets **are** efficient."

ROBERT SHILLER

"Markets are **NOT** efficient."

- ✓ Eugene Fama and Robert Shiller
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EUGENE FAMA

- Eugene Fama is widely known as the **“father of finance”** and for developing the **efficient market hypothesis in the mid-1960s**
- Joint recipient of the 2013 Nobel Prize in Economic Science with Robert Shiller of Yale University and Lars Peter Hansen of the University of Chicago

ROBERT SHILLER

- Received the 2013 Nobel Prize in Economics with Fama and Hansen
- Wrote *Irrational Exuberance*
- Argues **against** the Efficient Market Hypothesis

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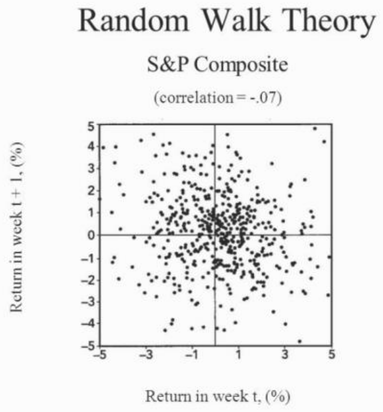
WHAT IS THE **EFFICIENT MARKET HYPOTHESIS (EMH)?**

- The term was coined by Professor Eugene Fama in the 1960s
- According to Fama,
  "In an **efficient** market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future**. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value"**
- The Theory That Beating the Market is Impossible
- **Random walks**: Price changes are unpredictable since they occur only in response to genuinely new information, which by the very fact that is new is unpredictable

ARGUMENTS THAT MARKETS ARE **EFFICIENT** AND THAT PRICES ARE **RANDOM WALKS:**

- It is difficult to make money by buying low and selling high in the stock market
- "Smart money"
  - The most intelligent investors will not outperform the least intelligent. Effort and intelligence are irrelevant
- Stock prices roughly track earnings over time – that despite fluctuations in earnings, price-earnings ratios have stayed within a narrow range
- Co-movement between dividends and prices



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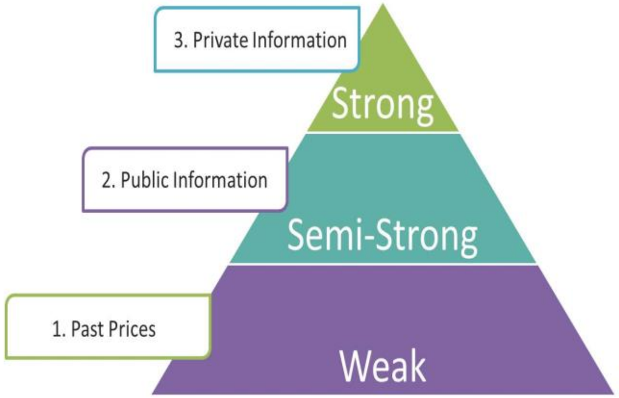
VERSIONS OF THE EMH

- **Weak-form**
  - Prices reflect **all past market information** such as volume and price
  - Investors cannot obtain abnormal returns by trading on market information
  - Technical analysis will not lead to abnormal returns
    - Technical analysis is the search for periodic and predictable patterns in stock prices
- **Semi-strong form**
  - Prices reflect all publicly available information
  - Investors cannot obtain abnormal returns by trading on publicly available sources
  - Fundamental analysis will not lead to abnormal returns
    - Fundamental analysis includes an examination of the company balance sheets
- **Strong-form**
  - Prices reflect all information, including both private and public



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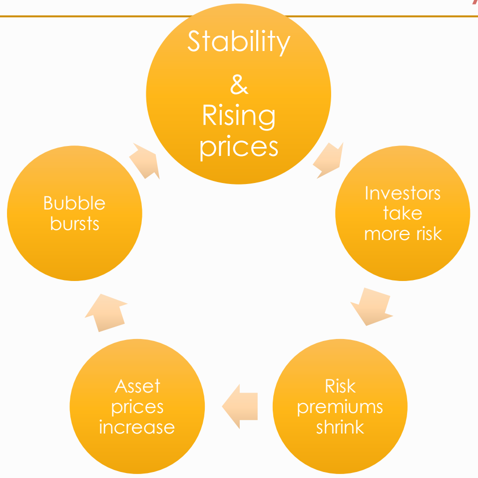
BUBBLES: CHALLENGE TO THE EMH

