



Assignment No:8

Build a CAPM Model

1. Assignment Description

A CAPM model is a framework that enables one to select the optimal investment portfolio in the stock market. The CAPM model allows one to weigh risk against return on investment given the risk aversion level of the investor. The purpose of the current assignment is to build an investment portfolio based upon the firm's share history found in the decision makers simulator database.

2. Background Theory

The CAPM model was first introduced by Jack Treynor (1961, 1962), [1] William Sharpe (1964), John Lintner (1965a,b) and Jan Mossin (1966) independently, building on the earlier work of Harry Markowitz on diversification and modern portfolio theory. Sharpe, Markowitz and Merton Miller jointly received the Nobel Prize in Economics for this contribution to the field of financial economics.

For a detailed explanation about the model please refer to http://en.wikipedia.org/wiki/Capital_asset_pricing_model which also provides a good list of references



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3. Data Source

Data for this assignment should be taken from the historical database of the Decision Makers simulator. To extract this data to a CSV file for analysis in excel go into the Data Retrieve option of the simulator.

- Select the historical domain you would like to use (For example www.decisionmakers.biz/HISTORY8)
- Log into the “Historical Domain” and go to the “Data Retrieve” option under the student menu
- Select the variable share price and select all firms and all quarters
- Click the “Run button”
- The simulator will generate an output file as requested
- Download this file to your computer for performing the analysis

4. Analysis Required

- a. For each firm, calculate the average and standard deviation of ROI based upon eight quarters. In this case quarter 1 is the first observation, quarter two the second etc.
- b. Select two shares which have a negative correlation. For these two shares build a CAPM model.
- c. What is the optimal ratio of investment in these two shares. Is an additional riskless investment needed to optimize the investment?
- d. How can you make sure that the two selected share prices are the optimal ones?