

Foundations of Financial Markets C15.0002.00
Spring 2009

Professor Stephen Brown

www.stern.nyu.edu/~sbrown/foundations

Course Description

This course covers the elements of financial markets, financial securities and how they are valued and traded. The perspective is that of the investment manager, responsible for the investment portfolios of insurance companies, banks, pension funds, mutual funds, endowment funds and personal trusts. What we cover in this course has obvious implications for stock selection strategies by individuals and for financial decisions within firms. However, these topics are covered in greater depth in other courses (Investment Principles C15.0041, Advanced Corporate Finance C15.0008) and are merely introduced here. We discuss several outstanding problems of investment management, including the definition of appropriate standards of prudence, security valuation, performance measurement, the asset mix decision and alternative risk control procedures.

The textbook for this course is Bodie, Kane and Marcus *Essentials of Investments* (McGraw-Hill, Seventh Edition), and a special edition comprising Chapters 4, 5 and 8 of Ross, Westerfield and Jordan *Essentials of Corporate Finance* available from the bookstore. Holden *EXCEL Modeling in Fundamentals of Investments* (Prentice Hall) is an optional text necessary for those with limited knowledge or experience with EXCEL tools used in this course. Other required readings will be distributed to the class. There will be a midterm and a final examination. The final exam will cover all of the material in the course, and the midterm will count towards the final grade when the grade on the midterm is higher than the grade on the final.

All students will need to have a calculator in this class. Only the simplest scientific calculator is required (one that has $+$, $-$, \times , \div , x^y (x to power y) and memory functions). Finance majors may consider purchasing a financial calculator. Every student of Stern is expected to be comfortable with EXCEL tools. In particular any Finance area major is expected on graduation to have a knowledge of these tools that extends beyond familiarity to an individual awareness of the uses and limitations of this technology. *Please note that graphing calculators, PDA's, iPhones or any electronic devices with a QWERTY keyboard are not permitted in the examination room.*

Midterm examination schedule:

C15.0002.001 (8:00-9:15 MW)	Wednesday March 11, 8:00-9:15AM
C15.0002.004 (2:00-3:15 TuTh)	Thursday March 12, 2:00-3:15PM
C15.0002.005 (3:30-4:45 TuTh)	Thursday March 12, 3:30-4:45PM

Final examination schedule:

<i>C15.0002.001 (8:00-9:15 MW)</i>	<i>Monday May 11, 8:00-9:50AM</i>
<i>C15.0002.004 (2:00-3:15 TuTh)</i>	<i>Tuesday May 12, 2:00-3:50PM</i>
<i>C15.0002.005 (3:30-4:45 TuTh)</i>	<i>Thursday May 7, 4:00-5:50PM</i>

Please note that the times for the final examination differ from normal class hours. Due to University regulations as confirmed through the Dean's office, students must take the final examination with their assigned Section. Unfortunately, the Professor has no discretion in this matter. Any requests for incomplete grades must be submitted to the instructor via a formal written request *prior to May 7.*

I will make every effort to make available to the class paper copies of overhead transparencies prior to class. If there is any material in the lectures or the handout material that you feel is unnecessarily obscure, please fill in the comment sheet at the end of the day's handout or see me in my office after class.

This course is challenging and cumulative in nature. For this reason, it is important not to fall behind, as it is difficult to catch up. Students are responsible for material covered in lectures, weekly problem sets submitted on line, Concept Checks¹ and problem sets² listed in the syllabus. The Concept checks and problem sets are not to be handed in, but they are an important component of the course, and answers are provided. While these homework assignments are not graded, the instructor may take some of the closed book midterm and final examination questions from the Concept Checks and mini cases that appear in the Syllabus, and from problem sets that are completed on a weekly basis through the Semester. For this reason, failure to complete these assignments in a timely way may lead to an unsatisfactory grade in the course. ***Class participation is extremely important and will be accounted for in determination of the final grade.*** *Class participation credit is determined in the first instance by the quality of the participation in the Discussion Board.*

¹Concept Checks are problems that are interspersed in the text. A worked answer for each of these problems appears at the end of the chapter in which the concept check appears. For example, the Concept Check 21.1 that pertains to the first lecture can be found on page 687 of the text, and an answer is provided on page 700.

