Chapter 6

Valuing Stocks

Topics Covered

- ➲ Reading the quotation list (p.145 Figure 6-1)
- ➲ Stocks and the Stock Market
- ➲ Book Values, Liquidation Values, and Market Values
- ➲ Valuing Common Stocks
- ➲ Simplifying the Dividend Discount Model
- ➲ Growth Stocks and Income Stocks
- ➲ No more free lunches on Wall Street
- ➲ Market Anomalies and Behavioral Finance

Stocks & Stock Market

Primary Market - Place where the sale of new stock first occurs

- ➔ Initial Public Offering (IPO) - First offering of stock to the general public
- ➔ Seasoned Issue - Sale of new shares by a firm that has already been through an IPO

Secondary Market - market in which already issued securities are traded by investors

Stocks & Stock Market

Stock Market

➲ New York Stock Exchange (NYSE): An Auction Market

➔ At the NYSE trades in each stock are handled by a specialist, who acts as an auctioneer

➔ The specialist ensures that stocks are sold to those investors who are prepared to pay the most and that stocks are brought from investors who are willing to accept the lowest price（出最高價買家與願意接收最低價的賣家，優先成交）

➲ Nasdaq: A Dealer Market

➔ Each dealer uses computer links to quote price at which he or she is willing to buy or sell shares.

➔ A broker must survey the prices quoted by different dealers to get a sense of where the best price can be had

Stocks & Stock Market

Common Stock - Ownership shares in a publicly held corporation.

Dividend - Periodic cash distribution from the firm to the shareholders.

P/E Ratio - Price per share divided by earnings per share.

Dividend Yield – Ratio of annual cash dividend to stock price

Stocks & Stock Market

<u>Book Value</u> - Net worth of the firm according to the balance sheet

<u>Liquidation Value</u> - Net proceeds that would be realized by selling the firm's assets and paying off its creditors

<u>Market Value</u> - The amount that investors are willing to pay for the shares of the firm (Market value, unlike book value and liquidation value, treats the firm as a going concern)

* The value of company ought to be worth than the liquidation or book values (p.147 Table 6-2)

Stocks & Stock Market

* Going-concern value = actual company value – book value (or liquidation value)

- Extra earning power (the ability earn more than adequate ROA)
- Intangible assets
- Value of future investments

<u>Market Value Balance Sheet</u> - Financial statement that uses market value of assets (in addition to asset in place, expected profitability of future investment is also considered) and liabilities.

Valuing Common Stocks

Expected Return - The percentage yield that an investor forecasts from a specific investment over a set period of time. Sometimes called the holding period return (HPR).
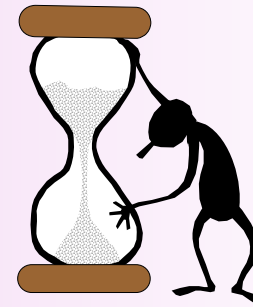
$$\text{Expected Return} = r = \frac{DIV_1 + P_1 - P_0}{P_0}$$

Valuing Common Stocks

The formula can be broken into two parts.

Dividend Yield + Capital Appreciation

$$\text{Expected Return} = r = \frac{DIV_1}{P_0} + \frac{P_1 - P_0}{P_0}$$

Valuing Common Stocks

Expected Return and Today's Stock Price

$$\because \text{ Expected Return } = r = \frac{DIV_1 + P_1 - P_0}{P_0}$$

$$\therefore P_0 = \frac{DIV_1 + P_1}{1 + r}$$

Valuing Common Stocks

Dividend Discount Model - Computation of today's stock price which states that share value equals the present value of all expected future dividends.

$$P_0 = \frac{DIV_1}{(1+r)^1} + \frac{DIV_2}{(1+r)^2} + ... + \frac{DIV_H + P_H}{(1+r)^H}$$

H - Time horizon for your investment.

Valuing Common Stocks

Example

   Current forecasts are for Blue Skies Company to pay dividends of $3, $3.24, and $3.50 over the next three years, respectively. At the end of three years you anticipate selling your stock at a market price of $94.48. What is the price of the stock given a 12% expected return?

Valuing Common Stocks

Example

Current forecasts are for Blue Skies Company to pay dividends of $3, $3.24, and $3.50 over the next three years, respectively. At the end of three years you anticipate selling your stock at a market price of $94.48. What is the price of the stock given a 12% expected return?

$$PV = \frac{3.00}{(1+.12)^1} + \frac{3.24}{(1+.12)^2} + \frac{3.50+94.48}{(1+.12)^3}$$

$$PV = \$75.00$$

Blue Skies Value

⮑ Value of Blue Skies with different years of investment
(The example in the following slide and Table 6-4 in p.153)

Value per share, dollars (y-axis)

Investment Horizon, Years (x-axis)

