**Chapter 6 Study Guide**

1. What is Holding Period Return?

Example:

You bought 1 share of HPD for $19.70 in May 2008 and sold it for $32.32 in May 2009. The company paid divided of 8 cents every quarter during the last two years.

How much is holding period return?

1. Expected return and expected cash flow
   1. Definition
   2. Example

|  |  |  |  |
| --- | --- | --- | --- |
| **State of the economy** | **Probability of the states** | **Cash flow from the investment** | **% Return (Cash Flow/Inv. Cost)** |
| Economic Recession | 20% | $1,000 | 10% ($1,000/$10,000) |
| Moderate Economic Growth | 30% | 1,200 | 12% ($1,200/$10,000) |
| Strong Economic Growth | 50% | 1,400 | 14% ($1,400/$10,000) |

How much is expected cash flow? Expected return?

1. What is risk?

How to measure risk?

Why diversification can reduce risk?

Example:

Treasury Bill

100% 3%

Stock

10% 0%

20% 5%

40% 15%

20% 25%

10% 30%

Why Treasury Bill is less risky than stock?

Calculate expected return and standard deviation of both.

1. Portfolio:

Why holding portfolio is safer than holding individual stock?

What the difference between systematic risk and unsystematic risk?

How to measure systematic risk?

How to measure total risk?

**Steps**

1. Calculate monthly return of each company.

Holding period return = Return = P2/P1 – 1 = (P2-P1)/P1

1. Calculate the risk of each stock

Total risk of stock = Standard deviation

The [syntax](http://spreadsheets.about.com/od/s/g/syntax_def.htm) for the Standard Deviation function is: standard deviation **= STDEV ( Number1, Number2, ... Number…)**

1. Set up portfolio. Here the portfolio has one share of WMT, AAPL, GE, and EXXON, respectively.
2. Calculate portfolio’s risk. Significantly lower than the risk of individual stock?
3. Why risk of portfolio is lower?
4. Calculate correlation

**Syntax - CORREL**(**array1**,**array2**); A**rray1** is a cell range of values; **Array2** is a second cell range of values.

1. A optimal portfolio should have stocks negatively correlated. Why?
2. What are systematic risk and unsystematic risk? Why an optimal portfolio has systematic risk only?
3. How to measure systematic risk?

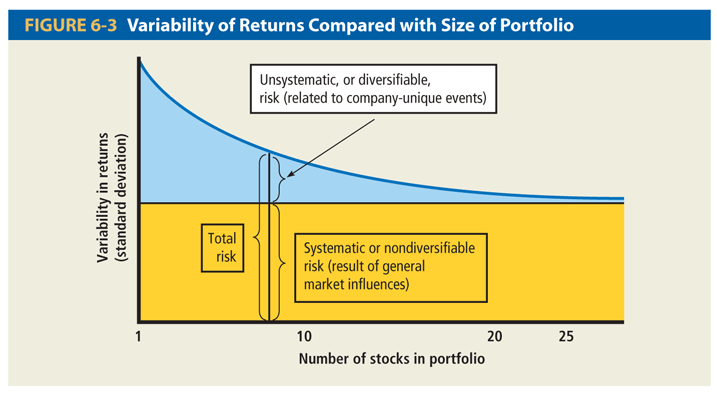
Systematic risk is measured by Beta. What is Beta?

1. What CAPM? How to measure Beta?

Beta = slope ( S&P500 return, stock return)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Date | wmt | aapl | ge | exxon | nbg\_penny | span\_penny | sp500 | portfolio |
| 1/2/2014 | 74.1 | 500.75 | 25.29 | 95.11 | 4.49 | 21.63 | 1774.2 | 695.25 |
| 12/2/2013 | 78.69 | 561.02 | 28.03 | 101.2 | 5.6 | 20.84 | 1848.4 | 768.94 |
| 11/1/2013 | 80.54 | 556.07 | 26.45 | 93.48 | 6.27 | 19.72 | 1805.8 | 756.54 |
| 10/1/2013 | 76.31 | 519.67 | 25.93 | 89.01 | 5.85 | 18.71 | 1756.5 | 710.92 |
| 9/3/2013 | 73.53 | 473.98 | 23.7 | 85.46 | 4.05 | 21.35 | 1681.6 | 656.67 |
| 8/1/2013 | 72.56 | 484.39 | 22.78 | 86.57 | 4.01 | 20.93 | 1633 | 666.3 |
| 7/1/2013 | 77.02 | 446.95 | 23.99 | 92.48 | 3.55 | 20.71 | 1685.7 | 640.44 |
| 6/3/2013 | 73.61 | 391.64 | 22.83 | 89.12 | 3.45 | 20.14 | 1606.3 | 577.2 |
| 5/1/2013 | 73.96 | 444.19 | 22.77 | 89.24 | 7.22 | 19.12 | 1630.7 | 630.16 |
| 6/1/2004 | 43.51 | 15.73 | 23.35 | 35.94 | 197.09 | 7.44 | 1140.8 | 118.53 |
| 5/3/2004 | 46.18 | 13.57 | 22.29 | 35 | 202.59 | 6.63 | 1120.7 | 117.04 |
| 4/1/2004 | 47.12 | 12.46 | 21.45 | 34.22 | 196.23 | 6.9 | 1107.3 | 115.25 |
| 3/1/2004 | 49.35 | 13.07 | 21.86 | 33.44 | 177.06 | 7.66 | 1126.2 | 117.72 |
| 2/2/2004 | 49.13 | 11.56 | 23.3 | 33.91 | 186.16 | 7.43 | 1144.9 | 117.9 |
| 1/2/2004 | 44.42 | 10.91 | 23.94 | 32.6 | 180.31 | 7.19 | 1131.1 | 111.87 |
| 12/26/2003 | 43.76 | 10.33 | 22.06 | 32.77 | 173.81 | 6.99 | 1111.9 | 108.92 |

How to understand the following graph?



How to measure expected return?

Examples:

Go to [www.google.com/finance](http://www.google.com/finance)

To calculate monthly return of 2012. Find Beta of google and calculate expected return of GOOGLE using CAPM.

How to understand the following graph?

