



STOCK MARKET AND FINANCIAL MARKET EFFICIENCY

Out line

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- ▶ **PRIMARY VS SECONDARY MARKETS**
- ▶ **BULL VS BEAR MARKETS**
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DEFINITION OF STOCK MARKET



- ▶ The **stock market** (equity market) refers to the collection of markets and exchanges where the issuing and trading of equities (stocks of publicly held companies) takes place, either through **physical** or **virtual** places.

Stock Exchange is a physical location where stocks are bought and sold face-to-face on a trading floor. New York Stock Exchange and London Stock Exchange are the examples of trading floors.



On the other hand, in the over-the-counter market securities are bought and sold by dealers linked by computer. NASDAQ, FX Market (Foreign Exchange Inter-Bank Market) are the examples of virtual trading places.



largest stock exchanges in the world

Here's how much they have gained in 2017.



A stock exchange acts as a regulated marketplace connecting buyers and sellers of stocks and other types of financial securities including bonds and warrants.



Stocks are initially listed on an exchange through an Initial Public Offering (IPO), which allows private companies to raise capital to support their business plans.



People can buy, sell and trade the stocks listed on a stock exchange. The larger the stock exchange, the greater exposure and liquidity it typically offers.

	Market Cap (trillion USD)	Listings (of public companies)	Gains (investor gains as of Oct 2017)
#1 New York Stock Exchange	30	2,400	10.9%
#2 NASDAQ	12	3,900	23.4%
#3 London Stock Exchange	5.8	2,500	5.7%
#4 Tokyo Stock Exchange	5.5	3,575	13.9%
#5 Shanghai Stock Exchange	5.05	1,366	8.1%
#6 Euronext	4.18	1,300	24.9%
#7 Hong Kong Stock Exchange	4.14	2,500	30.8%
#8 Shenzhen Stock Exchange	3.65	2,056	11.8%
#9 Bombay Stock Exchange	2.22	2,884	30.9%
#10 Toronto Stock Exchange	1.8	1,487	3.6%

SOURCE: [HTTP://DOLLARSANSENSE.SG/10-BIGGEST-STOCK-EXCHANGES-WORLD-HERES-MUCH-THEYVE-GAINED-2017/](http://dollarsandsense.sg/10-biggest-stock-exchanges-world-heres-much-theyve-gained-2017/)

PRIMARY VS SECONDARY MARKETS

Basis	Primary Market	Secondary Market
Nature of Securities	It deals in new issues of securities, issued by new companies or further issue by existing companies	Existing securities, i.e securities already sold are traded in stock exchange
Type of contract with investor	Securities are issued directly to the investors or through intermediaries	Ownership of existing securities is exchanged between the investors, where the company is not involved.

- In the stock market, just as the bond market, most buying and selling is of existing stocks among investors rather than newly issued stocks supplied by firms. So, for both stocks and bonds, secondary market is larger than the primary market.

BULL VS BEAR MARKETS



In Wall Street jargon, an **increase** in stock prices of more than 20% is called a bull market. The reason that bull swipes up when attacking. A **decline** in stock prices of more than 20% is called a bear market. The reason that bear swipes down when attacking.

- In the previous chart, there are 3 bull and 2 bear markets.

ADAPTIVE EXPECTATIONS VERSUS RATIONAL EXPECTATIONS

- The Gordon Growth Model shows that investors' expectations of the future profitability of firms play a crucial role in determining stock prices. In fact expectations play an important role throughout the economy because many transactions require participants to forecast the future.
- Early studies of expectations focused on the use of information from the *past*. E.g; some economists assumed that investors' expectations of the price of a particular stock depended only on past prices of the stock. This approach is called *adaptive expectations*.
- Some stock analysts employ a version of adaptive expectations known as *technical analysis*. These analysts believe that certain pattern in the history of a stock's price are likely to be repeated and therefore can be used to forecast future prices.



BEHAVIORAL FINANCE VS EFFICIENT MARKET HYPOTHESIS



Economists Clash on Theory, but Will Still Share the Nobel

The two economists, who worked independently, were described as collectively illuminating the workings of financial markets by showing that stock and bond prices move unpredictably in the short term but with greater predictability over longer periods. The prize committee said these findings showed that markets were moved by a mix of rational calculus and irrational behavior.

