Corporate Finance, Module 6, “Risk, Return, and the Opportunity Cost of Capital”

Corporate finance module 6: Readings for Tenth Edition

(The attached PDF file has better formatting.)

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The page numbers here are for the *tenth* edition of Brealey and Myers. You may also use the seventh, eighth, or ninth editions of this text. The page numbers for earlier editions are in separate postings. The substantive changes in the textbook are slight among these editions, but the final exam problems are based on the tenth edition.

{The Brealey and Myers textbook is excellent. We say to read certain sections and to skip others. This does not mean that certain sections are better; it means that the homework assignments and exam problems are based on the sections that you must read for this course. Some of the skipped sections are fascinating, but they are not tested.}

Section 7.1 on pages 156-163 is a quick review of modern portfolio theory, which is needed for the discussions of stock values, dividends, and capital structure. This is not a course on investment theory; we use investment concepts for financial theory. When you use concepts like market risk premiums, your audience wants to know how you chose the assumptions. Section 7.1 gives you the background for these concepts. The financial principles are tested on the final exam; you need not know the history of U.S. stock returns.

Modules 1-5 are mathematical tools (present value, NPV, IRR, stock values). Modules 6 - 23 are theory; they posit relations that explain how firms act.

We use the material in Module 6 when setting rates of return for insurance products. You need not memorize the details on pages 161-163 (Figures 7.3 and 7.4), but you should know the *relative* returns of different investments; see Table 7.1 on page 158, with a 7.1% risk premium for common stocks. The relative returns are important for the modules on CAPM betas and capital structure.

Read the subsection on “arithmetic averages and compound annual returns” on page 158. Know the moral on page 159: “… use arithmetic averages, not compound annual rates of return.” This moral is correct, but many analysts make this mistake repeatedly.

Read the subsection on “using historical evidence to evaluate today’s cost of capital,” and know the two reasons on pages 159-162.

Section 7.2 explains how to calculate a variance and a standard deviation, which you already know. The subsection *measuring variability* is similar. This is background reading; if you are unfamiliar with these topics, read the sections. We use the tools to measure betas in later modules. The final exam may ask to compute the variance of a portfolio of

diversified stocks. You must know the formulas for the variance of correlated random variables.

Read the subsection on “how diversification reduces risk” on pages 168-170. This section is mostly pictures; there is no math here. This subject is important for ERM analyses.

Read section 7.3, “Calculating Portfolio Risk,” on pages 170-174. Know the relation between the covariance and correlation on page 171 and the formula for the portfolio variance on pages 172. Know the section “limits to diversification” on pages 173-174; the final exam tests the formula for the portfolio variance on the bottom of page 173.

The CAPM beta is the covariance of the stock return with the market return divided by the variance of the market return. This is the beta (slope parameter) of the regression of the stock return on the market return. The final exam may give the correlation and standard deviations and ask you to derive the beta.

The final exam may give the average variances and covariances among stocks in a well-diversified portfolio and ask you to calculate the standard deviation of the portfolio.

Read section 7.4, “How individual securities affect portfolio risk,” on pages 174-177. Brealey and Myers are strong advocates of NPV, the CAPM, and real options. Most financial analysts agree with their general views, but not all share their zeal on these subjects. This course emphasizes these subjects, since we are using the Brealey and Myers textbook. Your company may prefer IRR to NPV, use market averages instead of the CAPM, and disregard real options. These views may reflect well-thought out opinions, not ignorance; you should understand all sides of these subjects.

Know the third paragraph on page 176: “The general point is this: … is driven by security betas.”

Know the equation for beta as the covariance divided by the market variance. This relation comes up frequently, and it is tested on the final exam. Know also the equation at the bottom of page 176: “relative market value = …” The formula for beta is repeated in subsequent modules.

Read section 7.5 on pages 177-178, and focus on the second paragraph in this section: “Diversification is … But investors can diversify.”

Read the summary on pages 178-179.

Review problem #4 on page 180, problems #7 and #10 on page 181, problems #13 and #16 on page 182, and problems #20 and #21 on page 183.