



REAL ESTATE FINANCE  
AND SYNDICATION

R E 378K – UNIQUE 03490

T TH 11:00 – 12:30, UTC 1.102

SPRING 2018

<b>Professor</b>	Greg Hallman
<b>Office</b>	GSB 5.161
<b>Office Hours</b>	by appointment on Canvas calendar during Wed 1:30 – 4:00 and Thurs 2:30 – 4:00
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### Course Objectives

This course's primary objective is to examine real estate securities and real estate private equity investing. Students will learn about the various debt and equity securities available to investors, and will also learn about real estate private equity investing. Through lectures, readings, cases, and guest speakers, students will learn the benefits and risk of the various forms of investing in real estate securities and real estate private equity funds.

The course begins with a study of real estate debt markets and real estate debt securities, MBS (mortgage backed securities) and CMBS (commercial mortgage backed securities). The primary focus is on the structure and cash flow characteristics of real estate debt instruments. We start by studying the primary residential mortgage market and the mathematics and finance of residential mortgage cash flows and pricing. We then move into the secondary market for mortgage funds with a study of simple pass-through residential mortgage pass-through securities. The problems of prepayment and default and the complications that prepayment and default introduces to the valuation of mortgage backed securities is analyzed. The prepayment problem in simple residential mortgage pass-through securities drove structuring innovation in the early days of the market and the creation of Collateralized Mortgage Obligations (CMOs). Following our study of the prepayment problem we go directly to a study of the creation, structure, and pricing of CMOs, including a discussion of mortgage strip securities (IOs and POs), simple sequential tranching, and specialized CMO tranches including PACs and Zs. Students will analyze and model the tranches of an actual \$250 million Fannie Mae CMO (REMIC) as a case assignment. After our study of prepayment structuring in agency MBS, we will study tranching and securitization structures used in non-agency private

label MBS. Private label MBS came to be dominated by subprime MBS, and we will spend considerable time studying the creation of subprime MBS, CDOs, and CDS, and the causes and catastrophes related to the subprime crisis. After working through the residential mortgage instruments we will go directly into our study of Commercial Mortgage Backed Securities (CMBS). CMBS are very similar in spirit and structure to MBS, but significant differences in both prepayment and default characteristics make CMBS an interesting twist on the original MBS model.

The second half of the course is dedicated to the study of real estate equity markets and securities, both public and private. We will study how real estate fits within a diversified investor's portfolio, and the various alternatives an institutional investor has to invest in commercial real estate. We will spend several meetings discussing Real Estate Investment Trusts (REITs), including their structure, corporate governance, and valuation. We will also analyze alternative ways to invest in private equity in the real estate sector, such as commingled real estate funds and limited partnerships.

### **Materials - books**

Required:

Mortgage-Backed Securities: Products, Structuring, and Analytical Techniques, Second Edition, Fabozzi, Bhattacharya, and Berliner, 2011, Wiley.

Liar's Poker, by Michael Lewis, 1989 Penguin Books – *required reading for the quiz is chapters 5, 6, and 7. It's best to start with the last 6 paragraphs of chapter 4, when the mortgage desk is introduced during the newbie training.*

An optional source textbook for real estate finance in general (potentially useful or enlightening):

Real Estate Finance and Investments: Risk and Opportunities, Peter Linneman, Ph.D., Third Edition, 2011.

### **Course Requirements and Grading**

Grades will be based on the student's performance on one quiz (on Liar's Poker), two tests (debt test and equity test), and cases. The weights on each component of the overall course grade are as follows:

Class Participation	ongoing	5%
Liar's Poker Quiz	Tues, Jan 30	5%
CMO Case	Due Tues, Feb 13	20%
First half Debt test	Thurs, March 1	30%
Cap Stack Case (LIP)	Date TBD	10%
Second half Equity test	Thurs, May 3	30%

Make-up and extra-credit assignments are generally not possible. Your grade will be determined solely by the components listed above. If you fail to turn in the case assignment or the problem set when they are due you will lose points for a late submission. If your excel skills are not sufficient for the MBS cash flow work in the CMO case, please talk to me about getting various degrees of help on the excel model. Please don't miss the quiz or the tests. If you're falling behind and these dates become difficult, come talk to me.

### **McCombs Classroom Professionalism Policy**

The highest professional standards are expected of all members of the McCombs community. The collective class reputation and the value of the Texas MBA experience hinges on this.

### **You should treat the Texas BBA classroom as you would a corporate boardroom.**

Faculty are expected to be professional and prepared to deliver value for each and every class session. Students are expected to be professional in all respects.