The Efficient Market Hypothesis

- EMH is the application of rational expectations to financial markets; the hypothesis that the equilibrium price of a security is equal to its fundamental value. That is prices, reflect all publicly available information.

E.g, Suppose that is 10:14 am , and the price of Microsoft stock is \$17.80 per share, the company is currently paying a dividend of \$0,50 per share this year, and its dividend is expected to grow at a rate of %7 per year.

At 10:15 am, Microsoft releases that latest version of Windows have been much higher than expected, and the firm expects higher sales to continue into the future. This news causes investors to revise upward forecast of the growth rate of annual dividend from %7 to %8. At this higher growth rate, the PV of Microsoft's future dividend rises from \$17,80 to \$27

This increased demand will cause the price of shares to keep rising until they reach 27\$ which is the new fundamental value of the stock.

Does the efficient markets hypothesis require that all traders and investors have rational expectations?

- ▶ No, it does not. In competing to buy securities where earning arbitrage profits is possible, traders will force prices to the level where arbitrage profits can no longer be earned.

E.g, In the previous example, once the new information becomes available, traders can earn arbitrage profits equal to \$9,20 per share (\$27-\$17,80). Competition among even a few- well informed traders will be enough to quickly drive the price up to its new fundamental value. Thus according to EMH *financial arbitrage opportunities* exist for a short period of time.

Note : Anything that affects the willingness of investors to hold stock affects the stock's fundamental value. We would expect that if new information leads investors to change their opinions about the ;

.Risk

.Information Cost

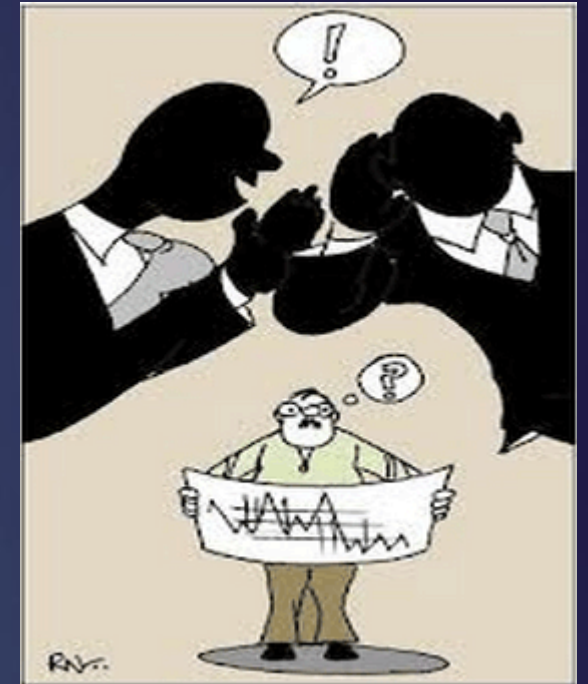
.Tax treatment of the returns from owning the stock, the price of the stock will change.

What about inside information?

- Relevant information about a security that is not publicly available is called inside information. EMH holds that even inside information is incorporated into stock prices. Many studies have shown that it's possible to earn above-average returns by trading on the basis of inside information (beating the market).

There is an important catch though: Trading on insider information – known as insider trading – is **illegal**.

E.g, In 2010, the SEC was pursuing a case against the manager of the Galleon hedge fund on the grounds that he had profited from trading on inside information obtained from employees of several companies.

