Normal Distribution

Big Bang:150 億年前（1.5×10^{10} 年前）

a. Normal Distribution

$$|X-\mu|\geq5\sigma=2\times0.287\times10^{-6}$$

$\mu\cong10\%-12\%$ $\quad\sigma\cong18\%-20\%$ $\quad$ (per year)

Assume: 250 trading days per year

$\mu_d=\mu/250\cong0.04\%-0.048\%$ $\quad$ (per day)

$\sigma_d=\sigma/\sqrt{250}\cong1.139\%-1.265\%$ $\quad$ (per day)

Assume: 250 trading days per year $\rightarrow$ 7000 Years

b.1998.08.04: -3.5%

08.25: -4.4%

08.31: -6.8%

1998.08.31: Probability=$\dfrac{1}{2\times10^{7}}=\dfrac{1}{2000萬}$ $\rightarrow$ 80,000 Years

1998.08.04 + 08.25 + 08.31:Probability=$\dfrac{1}{5000\times10^{8}}=\dfrac{1}{5000億}$

$\rightarrow$ 2,000,000,000 Years

c. 1987.10.19: -29.2%

Probability=$\dfrac{1}{10^{50}}$ $\rightarrow$ 4×10^{47} Years

Benchmark: 1.5×10^{10}

Manias / Panics : Mob. Psychology

Rational individuals and irrational whole.

BOE:1694

1.2M ￡ × 8％ ＋4000￡

Governor and the Company of the Bank of England.

1.群眾不理性與善變

irrationality and vicissitude of the crowd. Martin

2.個人的行爲，會受到他人的影響。 Newton.

South Sea Company：成立於 1711 年 中南美洲貿易

a. 1720 年，接受認股

Martin (Banker) 認購￡500: "When the rest of the world are mad, we must imitate them in some measure".

b.* Issac Newton, 1720 年 Spring: "I can calculate the motions of the heavenly bodies, but not the madness of people".

* 1720 年 4 月 20 日，出清 South Sea 股票，獲利￡7000（100％）

* Summer: 再度投資，損失￡20,000

Charles Mackay, 1841 年, Extraordinary Popular Delusions and the Madness of Crowds.

BOE

S.E.: Proposed 6% → 5%

結果，1720 proposed to take over ￡30,981,712（3 千 1 百萬￡）for 5% until 1727.

發行股票，給 10％股利

Bubble Company 競相發行股票→資金排擠→S.E.請求政府取締→

Burst the Bubbles

Tronics Boom

1959-1962:

IPO Craze

- Astron
- Dutron
- Vulcatron
- Transitron
- Circuitronics
- Supronics
- Videotronics

P/E Miracle

- P/E for " Shoelaces Inc. " is 6.
- "Electronics & Silicon Fourth – Burners" has a P/E of 42