The Texas BBA classroom experience is enhanced when:

- **Students arrive on time.** On time arrival ensures that classes are able to start and finish at the scheduled time. On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- **Students display their name cards.** This permits fellow students and faculty to learn names, enhancing opportunities for community building and evaluation of in-class contributions.
- **Students are fully prepared for each class.** Much of the learning in the Texas BBA program takes place during classroom discussions. When students are not prepared, they cannot contribute to the overall learning process. This affects not only the individual, but their peers who count on them, as well.
- **Students respect the views and opinions of their colleagues.** Disagreement and debate are encouraged. Intolerance for the views of others is unacceptable.
- **Students do not confuse the classroom for the cafeteria.** The classroom (boardroom) is not the place to eat your breakfast tacos, wraps, sweet potato fries, or otherwise set up for a picnic. Please plan accordingly. Recognizing that back-to-back classes sometimes take place over the lunch hour, energy bars and similar snacks are permitted. Please be respectful of your fellow students and faculty in your choices.
- **Students minimize unscheduled personal breaks.** The learning environment improves when disruptions are limited.
- **Students attend the class section to which they are registered.** Learning is enhanced when class sizes are optimized. Limits are set to ensure a quality experience. When section hopping takes place some classes become too large and it becomes difficult to contribute. When they are too small, the breadth of experience and opinion suffers.

- **Technology is used to enhance the class experience.** When students are surfing the web, responding to e-mail, instant messaging each other, and otherwise not devoting their full attention to the topic at hand they are doing themselves and their peers a major disservice. Those around them face additional distraction. Fellow students cannot benefit from the insights of the students who are not engaged. Faculty office hours are spent going over class material with students who chose not to pay attention, rather than truly adding value by helping students who want a better understanding of the material or want to explore the issues in more depth. Students with real needs may not be able to obtain adequate help if faculty time is spent repeating what was said in class. There are often cases where learning is enhanced by the use of technology in class. Faculty will let you know when it is appropriate.
- **Phones and wireless devices are turned off.** We've all heard the annoying ringing in the middle of a meeting. Not only is it not professional, it cuts off the flow of discussion when the search for the offender begins. When a true need to communicate with someone outside of class exists (e.g., for some medical need) please inform the professor prior to class.

### **Academic Dishonesty**

I have no tolerance for acts of academic dishonesty. Such acts damage the reputation of the school and the degree and demean the honest efforts of the majority of students. The minimum penalty for an act of academic dishonesty will be a zero for that assignment or exam.

The responsibilities for both students and faculty with regard to the Honor System are described on the final pages of this syllabus. As the instructor for this course, I agree to observe all the faculty responsibilities described therein. As a Texas BBA student, you agree to observe all of the student responsibilities of the Honor Code. If the application of the Honor System to this class and its assignments is unclear in any way, it is your responsibility to ask me for clarification.

### **Students with Disabilities**

Upon request, the University of Texas at Austin provides appropriate academic accommodations for qualified students with disabilities. Services for Students with Disabilities (SSD) is housed in the Office of the Dean of Students, located on the fourth floor of the Student Services Building. Information on how to register, downloadable forms, including guidelines for documentation, accommodation request letters, and releases of information are available online at <http://deanofstudents.utexas.edu/ssd/index.php>. Please do not hesitate to contact SSD at (512) 471-6259, VP: (512) 232-2937 or via e-mail if you have any questions.

## Schedule and Topics

MEETING	DAY	DATE	TOPIC	READING
1	Tues	Jan 16	Syllabus and course overview	
2	Thurs	Jan 18	The Primary Mortgage Market – Players and Products, Mortgage Math	Fabozzi C1
3	Tues	Jan 23	Constructing RMBS, pooling mechanics, basic Ginnie pass-throughs - fixed income (FI) primer with a look at duration and convexity in basic FI and in MBS (the rub)	Fabozzi C2
4	Thurs	Jan 25	Understanding and modeling prepayment and default risk – unscheduled payments	Fabozzi Cs 3 & 4
5	Tues	Jan 30	<b><i>Liar’s Poker quiz at beginning of class</i></b> Structuring around prepayment risk with IOs, POs, and basic sequential tranching in Agency RMBS.	Fabozzi Cs 5, 6, & 7
6	Thurs	Feb 1	Finish RMBS Agency prepayment structuring with More advanced structuring including PACs and Zs. <b><i>Assign and discuss CMO structuring case</i></b>	Fabozzi Cs 5, 6, & 7
7	Tues	Feb 6	Structuring Credit Risk in Private Label MBS – Subprime mortgages, ABS, and CDOs	Fabozzi C8
8	Thurs	Feb 8	Structuring Mortgage ABS (subprime credits), overview and history of subprime crisis and update on casualties (almost over, but not quite), post-crisis structures: CRT, SFR, and RPL/NPL bonds	Fabozzi C9
9	Tues	Feb 13	<b><i>CMO Structuring case DUE speaker</i></b> on commercial mortgage lending	
10	Thurs	Feb 15	CMBS1 – Intro, structure, market history and performance, call protection and calculations	
11	Tues	Feb 20	CMBS2 – current market, a defeasance trading strategy	
12	Thurs	Feb 22	Valuation and Analysis of MBS and CMBS - Yield Measures, Z-spreads, OAS analysis	Fabozzi Cs 10 & 11
13	Tues	Feb 27	Review debt material	
14	Thurs	Mar 1	<b>Midterm – Debt Test (in-class test; bring a blue book)</b>	