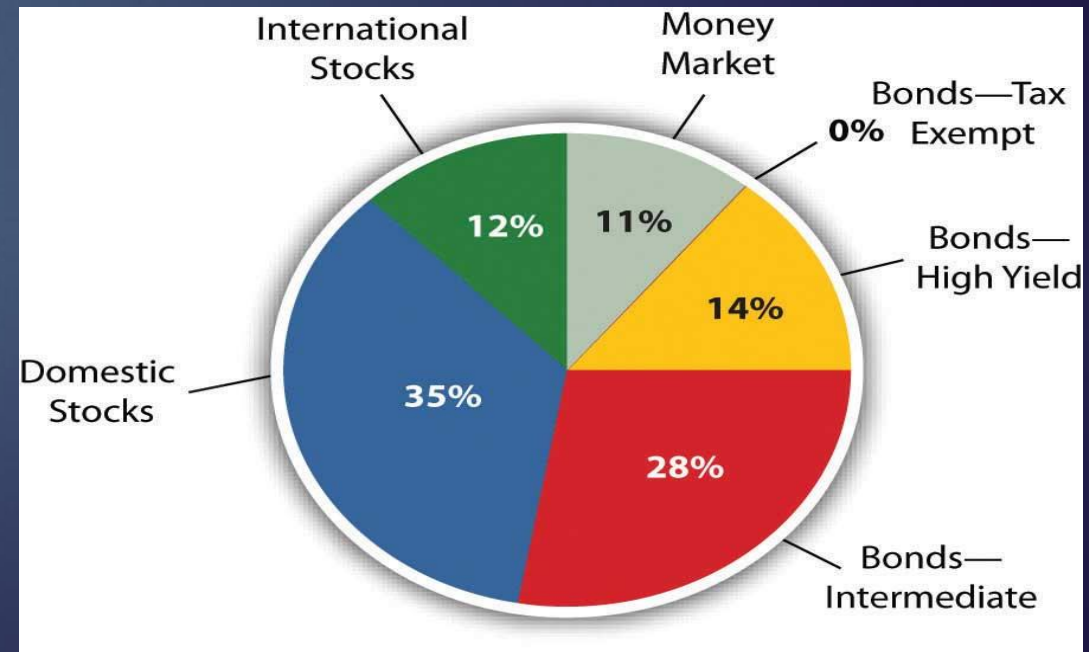
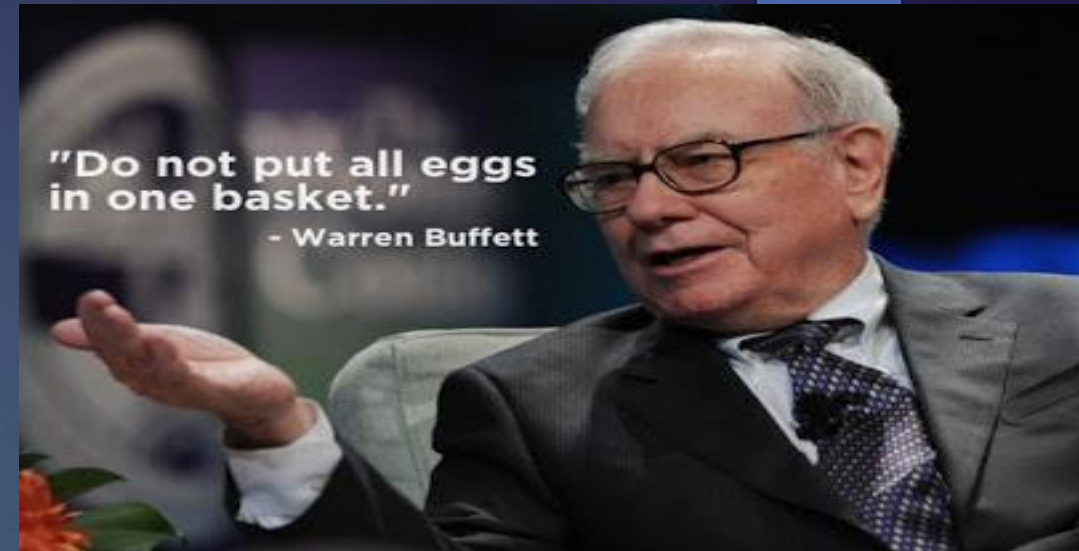


Efficient Markets and Investment Strategies

1) Portfolio Allocation; As long as all market participants have the same information, it's unlikely that investing in a particular stock provide you a return higher than you would receive by investing in another stock. Therefore it's not good strategy to risk your savings by buying only one stock. Instead you should hold a diversified portfolio of assets.