²Problems given in the Syllabus are taken from the textbook and solutions are available in the package available at the Bookshop.

Grading Policy

The final grade will be determined as follows. The examinations (midterm and final) will contribute 85 percent to the final grade and class participation will count towards 10 percent. Satisfactory and timely completion of all homework assignments will contribute 5 percent.

At Stern, we want to ensure fair and consistent grading across core courses. As such, grades for this course will be distributed following the Stern Grading Guidelines for Core Courses at the Undergraduate College.

25-35% A's – awarded for excellent work

50-70% B's – awarded for good or very good work

5-15% C's (or below) – awarded for adequate or below work

Attendance and Participation Credit

- Class attendance is mandatory and part of a student's grade. Absences may be excused only in the case of documented serious illness, family emergency, religious observance, or civic obligation. If you will miss class for religious observance or civic obligation, you must inform your instructor no later than the first week of class. Recruiting activities are not acceptable reasons for class absence. If you cannot attend class for any reason at any time, you must notify the professor in advance.
- Students are expected to arrive to class on time and stay to the end of the class period. Chronically arriving late or leaving class early will have an impact on a student's grade through a diminished participation credit. Students may enter class late only if given permission by the instructor and can do so without disrupting the class. The professor is not obligated to admit late students or may choose to admit them only at specific times. He is not obligated to readmit students who leave class.
- Participation is not limited to class attendance. Participation in the class Discussion Board is a very important component of this course. A maximum participation credit of 10% will be determined on the basis of the quality (not necessarily quantity) of Discussion Board participation. However, as noted above disruptive behavior or non attendance will diminish this participation credit.
- Students are expected to come to class prepared having read text and assigned readings prior to class. Required homework is expected to be completed and submitted in a timely manner.

Classroom Norms

- As this is a large class, please be respectful of other students. Inappropriate or abusive postings on the Discussion Board are not tolerated. Only use NYU domain addresses (myname@stern.nyu.edu or myname@nyu.edu when communicating with the instructor or other class members. Communications from anonymous mail addresses (such as gmail or yahoo) will not be answered.
- Laptops, cell phones, Smartphones and other electronic devices are a disturbance to both students and professors. All electronic devices **including laptops and cell phones** must be turned off prior to the start of each class meeting.

Ethical Guidelines

All students are expected to follow the Stern Code of Conduct.

<http://www.stern.nyu.edu/uc/codeofconduct> A student's responsibilities include, but are not limited to, the following:

- A duty to acknowledge the work and efforts of others when submitting work as one's own. Ideas, data, direct quotations, paraphrasing, creative expression, or any other incorporation of the work of others must be clearly referenced.
- A duty to exercise the utmost integrity when preparing for and completing examinations, including an obligation to report any observed violations.

Students should understand that failure to abide by this Code can have very serious consequences. Failure to meet these responsibilities will lead in the first instance to an automatic failing grade in this course, and additionally may result in a hearing and sanctions by the Stern Undergraduate Honor Council.

Students with Disabilities

- Students whose class performance may be affected due to a disability should notify the professor immediately so that arrangements can be made in consultation with the Henry and Lucy Moses Center for Students with Disabilities <http://www.nyu.edu/csd/> to accommodate their needs.

Prerequisites

C22.0103 Statistics for Business, V31.0002 or V31.0004 Economic Principles, C10.0001 Principles of Financial Accounting (co-requisite) and Sophomore Standing

Syllabus

Week 1: January 20-26

Investors and the Investment Process

Readings: BKM Chapters 1.1-1.6, 21
Ross Westerfield and Jordan Chapter 4
Concept Check BKM 21.1 (p.687), 21.2 (p.691), 21.3 (p.694)
Problem sets: BKM 21:1-7 (p.696), RWJ 4:1-7 (pp.114-115)

What are the investment objectives of individual and institutional investors? What constraints apply? We discuss the characteristics of different investors, and the types of securities available to them. It is important to understand the basic characteristics of security markets and the way in which these affect the investment process. In particular, we demonstrate how a very basic understanding of these markets leads to a simple basis for the valuation of all financial claims.

