



PPHA 42510 APPLIED FINANCIAL MANAGEMENT

Fall 2023

Professor: Thomas Coleman, tcoleman@uchicago.edu

COURSE SUMMARY

This course will cover topics in investments – securities and financial markets. The goal is to de-mystify financial markets – bonds, equities, derivatives – and to provide you with the tools and the practical knowledge to solve problems and understand financial decision-making. There is no formal pre-requisite but it would be useful to have some prior exposure to finance, NPV calculations, and financial markets – for example a finance course as an undergraduate or studying for the CFA exams. (Booth courses BUS 35001 (Introductory Finance) or BUS 35200 (Corporate Finance) will give background you need. BUS 25000 (Investments) will have some duplication with this course.)

The first seven or eight weeks will cover the basics of investments and securities markets – bonds, equities, derivatives, portfolio theory and risk. The final week or two I hope we will cover some special topics: municipal markets (focusing on municipal swaps) and quantitative risk management.

The focus for the course will be practical, building on the instructors' extensive practical experience in the derivatives markets and hedge fund management. We will learn how these instruments really work and how the tools are actually used in the markets.

TEXTS: The main material for the course is what I cover in class, in lectures. I will usually post slides before the class.

TEXTBOOK: Brealey, Myers, Allen

- Brealey, Richard, Stewart Myers, and Franklin Allen. 2019. *Principles of Corporate Finance*. 13th edition. New York, NY: McGraw-Hill Education. ISBN: 978-1-260-01390-0. (You want *Principals*, NOT *Fundamentals of Corporate Finance*)
- I am using chapters 2, 3, 4, 7, 8, 13, 23, 24 from the book. There are two ways you can get this:
 - **Custom Book:** I created a custom electronic book with those chapters:
 - Buy for \$54.78. Go to <https://www.mheducation.com/highered/custom/product/9781307696639.html>
 - Add the book to the cart and pay using a credit card or access code
 - Follow on screen instructions to check out.
 - **Standard Textbook:** Rent or buy the full textbook – the 13th or the 12th edition (either edition is fine – or the 11th if you can find it)
 - Amazon.com https://www.amazon.com/Principles-Corporate-Finance-Richard-Brealey-ebook/dp/B07MDXGBNC/ref=sr_1_1 (rent or buy e-book)
 - <https://www.mheducation.com/highered/product/principles-corporate-finance-brealey-myers/M9781260013900.html> (rent \$55)
 - Either my custom book or the full textbook is fine – the full textbook gives you more information (more than just the chapters I assign) but buying it is expensive.

ADDITIONAL READINGS: on Canvas (my “Practical Guide to Bonds and Swaps”; “Risk-Adjusted Discounting”; “Forward Curves and Discounting”)

CALCULATOR

You will need a calculator throughout the course. I strongly recommend the HP 17BII+. Choices:

- The actual calculator, on-line at Amazon for somewhere between \$30 & \$90. Very retro.

- iPhone and iPad app: RLM Software has an excellent \$9.99 HP 17BII+ app: Search for "rlm-17BII" or "r.l.m software" in the App Store. Also <http://www.rlmttools.com/iPhone/17BII/Detail.html>
- Android app: it looks like the excellent “PowerOne Financial Calculator” from Infinity Softworks is still on Google Play (a newer version is available for Apple but I like the older version). If not try the 10B emulator from “In A Day Development”.

PROBLEMS

Problems will be assigned and due about every one-and-a-half weeks. The problems will be more like business school case studies than standard problem sets. As in business school case studies, you should form study groups to solve and write-up the problems. Study groups must be no more than four persons.

Each study group should work together on solving the problem and should hand in a single write-up of the solution. Everyone in a study group will get the same grade for the problem. Work on the problems – it is the best way to learn the material and pass this course.

GRADING

There will be a midterm and final exam. The weighting will be approximately 20% for the problems, 35% for the midterm, and 45% for the final. The final will be cumulative, i.e. cover the entire course.

You are expected to attend classes in person but if you cannot you will find the recordings on Canvas, under “Zoom- University of Chicago Main Account”. The Zoom links are listed in Canvas – the link is different for Section 1 and Section 2, but the link for each Section remains the same throughout the quarter.

POLICY ON AI

You may use AI (large language models such as ChatGPT or Bard) for assistance in your course study and problems (but clearly not on exams). You must cite any LLM that you use, and you will need to review and edit any generated content to avoid inaccuracies, biased outputs, or misinterpretations. This is crucial to avoid unintentional plagiarism, as LLMs have been accused of plagiarism. You must exercise caution to ensure your contributions are appropriately credited.