In that way news that may unfavorably affect the price of one stock can be offset by news that will favorably affect the price of another stock.

2) Trading; If prices reflect all available information, regularly buying and selling individual stock is not a profitable strategy. Particulary because each sale or purchase incurs trading cost in the form of commissions. It's better to hold a diversified portfolio over a long period of time.



3) Financial Analysts and Hot tips; Financial analysts fall into two broad categories;

a) Technical Analysts, who rely on pattern of past stock prices to predict future stock prices.
(rely on adaptive expectations)

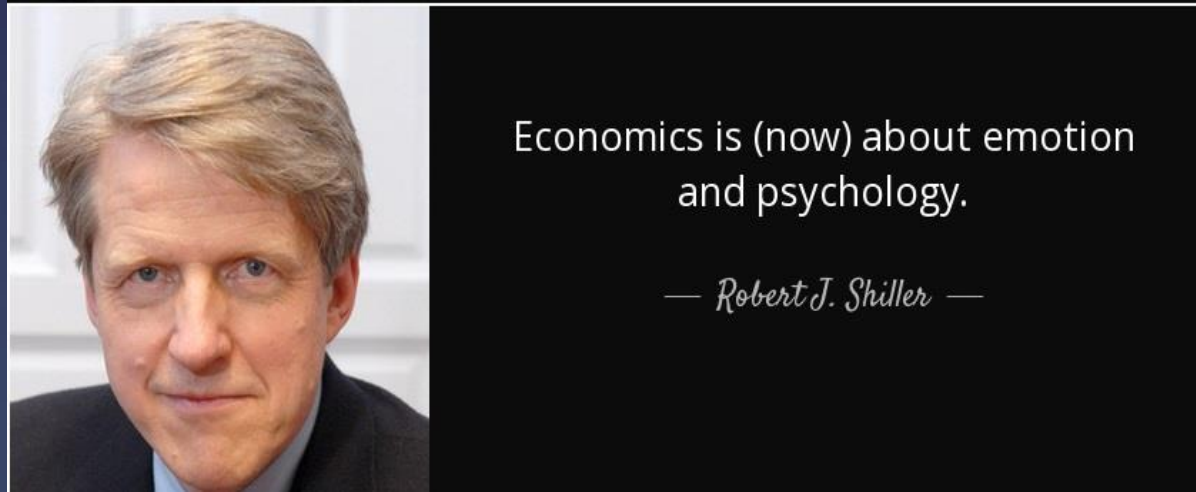
b) Fundamental Analysts, who rely on forecasting future profits of firms in order to forecast future stock prices.

* Technical analysis is unlikely to be successful strategy because it neglects all the available information except for past stock prices. Fundamental analysis is more consistent with EMH because it uses all available information.

But EMH indicates that, stocks recommended by analysts will unlikely to outperform the market, because other investors and traders also know all that information, and its already incorporated into the prices of stocks.

Moreover, EMH indicates that the stock of a more profitable firm will not be a better investment than the stock of a less profitable firm because the stock issued by the former will have a much higher price than the stock issued by the latter.

BEHAVIORAL FINANCE



- Behavioral economics is the study of situations in which people make choices that do not appear to be economically rational. The new field of *behavioral finance* applies concepts from behavioral economics to understand how people make choices in financial markets.

What do we mean by '*rationality*' ?