- Tulip mania in Holland (1634-1637)
- South Sea Bubble (1720)
- US Stock Market Crashes
  - 1929
  - October 1987
  - 2000 (Dot-com Bubble)
  - 2008 (Great Recession)

According to Hyman Minsky, bubbles arise naturally



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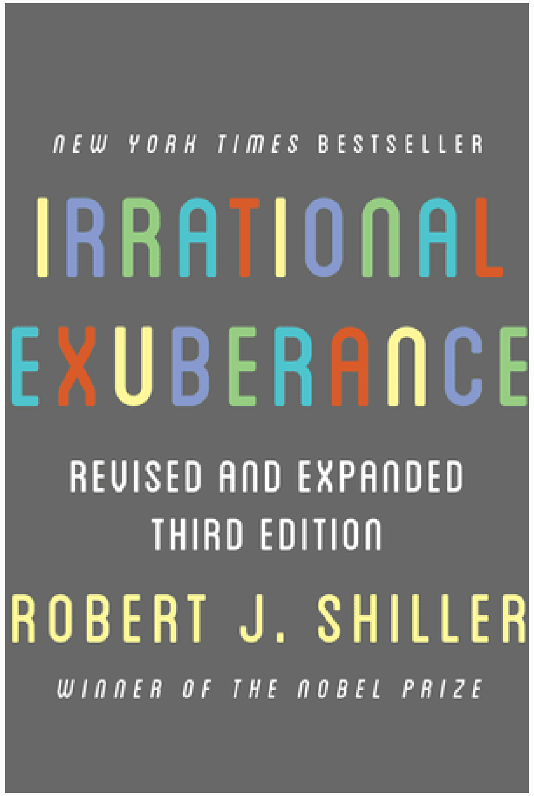
ROBERT SHILLER'S BOOK *IRRATIONAL EXUBERANCE*

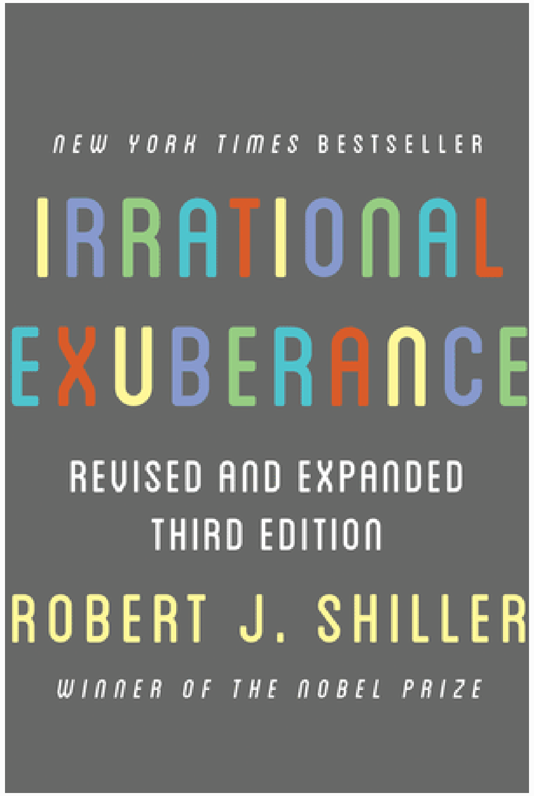
- The term **"irrational exuberance"** is a term used by then-Federal Reserve Board chairman Alan Greenspan in 1996
- **Irrational exuberance creates asset bubbles.** It is unsustainable investor enthusiasm that suggests that assets are overvalued
- Shiller's predictive powers
  - The first edition (2000) of *Irrational Exuberance* correctly predicted the stock market collapse during the dot-com bubble
  - The second edition (2005) correctly predicted the housing bubble that was partly to blame for the Great Recession of 2008



OVERVIEW OF *IRRATIONAL EXUBERANCE*

- Overview of *Irrational Exuberance*
  - Part 1: Precipitating Factors
  - Part 2: Cultural Factors
  - Part 3: Psychological Factors
  - Part 4: Future Outlook

These factors contributed to the self-fulfilling psychology of a roaring stock market