Legend:
- ■ PV (Terminal Value)
- ■ PV (Dividends)
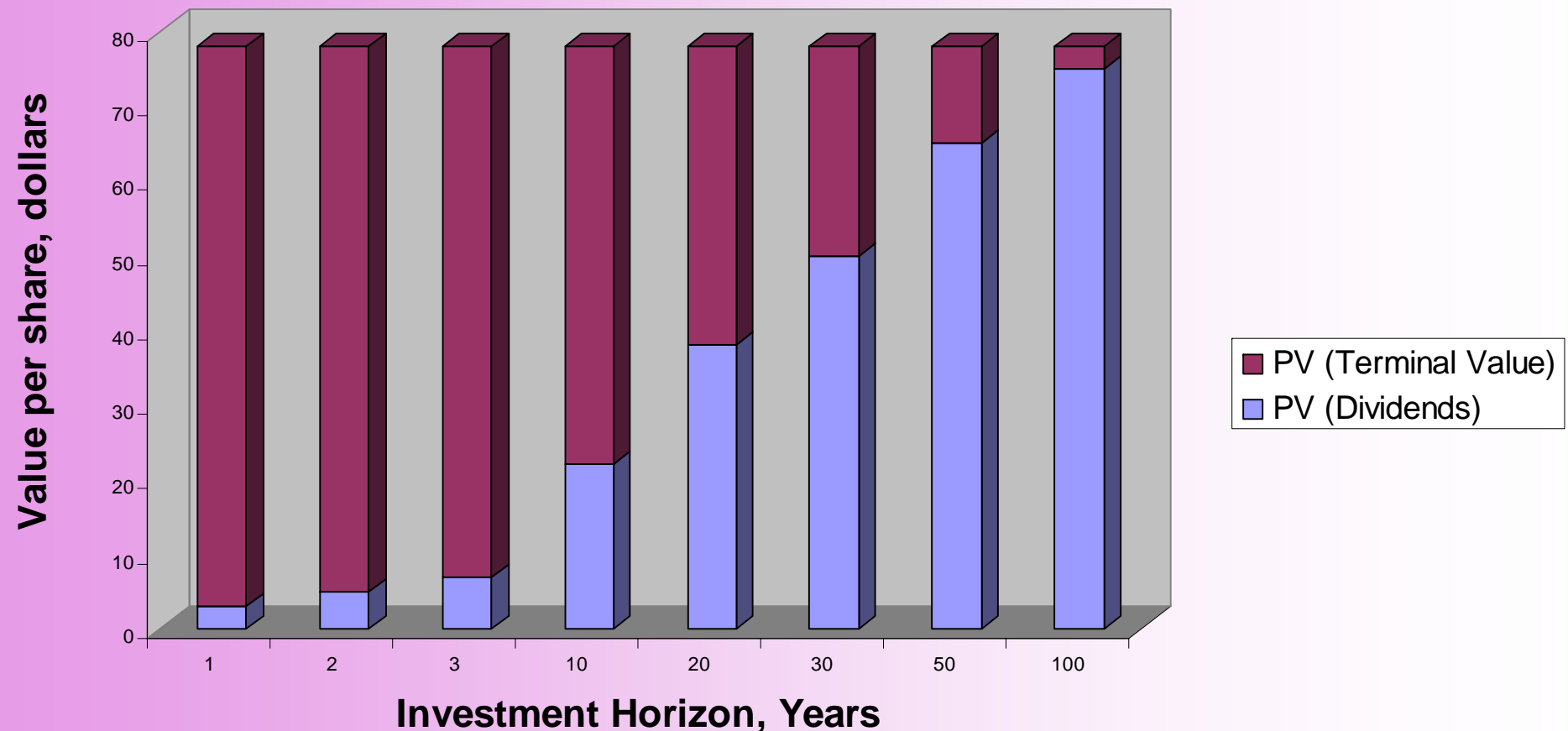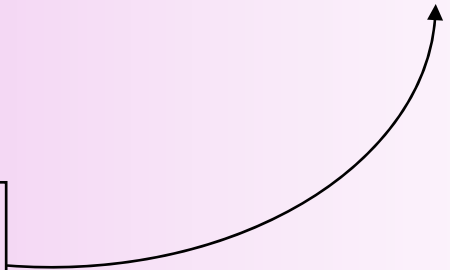
Valuing Common Stocks

If we forecast no growth, and plan to hold stock indefinitely, we will then value the stock as a **PERPETUITY**.

$$\text{Perpetuity} = P_0 = \frac{DIV_1}{r} \ or \ \frac{EPS_1}{r}$$

Assumes all earnings are paid to shareholders.

Valuing Common Stocks

<u>Constant Growth Dividend Discount Model</u> - A version of the dividend growth model in which dividends grow at a constant rate **(Gordon Growth Model)**.

$$P_0 = \frac{DIV_1}{r - g}$$

* Given any combination of variables in the equation, you can solve for the unknown variable

* However, the formula is valid only when g is less than r

Valuing Common Stocks

Example

What is the value of a stock that expects to pay a $3.00 dividend next year, and then increase the dividend at a rate of 8% per year, indefinitely? Assume a 12% expected return.

$$P_0 = \frac{DIV_1}{r - g} = \frac{\$3.00}{.12 - .08} = \$75.00$$

Valuing Common Stocks

Example- continued

If the same stock is selling for $100 in the stock market, what might the market be assuming about the growth in dividends?

$$\$100 = \frac{\$3.00}{.12 - g}$$

$$g = .09$$

Answer

The market is assuming the dividend will grow at 9% per year, indefinitely.

Valuing Common Stocks

⮊ Growth Stocks vs. Income Stocks

➜ Growth stocks are attractive primarily in the expectation of capital gains

➜ Investors buy income stocks principally for the cash dividends

Valuing Common Stocks

Ü If a firm elects to pay a lower dividend, and reinvest the funds, the stock price may increase because future dividends may be higher.

* The above statement depends on the assumption that future reinvestment earnings are higher than the required rate of return of the stock

Payout Ratio - Fraction of earnings paid out as dividends

Plowback Ratio - Fraction of earnings retained by the firm.