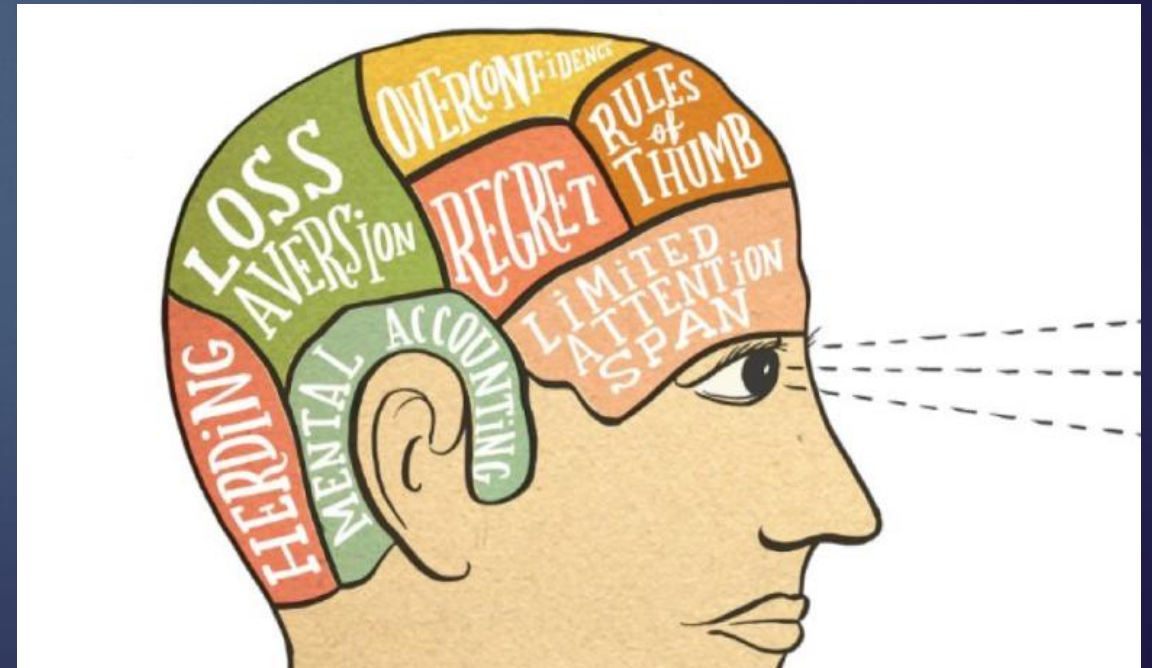
A rational behavior decision-making process is based on making choices that result in the most optimal level of benefit or utility for the individual, given the information available to them. As we indicated before EMH assumes that participants in the market make rational choices but this is not always the case.

- In the real world, we often see irrational behavior – decisions which don't maximize utility but can cause a loss of economic welfare. Irrational behavior is not just isolated to a few 'irrational individuals' but can become the dominant choice for most people in society (e.g. dot-com bubble).

Irrational behaviour can lead to market failure, loss of economic welfare and personal issues such as drug addiction and poor health. Irrational behavior has implications for formulating economic policy. It means economists need to take into account the potential for irrationality.

Behavioral Biases;

- 1) Overconfidence Bias
- 2) Representativeness Heuristics
- 3) Anchoring Bias
- 4) Self attribution Bias
- 5) Illusion of Control Bias
- 6) Hindsight Bias



1) Overconfidence Bias ; People think they are smarter and have better information than they actually do. They may get a tip from a financial advisor or read something on the Internet, and then they're ready to take action.

2) Representativeness Heuristics ; When faced with uncertainty while trying to make a decision, people often rely on a mental shortcut known as the representativeness heuristic. While this shortcut can speed up the decision-making process, it can also lead to poor choices and stereotypes. Investors try to find patterns or trends from which they can benefit. However, often investors only identify trends when they are already well established.

3) Anchoring Bias ; The act of basing a judgment on a familiar reference point that is incomplete or irrelevant to the problem that is being solved. An investor may judge that a stock price is overvalued or undervalued based on that stock's previous high share price.



4) Self- attribution Bias; refers to the tendency of individuals to ascribe their successes to innate aspects, such as talent or foresight, while more often blaming failures on outside influences, such as bad luck. Self-attribution bias often leads investors to trade more than is prudent. This bias leads investors to “hear what they want to hear.” Holding a concentrated stock position can be associated with self-attribution and that should be avoided.

5) Illusion of Control Bias; It describes the tendency of human beings to believe that they can control or at least influence outcomes when, in fact, they cannot. Illusion of control bias can lead investors to maintain under-diversified portfolios or to use limit orders and other such techniques in order to experience a false sense of control over their investments.