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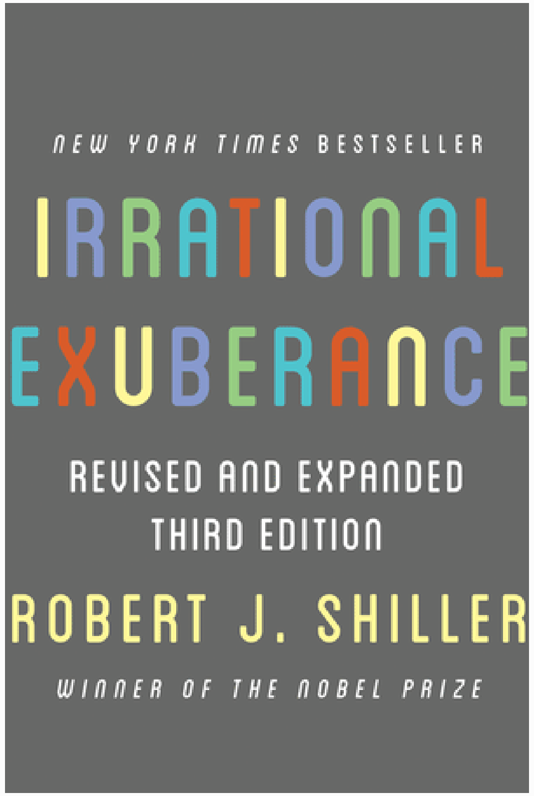
PART I: PRECIPITATING FACTORS

According to Shiller, the following factors make up the *skin* *of the bubble:*

1. The Internet
2. Baby Boom
3. Triumphalism (perceived victory over foreign economic rivals)
4. Culture Favoring Business Success
5. Republican Congress & Capital Gains Taxes
6. Media Expansion
7. Optimistic Analysts
8. 401(k) Plans
9. Rise of Mutual Funds
10. Decline of Inflation
11. Expanding Volume of Trade
12. Rise of Gambling Opportunities



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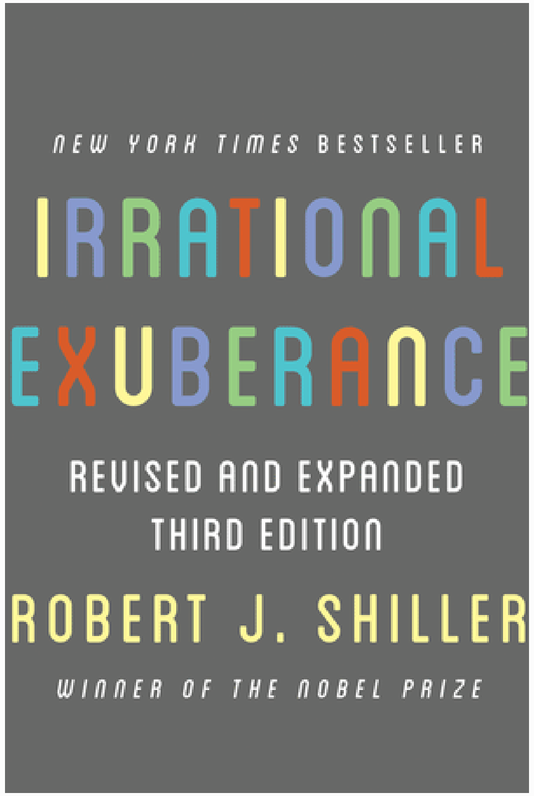
PART 2: CULTURAL FACTORS

- The News Media
  - Fuel speculative price movements through their efforts to make news more interesting to the public
  - Cause information cascades by fostering stronger feedback from past price changes

- New Era of Economic Thinking
  - Investors become optimistic and confident that the market is part of a "new era thinking"