Valuing Common Stocks

Growth can be derived from applying the return on equity to the percentage of earnings plowed back into operations.

g = return on equity (ROE) x plowback ratio

假設asset=equity=25，且ROE=20%

=> 第一年賺的錢=25*20%=5

假設plowback ratio=40%

=> 發3元股利，2元轉增資 (asset變成27)

=> 第二年賺的錢=27*20%=5.4

    (5.4/5=1.08，表示股利將有8%成長率)

Valuing Common Stocks

Example

Our company forecasts to pay a $5.00 dividend next year, which represents 100% of its earnings. This will provide investors with a 12% expected return. Instead, we decide to plow back 40% of the earnings at the firm's current return on equity of 20%. What is the value of the stock before and after the plowback decision?
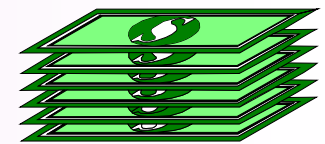
Valuing Common Stocks

Example

Our company forecasts to pay a $5.00 dividend next year, which represents 100% of its earnings. This will provide investors with a 12% expected return. Instead, we decide to blow back 40% of the earnings at the firm's current return on equity of 20%. What is the value of the stock before and after the plowback decision?
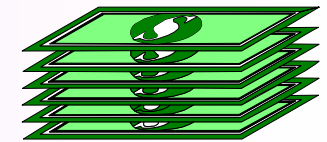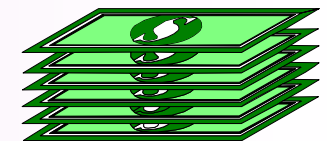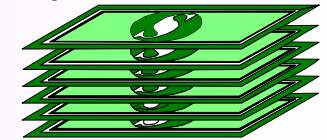
No Growth

With Growth

$$P_0 = \frac{5}{.12} = \$41.67$$

$$g = .20 \times .40 = .08$$

$$P_0 = \frac{3}{.12 - .08} = \$75.00$$

Valuing Common Stocks

Example - continued

If the company did not plowback some earnings, the stock price would remain at $41.67. With the plowback, the price rose to $75.00.

The difference between these two numbers (75.00-41.67=33.33) is called the Present Value of Growth Opportunities (PVGO).

Valuing Common Stocks

Present Value of Growth Opportunities (PVGO)
- Net present value of a firm's future
investments.

Sustainable Growth Rate - Steady rate at which
a firm can grow:

g = return on equity x plowback ratio

Valuing Common Stocks

Price-Earnings ratio (P/E ratio)

➔ No growth opportunities

41.67 / 5 = 8.33

➔ If plowback ratio is 40%

75 / 5 = 15 (not 75 / 3)

Valuing Entire Business (2 million shares outstanding)

$$PV \ of \ Blue \ Skies = \frac{\$6 \ million}{0.12 - 0.08} = \$150 \ million$$

No Free Lunches

⮕ **Technical Analysts**

➔ Forecast stock prices based on the watching the fluctuations in historical prices (thus "*wiggle watchers*")
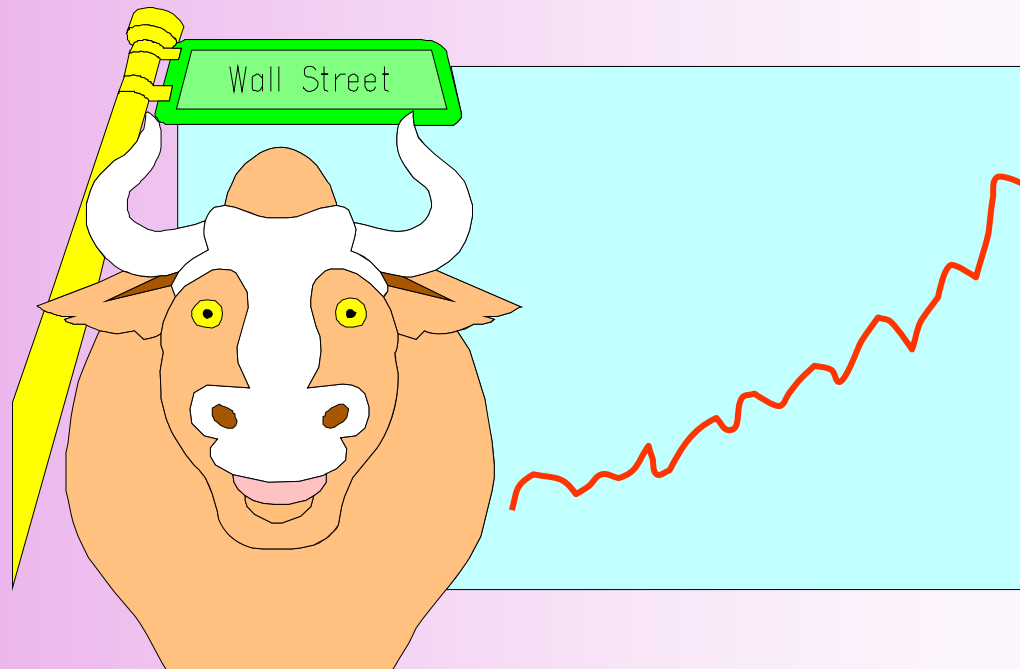
No Free Lunches

Scatter Plot of NYSE Composite Index over two successive weeks.