Week 2: January 27-February 2

Principles of Security Valuation

Case: Tennant Company
Readings: BKM Chapter 13
Ross Westerfield and Jordan Chapters 5,8
Concept Check: BKM 13.1 (p.405), 13.2 (p.409), 13.3 (p.412), 13.5(p.420)
Problem sets: RWJ 5:1-5 (pp.152-153), 8:5-9,12(pp.258-259)

The idea that a financial security is worth no more than the present value of the stream of anticipated payments is a very basic principle of security valuation. We motivate this general idea, and illustrate it in the context of equity, fixed income and real estate valuation. An understanding of this idea suggests why it is so hard to predict future movements in security values.

Week 3: February 3-9

Mathematics of Return

Readings BKM Chapter 5.1, 2.1-2.2
Concept Check: BKM 5.1 (p. 119), 2.1 (p. 31)
Problem sets: BKM 5:1 (p. 142), 18:2,3 (p.615)

Comparison of rates of return is often a shortcut to valuing different financial securities. Unfortunately, there is no general consensus as to how to measure rates of return. Arithmetic, geometric, and internal rates of return are often confused with each other and with measures such as bank discount rates. Each of these measures of return are used in different contexts and for different purposes and should not be confused.

Week 4: February 10-18

Equity risk and return

Readings: BKM Chapter 2.3,2.4,5.2,5.3,5.5,5.6

Concept Check: BKM 2.3 (p.38), 2.4 (p.44), 2.5 (p.45), 5.2 (p.122), 5.3 (p.124), 5.4 (p.131), 5.6 (p.135), 5.7 (p.137)

Problem sets: BKM 5:5,14,16,18-20 (pp.143-145)

Defines notions of return and risk for equity securities and for portfolios of securities. Compares the risk and return features of stocks and bonds, and shows how equity risk can be modified by considering a portfolio of stocks and bonds.

Week 5: February 17-25

Diversification with two risky assets

Case: BKM Problem 6.6-6.10

Readings: BKM Chapter 6

Concept Check: BKM 6.1 (p.155), 6.2 (p.162), 6.3 (p.164), 6.4 (p.167), 6.6 (p.175)

Problem sets: BKM 6:1,5 (pp.182-183)

Examines the risk and return attributes of portfolios of securities, and identifies the correlation between security returns as a central component of portfolio risk.

Asset Allocation

Case: XYZ Corporation

Readings: BKM Chapter 6.4

Concept Check: BKM 6.5 (p.171)

Problem sets: BKM 6:22-24 (p.186)

Identifies the asset mix decision as the central policy problem of investment management, and shows how portfolio theory can be used to construct long term asset mix guidelines. Introduces the notion of asset liability matching

Week 6: February 24 - March 4

Asset Allocation (Continued): Many risky asset case

Readings: BKM Chapter 4.3,4.6,4.7,4.8

International Diversification

Case: *BKM Problem 19.1,19.2*

Readings: BKM Chapter 19.1-19.4

Concept Check: BKM 19.1 (p. 627), 19.2 (p.630), 19.3 (p.631)

Problems: BKM 19: 1,2,9,10,11 (pp.653-654)

Does international diversification increase portfolio risk or decrease it? The answer to this question depends on the extent to which the components of international risk, equity risk, currency risk, and political risk are diversifiable in the investor's portfolio

Week 7:

March 3-23

Capital Asset Pricing Models

Case: *APT in Action*

Readings: BKM Chapter 7

Concept Check: BKM 7.1 (p.195), 7.2 (p.196), 7.3 (p.198), 7.4 (p.200), 7.5 (p.212), 7.6 (p.221)

Problems: BKM 7:1-3,6,7,26,32,34,36,37 (pp.222-227)

The idea that there may be a finite (and small) number of nondiversifiable sources of risk leads to an Arbitrage Pricing Theory that defines the return investors expect from capital assets. We study the foundation of this model and the relationship to the related Capital Asset Pricing Model, and show how the model is applied in practical investment management.

Week 8:

March 10-25

Midterm Examination (MW sections March 11, TH sections March 12)

Spring Break!