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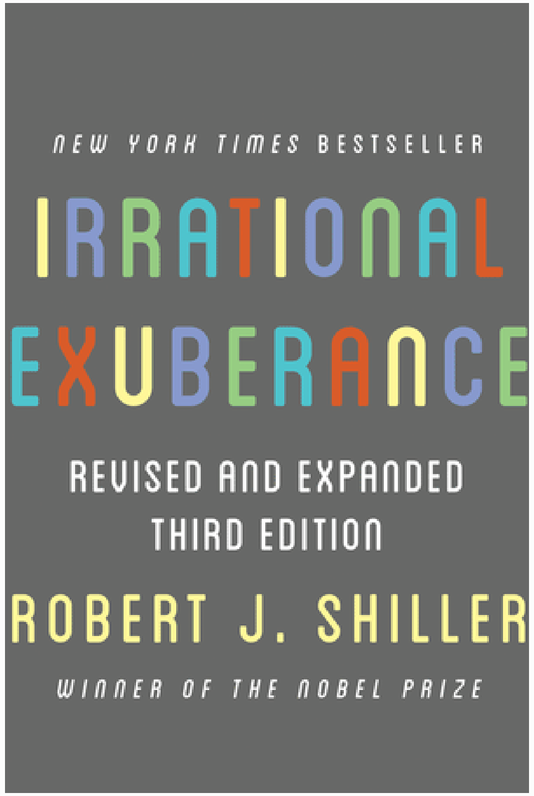
PART 3: PSYCHOLOGICAL FACTORS

- Solid psychological research shows that there are patterns of human behavior that suggest anchors for the market that would not be expected if markets worked rationally
- At any moment, economic fundamentals are ambiguous, so investors seek psychological "anchors" on which to base immediate judgments
  - Quantitative anchors
    - The current price influences investor perceptions
    - Past percentage increases and decreases are also viewed as important
  - Moral anchors
    - Investors respond more to “stories” than to quantitative evidence
    - Overconfidence



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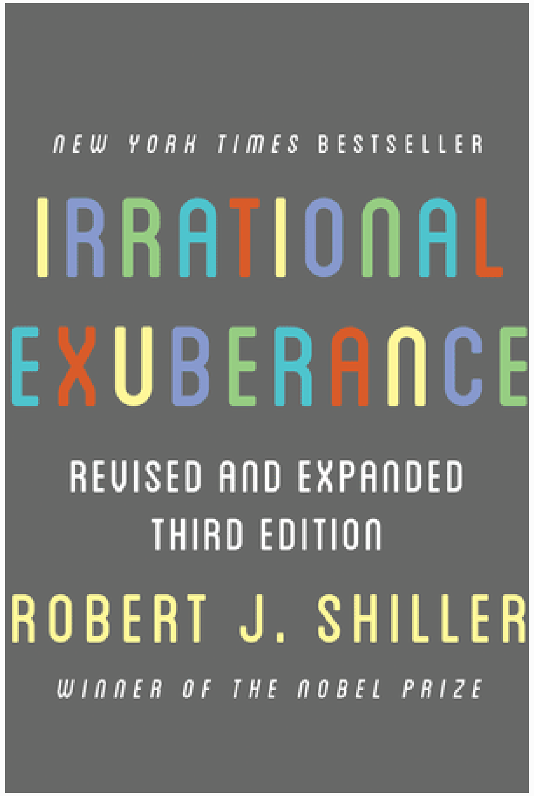
PART 4: FUTURE OUTLOOK

- Of the 12 precipitating factors responsible for bubbles that were mentioned earlier, the Internet boom (#1) and the expanding volume of trade (#11) will **increase** in strength
- The effects of the baby boom (#2) and the perceived victory over foreign economic rivals (#3) will **decrease** in strength



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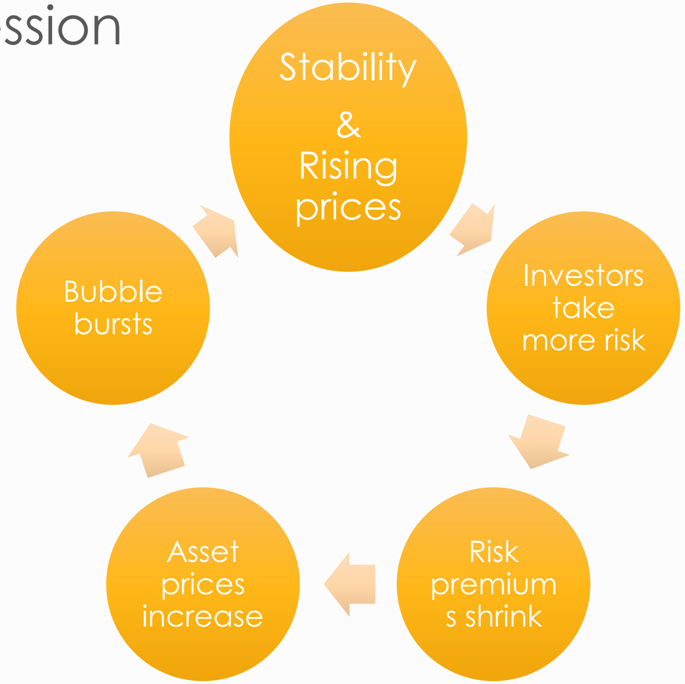
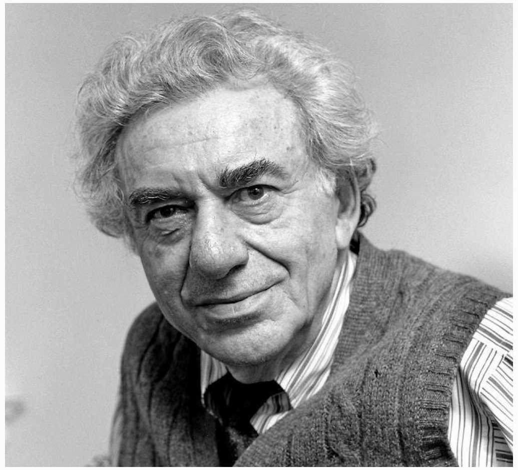
HYMAN MINSKY: DO BUBBLES ARISE NATURALLY?