Where's the pattern?
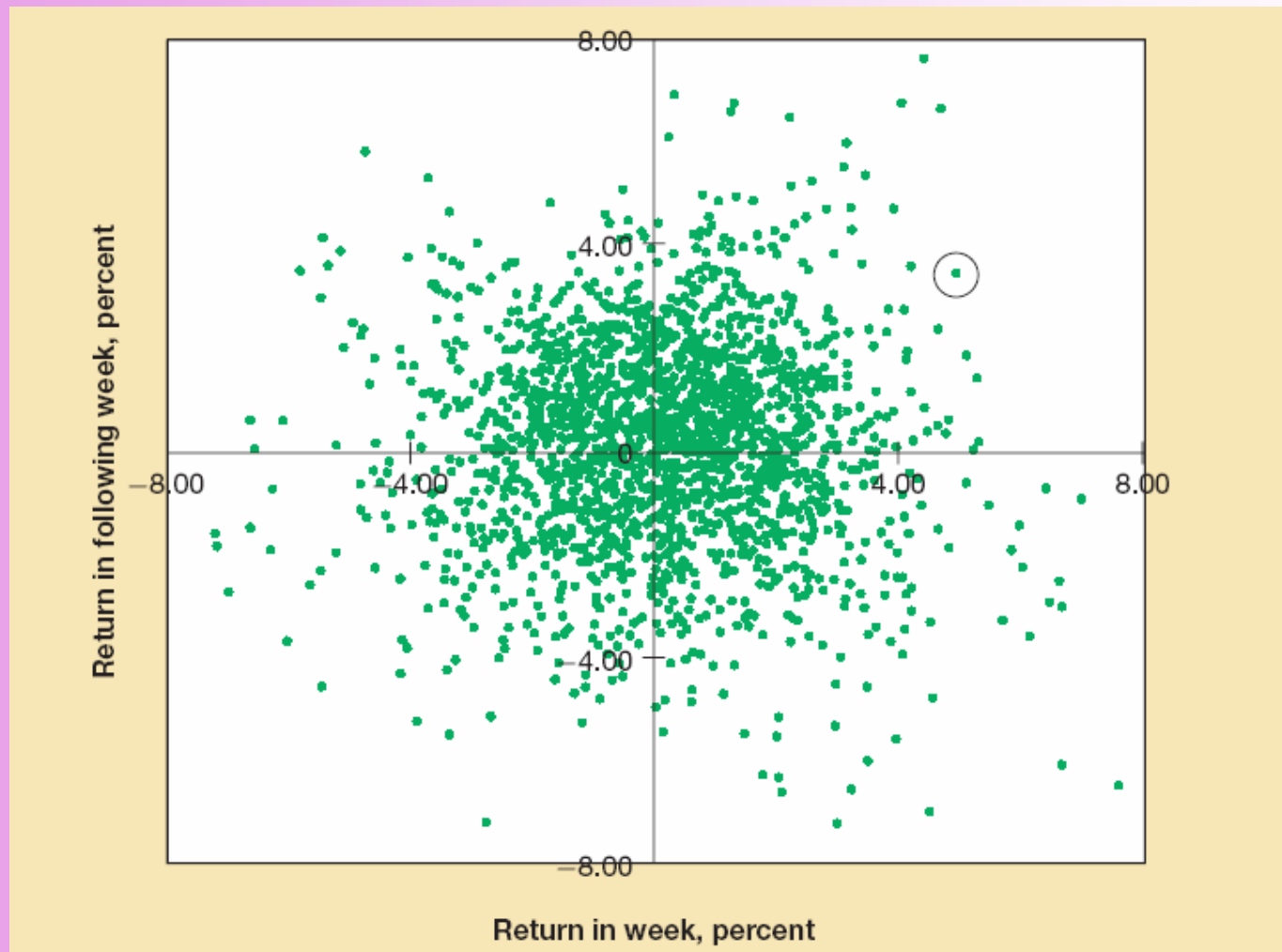
Random Walk Theory

➲ The movement of stock prices from day to day DO NOT reflect any pattern.

