**Spring 2017**

**ESI 5359**

**Industrial Financial Decisions**

**Yezehao Huai (5965823)**

**Chapter 5 Homework**

**3. Suppose that you were given the following data for past excess quarterly returns for Markese Imports, Inc., and for the market portfolio:**

|  |  |  |
| --- | --- | --- |
| **QUARTER** | **EXCESS RETURNS**  **MARKESE** | **EXCESS RETURNS**  **MARKET PORTFOLIO** |
| 1 | 0.04 | 0.05 |
| 2 | 0.05 | 0.10 |
| 3 | -0.04 | -0.06 |
| 4 | -0.05 | -0.10 |
| 5 | 0.02 | 0.02 |
| 6 | 0.00 | -0.03 |
| 7 | 0.02 | 0.07 |
| 8 | -0.01 | -0.01 |
| 9 | -0.02 | -0.08 |
| 10 | 0.04 | 0.00 |
| 11 | 0.07 | 0.13 |
| 12 | -0.01 | 0.04 |
| 13 | 0.01 | -0.01 |
| 14 | -0.06 | -0.09 |
| 15 | -0.06 | -0.14 |
| 16 | -0.02 | -0.04 |
| 17 | 0.07 | 0.15 |
| 18 | 0.02 | 0.06 |
| 19 | 0.04 | 0.11 |
| 20 | 0.03 | 0.05 |
| 21 | 0.01 | 0.03 |
| 22 | -0.01 | 0.01 |
| 23 | -0.01 | -0.03 |
| 24 | 0.02 | 0.04 |

**On the basis of this information, graph the relationship between the two sets of excess returns and draw a characteristic line. What is the approximate beta? What can you say about the systematic risk of the stock, based on past experience?**

From the figure, we can find that Beta is almost 0.5, less than 1.0, so the stock’s excess return varies less than proportionally with the excess return of the market portfolio, it is a defensive investment.

**6. Currently, the risk-free rate is 10 percent and the expected return on the market portfolio is 15 percent. Market analysts’ return expectations for four stocks are listed here, together with each stock’s expected beta.**

|  |  |  |
| --- | --- | --- |
| **Stock** | **Expected Return** | **Expected Beta** |
| **1.Stillman Zinc Corporation** | **17.0%** | **1.3** |
| **2.Union Paint Company** | **14.5** | **0.8** |
| **3.National Automobile Company** | **15.5** | **1.1** |
| **4.Parker Electronics, Inc.** | **18.0** | **1.7** |

1. **If the analysts’ expectations are correct, which stocks (if any) are overvalued? Which (if any) are undervalued?**

This graphic is under that risk-free rate is 10 percent and the expected return on the market portfolio is 15 percent. Its shows that Stock 1 and 2 are undervalued. Stock 3 is valued. Stock 4 is overvalued.

1. **If the risk-free rate were suddenly to rise to 12 percent and the expected return on the market portfolio to 16 percent, which stocks (if any) would be overvalued? Which (if any) undervalued? (Assume that the market analysts’ return and beta expectations for our four stocks stay the same.)**

This graphic is under that risk-free rate is 12 percent and the expected return on the market portfolio is 16 percent. It shows that all stocks are overvalued.

**9. The following common stocks are available for investment:**

|  |  |
| --- | --- |
| **COMMON STOCK**  **(Ticker Symbol)** | **BETA** |
| **Nanyang Business Systems (NBS)** | **1.40** |
| **Yunnan Garden Supply, Inc. (YUWHO)** | **0.80** |
| **Bird Nest Soups Company (SLURP)** | **0.60** |
| **Wacho.com! (WACHO)** | **1.80** |
| **Park City Cola Company (BURP)** | **1.05** |
| **Oldies Records, Ltd. (SHABOOM)** | **0.90** |

1. **If you invest 20 percent of your funds in each of the first four securities, and 10 percent in each of the last two, what is the beta of your portfolio?**

The beta of portfolio =(1.40+0.80+0.60+1.80)\*0.2+(1.05+0.90)\*0.1

=1.115

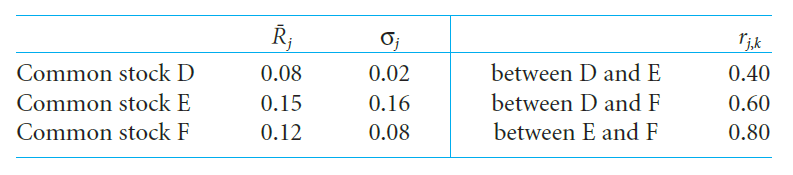
1. **If the risk-free rate is 8 percent and the expected return on the market portfolio is 14 percent, what will be the portfolio’s expected return?**

Rf =8% Rm=14% βj=1.115

The portfolio’s expected return = 8%+(14%-8%)\*1.115

= 14.69%

**11. Common stocks D, E, and F have the following characteristics with respect to expected return, standard deviation, and correlation between them:**



**What is the expected return and standard deviation of a portfolio composed of 20 percent of funds invested in stock D, 30 percent of funds in stock E, and 50 percent of funds in stock F?**

The expected return = (0.2)(0.08)+(0.3)(0.15)+(0.5)(0.12)

= 0.121

|  |  |  |  |
| --- | --- | --- | --- |
|  | Stock D | Stock E | Stock F |
| D | (0.2)2(1.0)(0.02)2 | (0.2)(0.3)(0.4)(0.02)(0.16) | (0.2)(0.5)(0.6)(0.02)(0.08) |
| E | (0.3)(0.2)(0.4)(0.16)(0.02) | (0.3)2(1.0)(0.16)2 | (0.3)(0.5)(0.8)(0.16)(0.08) |
| F | (0.5)(0.2)(0.6)(0.08)(0.02) | (0.5)(0.3)(0.8)(0.08)(0.16) | (0.5)2(1.0)(0.08)2 |

Therefore, σp=[(0.2)2(1.0)(0.02)2+0.3)2(1.0)(0.16)2+0.5)2(1.0)(0.08)2+2(0.2)(0.3)(0.4)(0.02)(0.16)+2(0.5)(0.2)(0.6)(0.08)(0.02)+2(0.5)(0.3)(0.8)(0.08)(0.16)]0.5

=[0.0073376]0.5=8.56%