Performance Measurement

Case: *Growth Management*

Readings: BKM Chapter 18.1 - 18.4

Concept Check: BKM 18.1 (p.591), 18.2 (p.604)

Problems: BKM 18:4,10,12 (pp.615-617)

Past performance alone does not guarantee future performance. Sophisticated performance measurement tools examine the extent to which components of performance can be related to the conduct of the manager.

Week 9: March 24-April 1
Performance Measurement (Continued): Performance Attribution

Problems: BKM18:6 (p.616)

Fixed Income Analysis

Readings: BKM Chapter 10

Concept Check BKM 10.1 (p.294), 10.2 (p.299), 10.3 (p.305), 10.4 (p.306),
10.5 (p.309), 10.6 (p.310), 10.7 (p.312), 10.8 (p.323)

Problems: BKM 10:4,7,8,13,35,37,39 (pp.325-330)

How do fixed income securities work and how are they valued? Why should bonds of different maturities offer different yields? The fact that longer term bonds usually offer higher yields, suggest that part of the difference is a premium for bearing interest rate risk, since exposure to this risk increases with time to maturity.

Week 10: March 31 - April 8
Fixed Income Analysis (continued): Valuation

Managing Fixed Income Investments

Readings: BKM Chapter 11

Concept Check: BKM 11.1 (p.339), 11.2 (p.349), 11.3 (p.341), 11.4 (p.343),
11.5 (p.348), 11.6 (p.350), 11.7 (p.350)

Problems: BKM 11:1,2,3,5,6-10 (pp.358-359)

Duration measures how long investors tie their money up in fixed income securities. It is also for this reason, a measure of the investor's interest rate exposure. Immunization and related strategies attempt to minimize interest rate risk exposure by arranging the investment portfolio such that the duration of the assets matches the duration of the investor's liabilities.

Week 11: April 7-15
Managing Fixed Income Investments (continued): Immunization

Problems: BKM 11: 4,11,20,21,24,25,28

Options: Characteristics and Payoffs

Readings: BKM Chapter 15.1-15.2

Concept Check: BKM 15.1 (p.484), 15.2 (p.488), 15.3 (p.497), 15.4 (p.498)

Problems: BKM 15:1,2,4-7 (pp.509-10)

Options and futures contracts are examples of derivative securities, whose value depends on the value of some other traded security. For some investors, derivative securities offer the cheapest way to capitalize on information that the underlying security will rise (or fall) in value. For other investors, derivative securities provide an insurance function. To understand derivative securities, it is first necessary to understand how the value of the derivative varies with the value of the underlying security.

Week 12: April 14-22

Options: Characteristics and Payoffs (continued)

Problems: BKM 15:9-11,15-17,26 (pp.509-513)

Option Valuation

Case: *Analytic Optioned*

Readings: BKM Chapter 16

Concept Check: BKM 16.1 (p.520), 16.2 (p.520), 16.3 (p.523), 16.4(p.525),
16.5 (p.526)

Problems: BKM 16:1-3,5,6,12-14,20,29,32 (pp.544-49)

An analysis of the relationship between the value of the derivative and the value of the underlying security suggests a simple approach to valuing the derivative. We illustrate this in the context of option pricing, and introduce the notion of hedging.

Week 13: April 21-29

Option Valuation (continued)

Futures Contracts

Readings: BKM Chapter 17

Concept Check: BKM 17.1 (p.556), 17.2 (p.560), 17.3 (p.565), 17.4 (p.565),
17.5 (p.568)

Problems: BKM 17:1-3,5,6,13,20 (pp.580-583)

Futures contracts are a special case of a derivative security. The special features of these contracts are best understood by reference to related forward contracts and to the history of futures contracts trading in the United States. In investment management, they are chiefly used to hedge security risk ("short positions") or to provide an inexpensive way to invest in the markets ("long positions").

Week 14: April 28 - May 4

Futures Contracts: Financial Futures

Problems: BKM 17:4,9,11,16,17,22 (pp.582-583)

Portfolio Insurance

Case: Portfolio Insurance Case

Readings: BKM Pages 538-542 (Portfolio Insurance)

An analysis of this case provides a useful summary of the material covered in this course.