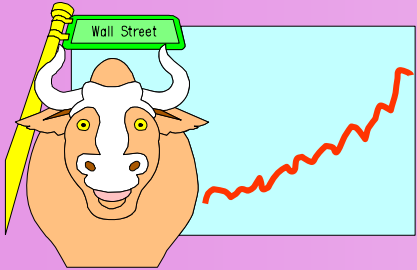➲ Statistically speaking, the movement of stock prices is random *(skewed positive over the long term).*
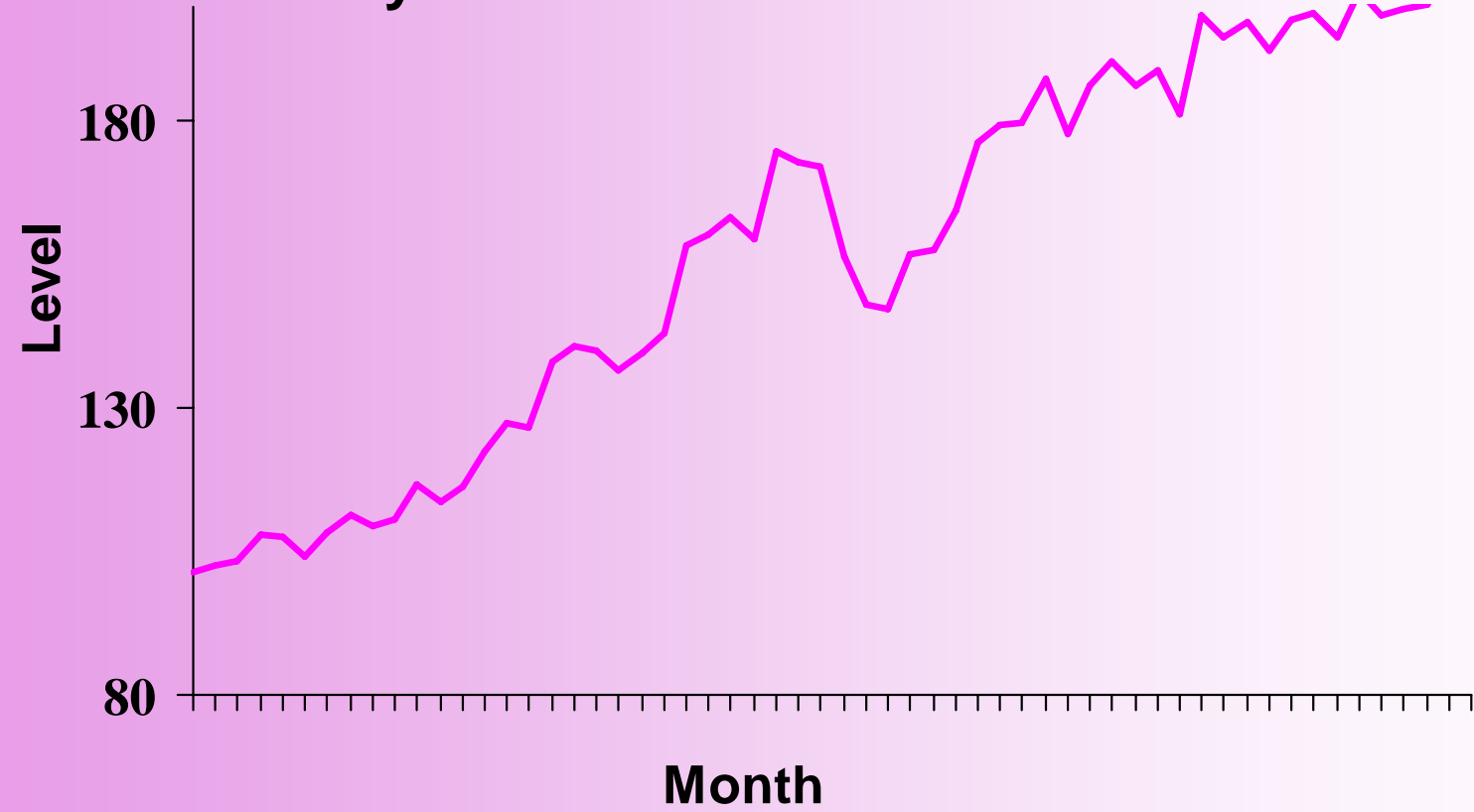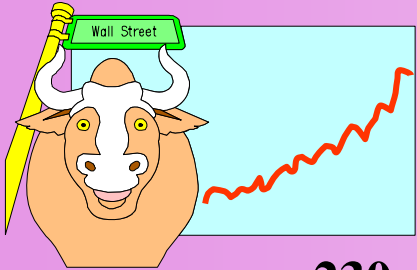
Random Walk Theory

Coin Toss Game

$100.00

Heads

$103.00

Heads — $106.09

Tails — $100.43

Tails

$97.50

Heads — $100.43

Tails — $95.06

Random Walk Theory

S&P 500 Five Year Trend?
or
5 yrs of the Coin Toss Game?