6) Hindsight Bias; Overestimating the ability to predict an outcome , which would not have been possibly predicted. Hindsight bias is a fairly common occurrence in investing, since the pressure to time the purchase of securities in order to maximize return can often result in investors feeling regret at not noticing trends earlier.

Yay! A+ ...
Am so smart.

Take the credit for positive events.

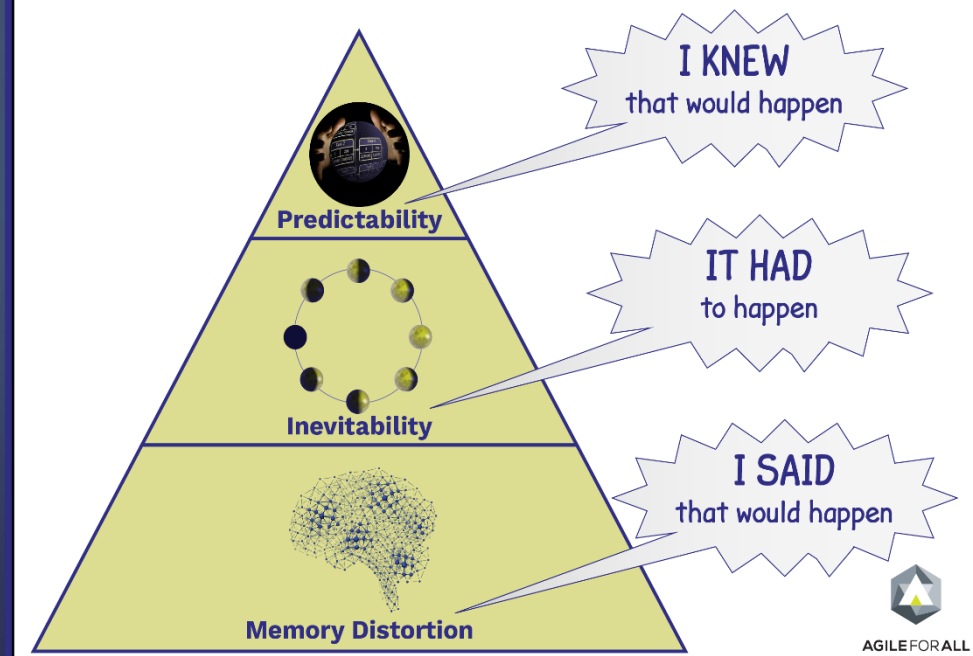
Self-serving Bias

F grade...
She doesn't like me.

