Preface

This manual contains answers to all the Further Questions at the ends of the chapters. A separate pdf file contains notes on the teaching of the chapters that some instructors might find useful. Several hundred PowerPoint slides can be downloaded from my website

www.rotman.utoronto.ca/~hull

or from the Wiley Instructor Resource Center. A sample course outline is also available from these two sources.

All textbooks have the problem that solutions to end-of-chapter problems have found their way to the web. My textbook is no exception. I suggest handing out Word files for assignment sets. These can be variations on the Further Questions created by rewording questions and/or changing numbers.

Any comments or suggestions on the book or this manual or my slides would be appreciated. My e-mail address is

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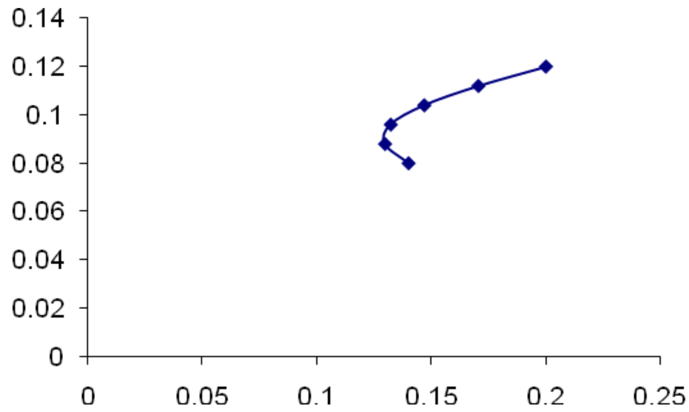
Chapter 1: Introduction

1.15.

Suppose that one investment has a mean return of 8% and a standard deviation of return of 14%. Another investment has a mean return of 12% and a standard deviation of return of 20%. The correlation between the returns is 0.3. Produce a chart similar to Figure 1.2 showing alternative risk-return combinations from the two investments.

The impact of investing w_1 in the first investment and $w_2 = 1 - w_1$ in the second investment is shown in the table below. The range of possible risk-return trade-offs is shown in figure below.

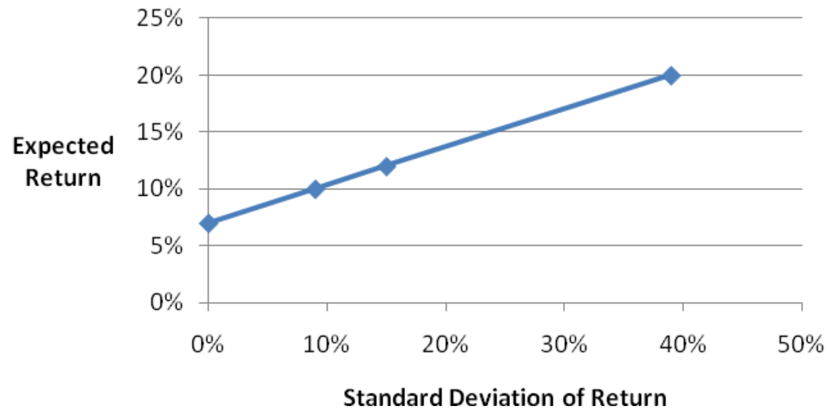
w_1	w_2	μ_P	σ_P
0.0	1.0	12%	20%
0.2	0.8	11.2%	17.05%
0.4	0.6	10.4%	14.69%
0.6	0.4	9.6%	13.22%
0.8	0.2	8.8%	12.97%
1.0	0.0	8.0%	14.00%



1.16.

The expected return on the market is 12% and the risk-free rate is 7%. The standard deviation of the return on the market is 15%. One investor creates a portfolio on the efficient frontier with an expected return of 10%. Another creates a portfolio on the efficient frontier with an expected return of 20%. What is the standard deviation of the return on each of the two portfolios?

In this case the efficient frontier is as shown in the figure below. The standard deviation of returns corresponding to an expected return of 10% is 9%. The standard deviation of returns corresponding to an expected return of 20% is 39%.



1.17.

A bank estimates that its profit next year is normally distributed with a mean of 0.8% of assets and the standard deviation of 2% of assets. How much equity (as a percentage of assets) does the company need to be (a) 99% sure that it will have a positive equity at the end of the year and (b) 99.9% sure that it will have positive equity at the end of the year? Ignore taxes.

(a) The bank can be 99% certain that profit will better than $0.8-2.33\times2$ or –3.85% of assets. It therefore needs equity equal to 3.85% of assets to be 99% certain that it will have a positive equity at the year end.

(b) The bank can be 99.9% certain that profit will be greater than $0.8 - 3.09 \times 2$ or –5.38% of assets. It therefore needs equity equal to 5.38% of assets to be 99.9% certain that it will have a positive equity at the year end.

1.18.

A portfolio manager has maintained an actively managed portfolio with a beta of 0.2. During the last year, the risk-free rate was 5% and major equity indices performed very badly, providing returns of about −30%. The portfolio manager produced a return of −10% and claims that in the circumstances it was good. Discuss this claim.

When the expected return on the market is −30% the expected return on a portfolio with a beta of 0.2 is

$$0.05 + 0.2 \times (-0.30 - 0.05) = -0.02$$

or –2%. The actual return of –10% is worse than the expected return. The portfolio manager has achieved an alpha of –8%!

Chapter 2: Banks

2.15.

Regulators calculate that DLC bank (see Section 2.2) will report a profit that is normally distributed with a mean of $0.6 million and a standard deviation of $2.0 million. How much equity capital in addition to that in Table 2.2 should regulators require for there to be a 99.9% chance of the capital not being wiped out by losses?

There is a 99.9% chance that the profit will not be worse than $0.6 - 3.090 \times 2.0 = -\$5.58$ million. Regulators will require $0.58 million of additional capital.

2.16.

Explain the moral hazard problems with deposit insurance. How can they be overcome?

Deposit insurance makes depositors less concerned about the financial health of a bank. As a result, banks may be able to take more risk without being in danger of losing deposits. This is an example of moral hazard. (The existence of the insurance changes the behavior of the parties involved with the result that the expected payout on the insurance contract is higher.) Regulatory requirements that banks keep sufficient capital for the risks they are taking reduce their incentive to take risks. One approach (used in the U.S.) to avoiding the moral hazard problem is to make the premiums that banks have to pay for deposit insurance dependent on an assessment of the risks they are taking.

2.17.

The bidders in a Dutch auction are as follows:

Bidder	***Number of shares***	***Price***
A	*60,000*	*$50.00*
B	*20,000*	*$80.00*
C	*30,000*	*$55.00*
D	*40,000*	*$38.00*
E	*40,000*	*$42.00*
F	*40,000*	*$42.00*
G	*50,000*	*$35.00*
H	*50,000*	*$60.00*

The number of shares being auctioned is 210,000. What is the price paid by investors? How many shares does each investor receive?

When ranked from highest to lowest the bidders are B, H, C, A, E and F, D, and G**.** Individuals B, H, C, and A bid for 160, 000 shares in total. Individuals E and F bid for a further 80,000 shares. The price paid by the investors is therefore the price bid by E and F (i.e., $42). Individuals B, H, C, and A get the whole amount of the shares they bid for. Individuals E and F gets 25,000 shares each.