

國立臺北大學自然資源與環境管理研究所

110 學年度第二學期『環境災害與風險管理』

課程講義 (15)：財務風險管理概要
Introduction to Financial Risk Management

● CATEGORIES OF RISK AND BUSINESS RISKS

- Types of Business Risk (<http://smallbusiness.chron.com/types-business-risk-99.html>): Strategic Risk, Compliance Risk, Financial Risk, Operational Risk, Reputational Risk...
- Business Risks: Financial vs. Non-financial Risks
- Financial Risks (<https://www.nibusinessinfo.co.uk/content/financial-risk>): Market Risk, Credit Risk, Liquidity Risk, Operational Risk.
- 金融研訓院網站資訊
 - ⇒ 銀行的經營風險(<http://service.tabf.org.tw/fbs/Doc/Preview/74083.pdf>)：利率風險(Interest Rate Risk)、信用風險(Credit Risk)、流動性風險(Liquidity Risk)、通貨膨脹風險(Inflation Risk)、匯率風險、作業風險與財產損失風險等。
 - ⇒ 衍生性商品的風險(<http://service.tabf.org.tw/fbs/Doc/Preview/59212.pdf>)：市場風險/價格風險、信用風險/違約風險、流動性風險、作業風險、法律風險

● FINANCIAL RISK MANAGEMENT

- Bond Fundamentals => Engineering Economics
- Financial Market / Capital Market / Derivatives
 - ⇒ Derivatives and Markets: Options, Securities, Equity, Commodities Markets...
 - ⇒ 衍生性金融商品(<http://service.tabf.org.tw/fbs/Doc/Preview/60282.pdf>)：依附於其他資產標的物上的金融商品。衍生性商品基本上分成四類：選擇權、遠期契約、期貨及交換契約
 - ⇒ Sources of Risk: Currency, Fixed-Income, Equity, and Commodity
- Credit Risk Management
 - ⇒ Estimate default probabilities, credit exposures, recovery rates
 - ⇒ Measuring expected credit loss and Measuring credit VaR
- Operational and Integrated Risk Management
- Legal, Accounting, and Tax Risk Management => [Basel Accord III](#) [新巴塞爾資本協定](#)

● VALUE AT RISK (VaR; [風險值](#); [在险价值](#))

(https://www.researchgate.net/publication/225034042_Exploring_the_Limitations_of_Value_at_Risk_How_Good_Is_It_in_Practice)

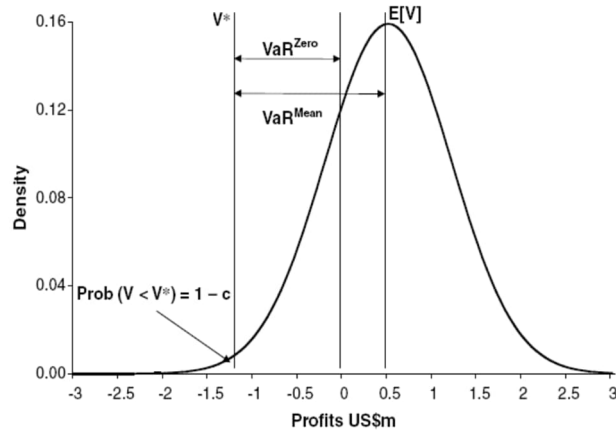
- Originally VaR was intended to measure the risks in derivatives markets
 - ⇒ Downside measure
 - ⇒ Widely applied in financial institutions to measure all kinds of financial risks
- The Basic Idea of VaR: Value of an Investment
 - ⇒ Given the cumulative distribution function $F(V)$ of the value of an investment V at the end of a time horizon ΔT , the value of the investment is below V^* with a probability of $1 - c$ satisfies the following relationship,

$$\text{Prob}(V \leq V^*) = \int_{-\infty}^{V^*} dF(V) = 1 - c$$

⇒ The VaR relative to the benchmark of zero profit V_0 is: $VaR_{c,\Delta T}^{zero} = V_0 - V^*$

⇒ The VaR relative to the expected outcome $E[V]$ is: $VaR_{c,\Delta T}^{mean} = E[V] - V^*$

Definition of Value at Risk



□ Expected Shortfall (Conditional VAR, or Tail Loss)

VAR: “how bad can things get?” ES: “if things do get bad, what is our expected loss?”