- American economist Hyman Minsky (1919-1996) suggested that **bubbles arise naturally**
- His "financial instability hypothesis" gained widespread attention after the 2008 Great Recession





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IF WE ACCEPT THAT MARKETS ARE IMPERFECT, WHAT SHOULD THE GOVERNMENT DO TO PREVENT BUBBLES AND IMPROVE THE MARKET?

- The government should not eliminate the downside
  - "Too big to fail" is an efficient market's enemy
- The government should encourage disciplining mechanisms like short-selling
  - The market should be given the chance to reflect all information. Short-selling is free and unfettered and makes us safer. Penalizing short-selling is similar to implementing "too big to fail" at the micro level
- The government not subsidize or penalize certain activities over others

  These actions create distortions. A prominent example is the government's subsidies that contributed to the housing bubble

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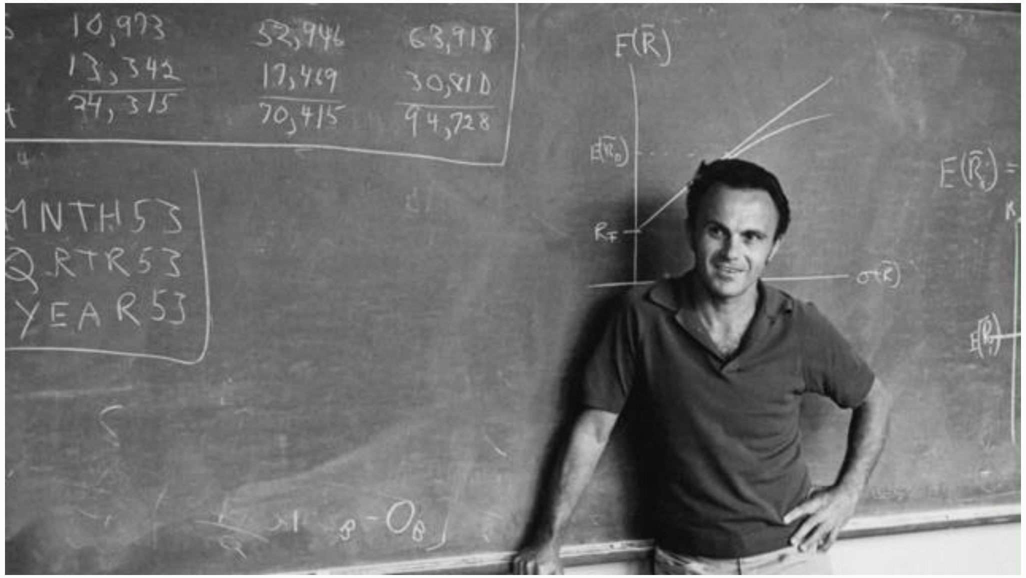
CONCLUSION

- Eugene Fama and Robert Shiller have made groundbreaking contributions to the field of finance and asset pricing
- Developed by Fama in the 1960s, the EMH remains to be the dominant theory in asset pricing
- The history of bubbles undermines the EMH
- Robert Shiller's book *Irrational Exuberance* challenges the EMH



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