**Lecture 1**

**Example 1**

Calculate return and risk of following stocks. Consider return for one day and return for two days.

|  |  |  |  |
| --- | --- | --- | --- |
| Theoretical price of stock | | | |
| *Trading day* | *Stock-i* | | |
| Company 1 | Company 2 | **Company 3** |
| **1.** | 100 | 200 | 1000 |
| **2.** | 110 | 210 | 1050 |
| **3.** | 121 | 205 | 1080 |
| **4.** | 95 | 150 | 1020 |
| **5.** | 98 | 210 | 950 |

**Example 2**

Calculate quarter return and risk of stocks (A-F). How will be the results of two-year return and risk?

Create a covariance and correlation matrix.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Year | | | | | | | |
| **2014** | | | | **2015** | | | |
| **Company** | **I.** | **II.** | **III.** | **IV.** | **I.** | **II.** | **III.** | **IV.** |
| **A** | 1010 | 1055 | 1100 | 1031 | 988 | 1065 | 918 | 1060 |
| **B** | 2650 | 3000 | 3848 | 3228 | 3638 | 4205 | 3979 | 4731 |
| **C** | 1505 | 2030 | 2190 | 2325 | 2250 | 2443 | 1700 | 1796 |
| **D** | 178 | 300 | 325 | 396 | 351 | 370 | 335 | 327 |
| **E** | 281 | 372 | 358 | 494 | 460 | 539 | 443 | 468 |
| **F** | 2645 | 3125 | 3400 | 3330 | 3400 | 3425 | 3475 | 4100 |
| **G** | 547 | 800 | 803 | 1070 | 975 | 952 | 997 | 944 |

**Example 3**

Download the closing prices for last year of Exxon Mobile, Apple and Godman Sachs (use Yahoo Finance). Then calculate expected return and risk for one day and one month. Further create covariance and correlation matrix from one day returns.