

專題會議記錄	
時間	2022/5/21
議程	大家對系統的想法
	說明各自對系統的想法，決定下次開會分享，並且先各自了解理財機器人、金融知識、自己對文件第一章的看法
	確定系統內容
	使用者投資之金流如何運作 下單資本額最低門檻
	簡報內容
	5/25 專題簡報 <ul style="list-style-type: none"> • 主題發想 • 系統簡介 • 系統架構 • 開發環境 • 核心算法概念 6/10 系統簡報 <ul style="list-style-type: none"> • 系統畫面 • 核心算法實作
	我們自己固定開會時間
	每周四、日 晚上 9:30
下次開會時間	5/22 晚上 11:00
下次開會議程	大家對系統的想法

補充資料：

Git 參考：<https://www.liaoxuefeng.com/wiki/896043488029600>

2. The mean-variance model

The mean-variance model (Markowitz, 1952) addresses portfolio selection problems and determines the composition for a portfolio of n securities, which minimizes risks while achieving a given level of expected returns, as follows:

$$\text{Min } \sigma_p = \sum_{i=1}^n w_i^2 \sigma_i^2 + \sum_{i=1}^n \sum_{j=1(j \neq i)}^n \sigma_{ij} w_i w_j, \quad (1)$$

$$\text{s.t. } \sum_{i=1}^n r_i w_i \geq \mu, \quad (2)$$

$$\sum_{i=1}^n w_i = 1, \quad (3)$$

$$w_i \geq 0, \quad i = 1, 2, \dots, n,$$

where n is the number of available securities; w_i is the investment portion in i securities for $i = 1, \dots, n$; r_i is the return on securities i ; μ is the expected portfolio return; σ_i^2 is the variance of the return on securities i ; and σ_{ij} is the covariance between the returns of securities i and j . The first constraint expresses the requirements of a portfolio return, while the second is the budget constraint. From $w_i \geq 0$, we can assume that short selling is not allowed. On the contrary, short selling is taken into consideration in the proposed model for multi-periods. Therefore, in the proposed models, w_i becomes an unrestricted sign regarding short selling.