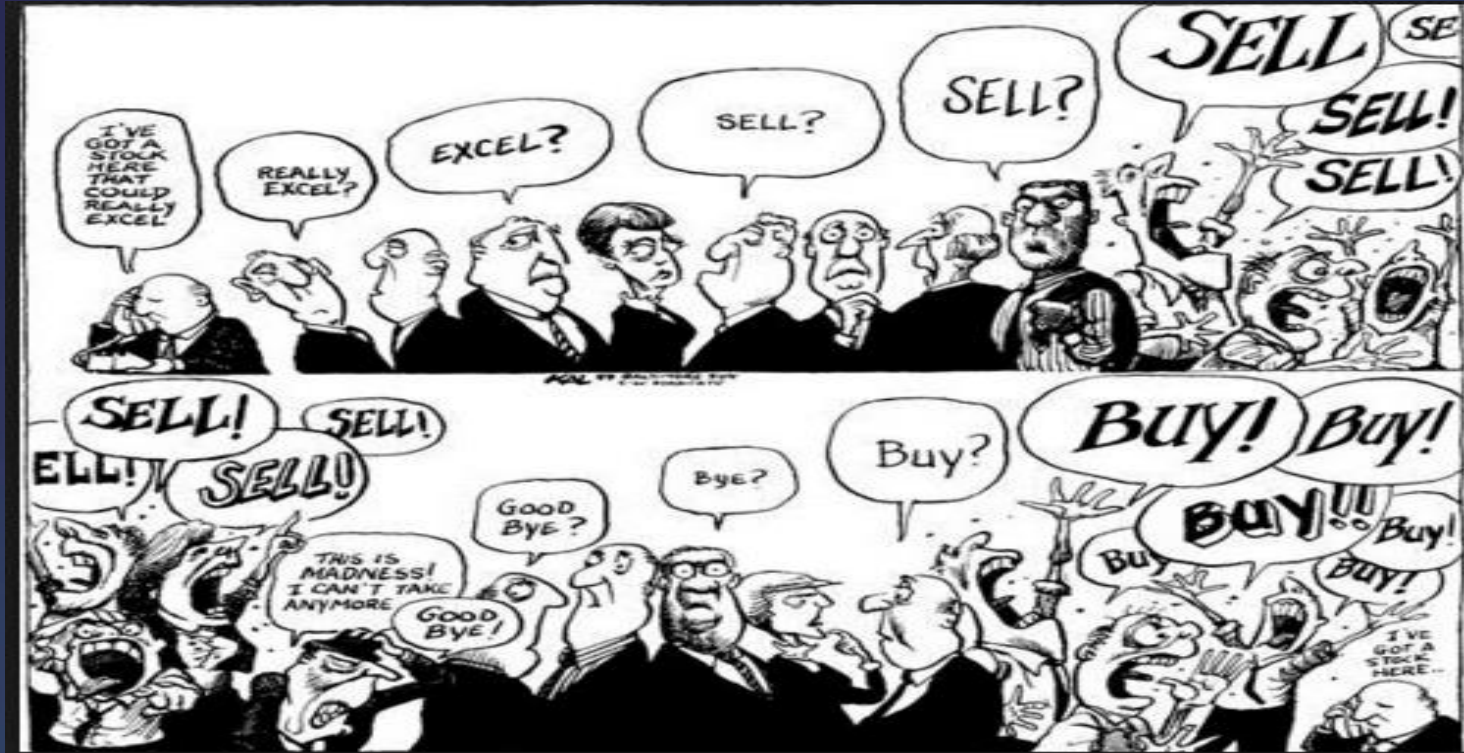
Blame external factors for negative events.

