Corporate Finance, Module 23: "Advanced Option Valuation"

Corporate finance module 23: 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.}

Review section 20.2, "Financial Alchemy with Options," on pages 507-511. You read this for Module 20. Make sure the put call parity relation on page 509-511 is clear. We use this relation to price the options.

Read the sub-section "Spotting the Option" on pages 512-513. When spotting options, ask a series of questions:

- What is the risky asset or liability? (This is the underlying security of the option.)
- What is the non-risky asset or liability? (This is the strike price.)
- How does volatility of the risky item affect the value of the option?
- What are the rights of the option holder that affect the option value?

Read section 20.3, "What Determines Option Values," on pages 513-517. Understand and memorize table 20.2 on page 518. The understanding takes time and review of problems; first memorize the table so you know what to expect. The final exam poses multiple choice questions on these relations.

Read section 21.3, "The Black-Scholes Formula," on pages 534-536, including the sub-section "Using the Black-Scholes Formula" on pages 536-537, but skipping the sub-section "The Black-Scholes Formula and the Binomial Method" on page 538. Black-Scholes has four formulas:

- the value of the call option (bottom of page 536 and Step 3 on page 537)
- the value of the put option (derived from call option by put call parity)
- the value of d_1 (top of page 537)
- the value of d_2 (which is $d_1 - \sigma\sqrt{t}$)

On CAS Exam 8 and SOA Course 8 Investments, we derive the Black-Scholes formula. For the on-line corporate finance course, know how to use the formula; that is, know what each of the input parameters means. The final exam gives the equations (so you need not memorize them), but unless you have worked a few examples, you will be stumped.

Skip section 21.4, "Black-Scholes in Action," on pages 538-541. Read section 21.5, "Option Values at a Glance," on pages 542-543. American put options and American call options on dividend paying stocks are harder to price, and we do not have simple formulas that give exact values. The final exam does not ask you to price these options, but you must understand what each one means.