Tues	Mar 6	In-class viewing and discussion of “The Big Short” – 1 <sup>st</sup> 1/2
Thurs	Mar 8	In-class viewing and discussion of “The Big Short” – 2 <sup>nd</sup> 1/2

*SPRING BREAK (March 12 - 17)*

15	Tues	Mar 20	Return and review debt test – written re-grade appeals due at end of class after we review test key in class
16	Thurs	Mar 22	Real Estate equity product overview – <ul style="list-style-type: none"><li>• Public, liquid investment in REITs</li><li>• Private Equity products and funds</li><li>• A look at the accuracy of appraisals and public and private asset pricing</li></ul>
17	Tues	Mar 27	REITs – Industry overview, property types, return history, risk and return characteristics
18	Thurs	Mar 29	REITs – Valuation and analysis
19	Tues	Apr 3	Managing against a Benchmark – managing a REIT portfolio against a publicly traded benchmark, and an extension of the idea to managing a private real estate portfolio against a private NCREIF benchmark
20	Thurs	Apr 5	Real Estate Capital Stack, including PE deal structures and equity sharing rules, <i>aka</i> cash flow waterfalls
21	Tues	Apr 10	Guest speakers Scott Dennis (Invesco) and Michael Dardick (Granite Properties) to speak on real estate investing, careers in real estate, and the job of managing a large real estate enterprise
22	Thurs	Apr 12	Real Estate in a Mixed Asset Institutional Portfolio – The use and effectiveness of real estate as a means of diversification and Sharpe ratio enhancement
23	Tues	Apr 17	Guest speakers Glenn Lowenstein and Andy Lusk of Ameriprise (formerly Lionstone) to speak on investing strategy, city demographics, and the experience of their recent move to Ameriprise
24	Thurs	Apr 19	Guest speaker Tim Berry (Pennybacker) to speak on starting and growing a successful real estate private equity firm, current investments and strategies
25	Tues	Apr 24	Cap Stack Case: Lions Industrial Trust Work case in class with Guest Professor Joshua Brown (EVP at First Washington Realty); Eastdil I-banker on this 2009 deal during the heart of the last big bust
26	Thurs	Apr 26	Class canceled – I MC the Texas Real Estate Center

meeting all day – I will try and re-schedule or otherwise replace this class

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| 27 | Tues  | May 1 | Review equity material and speaker contributions                |
| 27 | Thurs | May 3 | <b>Equity Test (in-class; bring a blue book (Jester store))</b> |

### Notes on Fabozzi MBS textbook reading, by chapter

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The Fabozzi mortgage book can get technical. I have reviewed the book page-by-page, and below I have indicated required and optional or not-class-necessary topics covered in each chapter. I also indicate where my class notes will cover numerical examples presented in the book. By Chapter -

1. Read all of it.
2. Can leave out the structural detail in “MBS trading” pp 35-40.
3. Lots of numerical examples and industry terms that I will cover and include in the slides in class. Skim it but don’t have to study it; use the notes and class here.
4. Easy chapter; read all of it.
5. Intro chapter to structuring mechanics; read all of it.
6. Read through the first sentence on page 121; 121-129 is pretty complicated and generally beyond the scope of what I’m trying to accomplish in this class. Likewise the example starting at the bottom of 134 through the end of the chapter is difficult and unnecessary for this class.
7. Read through the first half of page 147, so about the first 6 pages or so. The rest of the chapter covers interest securities such as floaters and inverse floaters and TTIBs, and that’s a hard read that I can cover more easily in class, as time allows.
8. Read through the first half of page 176, ~ 10 pages. Beyond the heading “Private Label Senior Structuring Variations” is not necessary.
9. Read 193-202. The rest is honestly not bad, and discusses mortgage insurance and tranche-wrap products, but not necessary to read as I’ll discuss both those products in class.
10. I like it, good fixed income finance. I’ll do something very similar in class and you will be responsible for the classroom treatment, but not all the details contained in the textbook. Skim it but don’t get bogged down.
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12. Long, detailed, example – we will not cover in this class.

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