TOPIC OUTLINE

Pre-Course Reading Assignment: HP Calculator Introduction - Practical Guide to Bonds & Swaps

- I. Introduction & Big Ideas
 - A. Only Two Big Ideas in Finance – PV and Uncertainty
 - B. Introduction to Asset Classes & Securities
- II. TVM & Bonds: PV, FV, Discounting
 - A. Unpacking the Budget Line 1: PV, FV, Discounting
 - B. Working with PV, FV, Discounting
 - C. Bonds - CFs, Quotes, & PV
- III. Bond Markets
 - A. Bond Market - Size and Variety
 - B. Real & Nominal Rates
 - C. Money Markets
 - D. Clean vs Dirty price
 - E. Securitization
- IV. PV for Uncertain Cash Flows
 - A. Uncertainty versus Risk (notes, ch 2 of “Practical Guide to Risk Mgmt”)
 - B. Problem - We Don’t Know How to PV Uncertain CFs (notes)
 - C. PV for Uncertain CFs: Utility and Certainty Equivalent
- V. Risk Premium & Risk-Adjusted Discounting in Practice

- A. Risk-Adjusted Discounting in Practice
- B. Risk-Neutral Valuation: Adjust Probabilities - Introduction to Options
- C. Corporate Bonds (Sharpe 14.6)
- VI. Bond Sensitivity, Hedging, & Predicted P&L: Duration, BPV, DV01
 - A. Why We Use Yield Instead of Price (notes)
 - B. BPV, DV01, & Duration (notes)
- VII. Equities – Introduction, Valuation, and Debt vs Equity Financing
 - A. How Corporations Issue Equities
 - B. Valuation of Equities - Dividends & Discounting
- VIII. MIDTERM
- IX. Capital Structure (Debt vs Equity) in “Perfect” & “Imperfect” Markets
 - A. What are Perfect Capital Markets? What are Efficient Markets?
 - B. First View - Modigliani & Miller Prop 1 - Capital Structure Irrelevance (BMA Ch 17)
 - C. Further (2nd, 3rd, 4th) views: Why Capital structure may be Important:
 - 1. Interest Deductible (Debt); Financial Distress (Bankruptcy & Equity); Asymmetric Information (Debt)
 - D. Final Synthesis
- X. Price of Risk I - Overall Portfolio & Sharpe
 - A. We Need Theory for Risk Premium
 - B. Digression on Leverage and Sharpe Ratio
 - C. Portfolios and Diversification
- XI. Price of Risk II - Contribution, Beta, CAPM
 - A. Risk Premium - Overall Portfolio (“Market” Portfolio)
 - B. Sharpe, Separation, and Capital Market Line
 - C. Contribution & Beta
- XII. Introduction to Derivatives - Swaps
 - A. What are Derivatives?
 - B. Floating Rate Bonds
 - C. Interest Rate Swaps
- XIII. Derivatives - Futures and Options
 - A. Futures
 - B. Risk-neutral Valuation, Options, and Callable Bonds
- XIV. Chicago Muni Swaps

Summary Outline – textbook chapters: You can find chapters in *either* the Custom Textbook (ISBN 9781307696639) labeled *Cust or* in the full textbook by Brealey, Myers, Allen (ISBN 9781260013900) labeled *BMA* . You are not reading both *Cust* and *BMA*, just one or the other.

Week/Lect	Date	Topic	Text/Notes
1	Sep 25	Introduction: Two big ideas: TVM & uncertainty. Bond Markets: Digression on Gov't Debt TVM & Bonds: PV, FV, Discounting	Cust Ch 1 Cust Ch 2, 3 BMA Ch 2, 3
2	Oct 2	Bonds: Quotes, Yield, clean vs dirty price Securitization:	Cust Ch 3, 9 BMA Ch 3, 24
3	Oct 9	PV for uncertain CFs: Expected utility framework, risk-adjusted discounting, certainty equivalent Risk Premium in Practice: Bankruptcy, default, credit ratings, credit spreads	Cust Ch 5, 8 BMA Ch 7, 23
4	Oct 16	Bond Sensitivity, Hedging, Predicted P&L: Duration, BPV, DV01 Corporate Bonds:	Cust Ch 3, 9 BMA Ch 3, 24
5	Oct 23	Introducing Equities: How Corporations Issue Equities: Valuation of Equities:	Cust Ch 4 BMA Ch 4 (Ch 15)
5 Midterm	Oct 27	Friday during TA session time, 3-4:20pm	Keller 0023
6	Oct 30	Efficient Markets: “Perfect” markets, “Efficient” markets, Miller & Modigliani	Cust Ch 7 BMA Ch 13 (Ch 14)
7	Nov 6	Price of Risk I: Overall Portfolio & Sharpe	Cust Ch 5, 6
8	Nov 13	Price of Risk II: Contribution, Beta, CAPM	BMA Ch 7, 8
9	Nov 27	Derivatives: Swaps Derivatives: Futures and Options	(BMA Ch 20, 21)
		Chicago Muni Swaps:	
Final week	Dec 4	Tuesday Dec 5 9:30-11:45am	Keller 0021, 0023