University of California, Los Angeles
Department of Statistics

Statistics C183/C283 **Instructor: Nicolas Christou**

Risk - historical overview

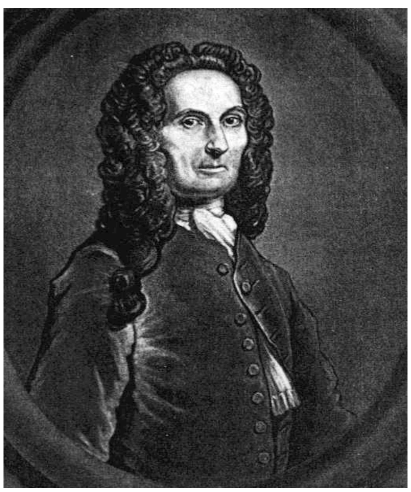
- The modern conception of risk has its origin in the Hindu-Arabic numbering system that reached the West about 800 years ago.
- 1202: In Italy Leonardo Pisano (also known as Fibonacci) wrote the *Book of the Abacus* (*Liber Abacci*).

- 1654: Chevalier de Méré challenged the French mathematician Blaise Pascal to solve the following puzzle: "How to divide the stakes of an unfinished gambling game between two players when one of them is ahead". Pascal ask the help of Pierre de Fermat and their collaboration in solving this puzzle lead to the discovery of the theory of probability, which is the core of the concept of risk.

- Mid-1600s: Amsterdam stock exchange is flourishing.

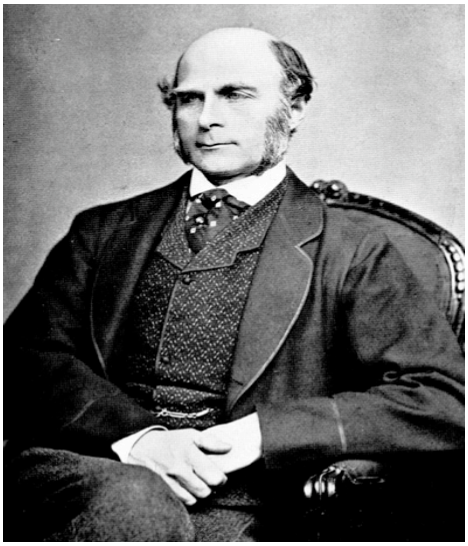
- 1703: Jacob Bernoulli invented the law of large numbers.

- 1725: Mathematicians constructed tables of life expectancies.
- 1730: Abraham de Moivre invented the normal distribution. In 1809 Pierre-Simon Laplace expanded Abraham de Moivre's theory to approximate the binomial distribution, and later in 1901 the Russian mathematician Aleksandr Lyapunov proved mathematically the central limit theorem, perhaps the most important theorem in probability theory.



- 1754: Bayes' rule was introduced by the English minister Thomas Bayes.

- 1886: Francis Galton discovered regression analysis.



- 1952: Harry Markowitz proposed modern portfolio theory.