Level

180

130

80
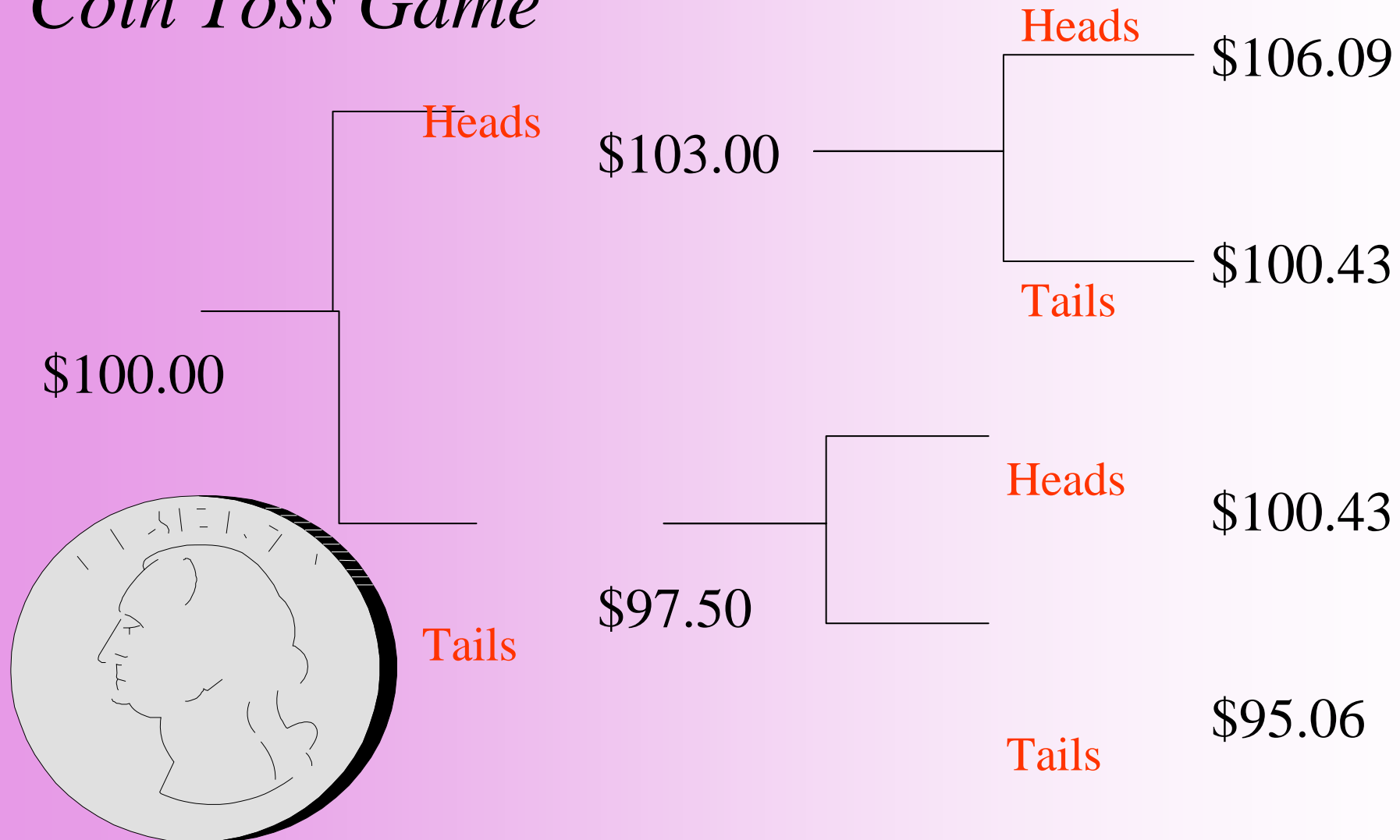
Month

Random Walk Theory

S&P 500 Five Year Trend?
or
5 yrs of the Coin Toss Game?
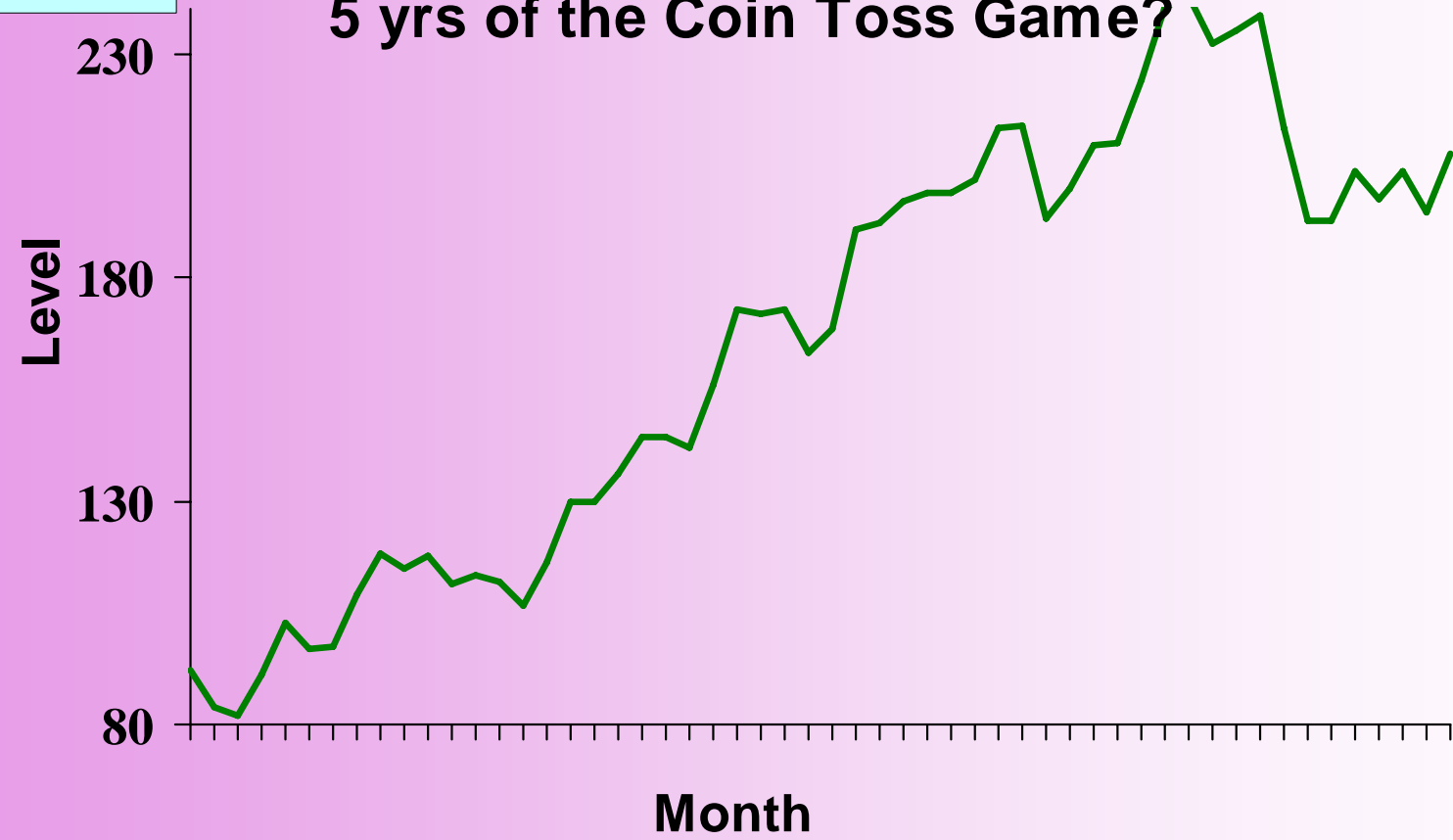
Random Walk Theory

(雖然在某段時間有趨勢，但仍無法靠技術分析賺到超額報酬)