Buzzle.com

Three Levels of Hindsight Bias



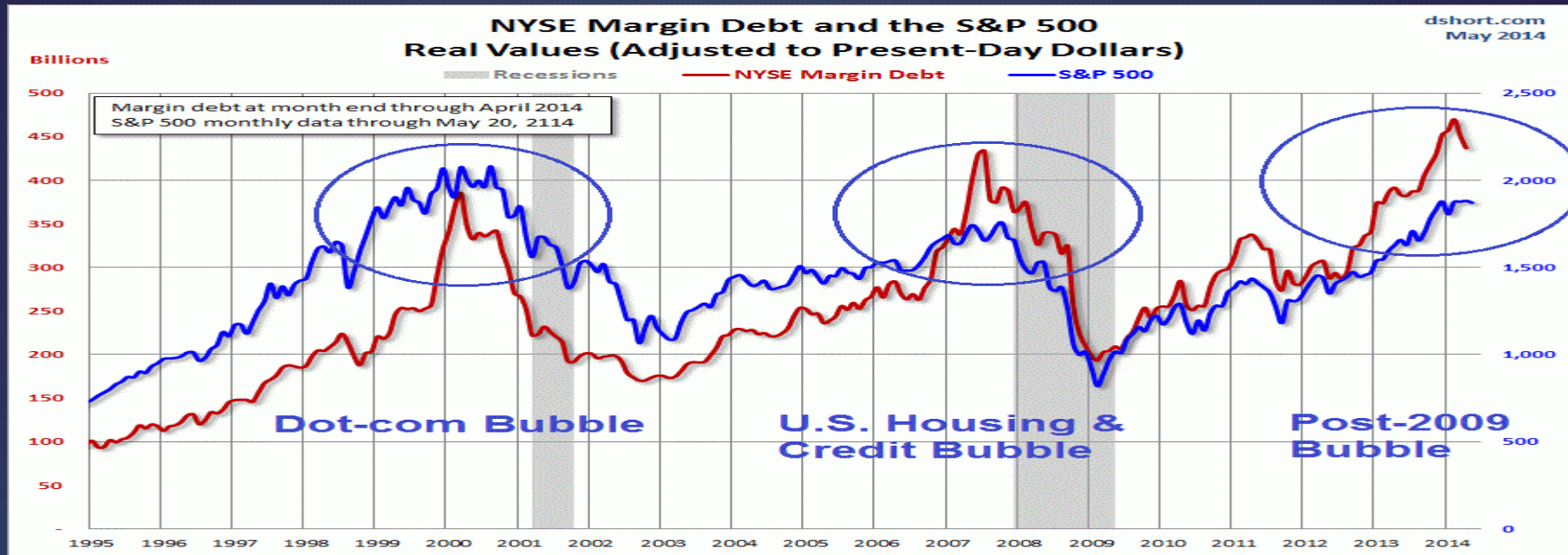
NOISE TRADING



One consequence of overconfidence can be *noise trading*, which involves investors overreacting to good and bad news.

E.g, noise traders may aggressively sell shares of stock in a firm whose outlook is described unfavorably in the WSJ or Fortune Magazine. Although EMH holds that information in a newspaper and magazine is readily available and will have been incorporated into the price of the stock long before the noise trader has even read the article. But, the selling pressure from noise traders can force the stock price down by more than the decrease in its fundamental value.

HERD BEHAVIOUR AND BUBBLES

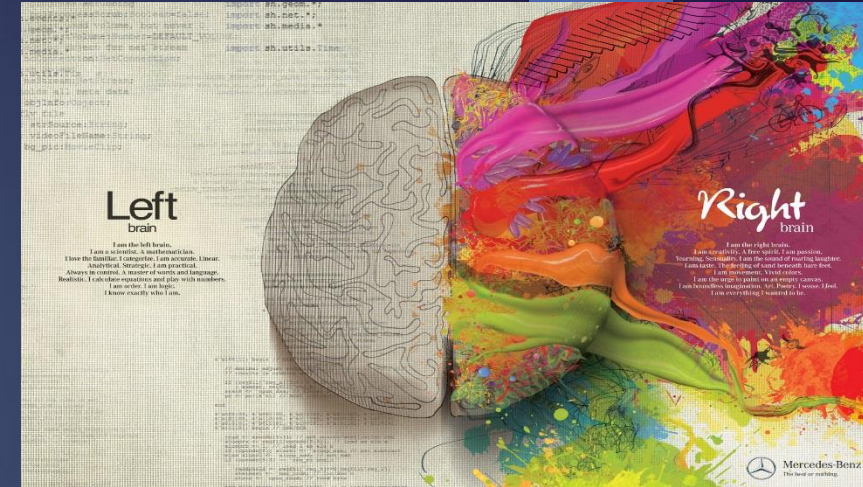


Noise trading can also lead to herd behaviour. With herd behaviour, relatively uninformed investors imitate the behaviour of other investors rather than attempting to trade on the basis of fundamental values. Investors imitating each other can help to fuel a speculative bubble.

In a bubble, the price of an asset rises above its fundamental value. Once a bubble begins, investors may buy assets to resell them quickly at a profit, even if the investors know that the prices are greater than the asset's fundamental value. With a bubble, *the greater fool theory* comes into play: An investor is not a fool to buy an overvalued asset as long as there is a greater fool to buy it later for a still higher price.

How Great A Challenge is Behavioral Finance to the Efficient Market Hypothesis?

- Particularly after the wide swings in stock prices during the financial crisis, skepticism among economists during concerning the accuracy of the EMH has grown. Research in behavioral finance that has questioned the extent to which traders and investors in financial markets exhibit rational expectations has added to the skepticism.



As we noted earlier, during bubbles, such as occurred in the prices of dot-com stocks in the late 1990s, it may be difficult for better- informed investors to force prices back to their fundamental values.

Although fewer economists now believe that asset prices can be relied on to continually reflect fundamental values, many economists still believe that it is unlikely to beat the market in the long run. Ongoing research in behavioral finance continues to attempt to reconcile the actual behavior of investors.

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Self- attribution Bias – Chapter 14
Illusion of Control Bias – Chapter 8
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**THANK
YOU**