Market Index

1,300

1,200

1,100

Jump to the present value of the expected future price

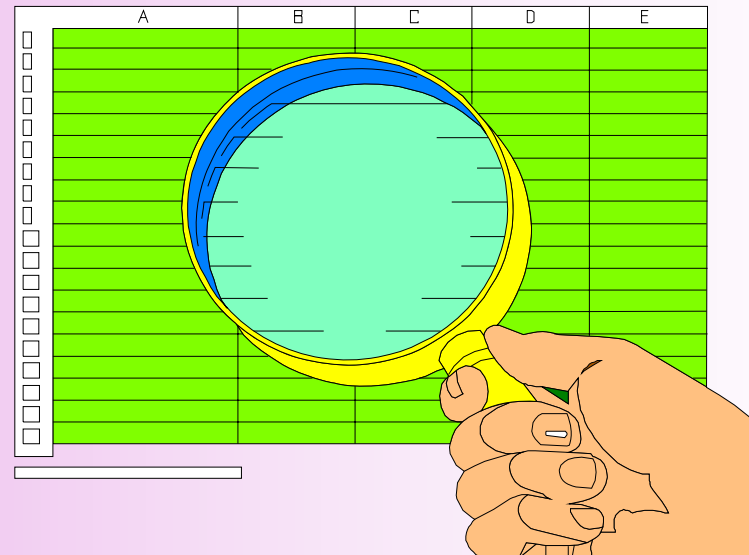Upswing disappear once identified by investors
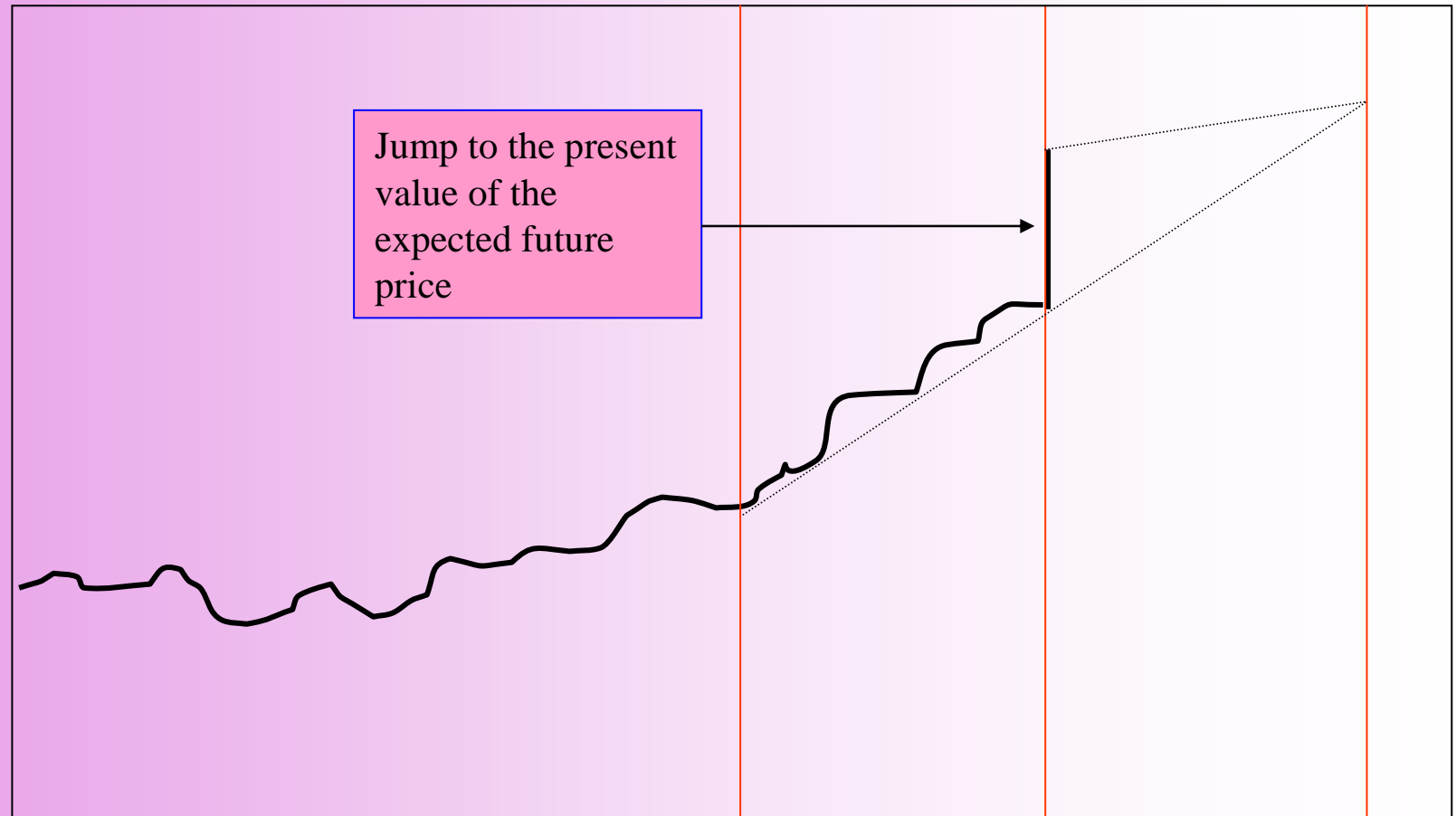
Last Month

This Month

Next Month

Another Tool

➲ **Fundamental Analysts**

➔ Research the value of stocks using NPV and other measurements of cash flow, such as accounting data and business prospects

Efficient Market Theory

⮕ Weak Form Efficiency

➔ Market prices reflect all historical information (技術
分析無效) (powerpoint p.28之圖)

⮕ Semi-Strong Form Efficiency

➔ Market prices reflect all publicly available information
(根據財務報表之分析無效) (下頁的Figure 6-7)

⮕ Strong Form Efficiency

➔ Market prices reflect all information, both public and
private (所有的投資人，即使再努力，探求再多資
訊，都無法賺到超額報酬) (p.162 Figure 6-3)

Efficient Market Theory

Merger Announcement Date

Cumulative Abnormal Return (%)

Days Relative to annoncement date
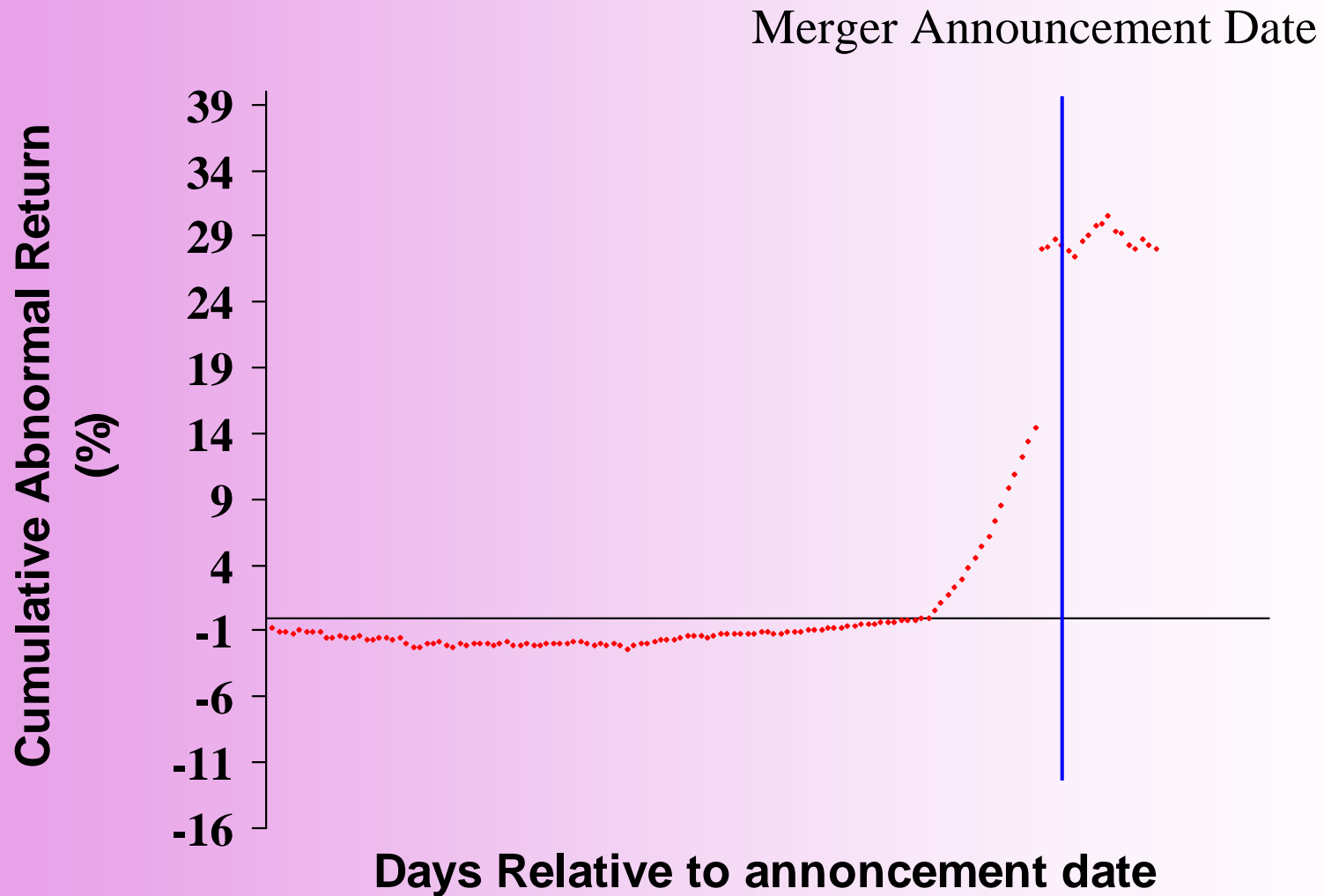
*支持Semi-strong form efficiency

Market Anomalies

● The Earnings Announcement Puzzle
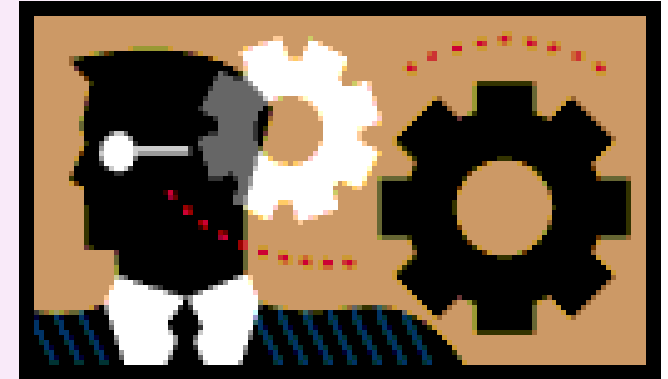
財報最好的公司比起財報最差的公司，在財報
公佈後的兩個月內，平均多賺4%

● The New-Issue Puzzle

買進IPO的股票持有五年，報酬比起同期大小
相當的股票所形成的投資組合小33%

Behavioral Finance

➲ Attitudes towards risk

➔ facing gain, risk averse

➔ facing loss, risk loving

➲ Beliefs about probabilities

➔ what happened in recent periods is assumed to occur in the future

➔ overconfidence