



## Real Estate Capital Markets Course Syllabus

Spring 2009, B40.2339.30  
Mon 6:00-9:00pm

### DRAFT SYLLABUS

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### The Course in 2009

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Real Estate Capital Markets focuses on debt and equity secondary markets linked to real estate assets. Topics include:

- (i) The US mortgage finance system, and basic mortgage math
- (ii) The agency mortgage-backed securities (MBS) market
- (iii) The non-agency MBS market (subprime, Alt-A and jumbo)
- (iv) Commercial mortgages and mortgage-backed securities (CMBS)
- (v) Structured products such as CMOs and CDOs
- (vi) MBS valuation (e.g. calculating option-adjusted spreads etc.)
- (vii) The causes and consequences of the 2007-08 mortgage crisis
- (viii) Real Estate Investment Trusts (REITs)

We may also cover some other related topics, like Case-Shiller housing futures contracts, covered bonds, asset-backed securities (e.g. credit cards, auto loans etc.), and international differences in housing finance systems.

The course will be a mix of qualitative and quantitative work. No prerequisites beyond the Stern core classes are required or needed. But students should expect to be doing a fair bit of cashflow modelling in Excel, as well as fixed income mathematics.

The course will include 4-5 guest lectures from Wall St professionals and other experts.

Assessment for the course will consist of a short midterm quiz, a final exam, and a number of take-home assignments, which students are encouraged to complete in a group.

#### Please note:

1. This course has a different focus than other Real Estate classes offered at Stern. Those courses generally take the perspective of a primary market real estate investor (e.g. a developer seeking to build a new hotel, a REIT seeking to buy eight floors of a particular office building etc.). In Real Estate Capital Markets, we generally take the perspective of

a secondary market investor (e.g. an investor in mortgage backed securities or CDOs, someone seeking to buy shares in a REIT etc.) This course also places much more emphasis on securitization, the housing finance system, the GSEs, the mortgage crisis and so on.

2. “Real Estate Capital Markets” is a newly-renamed course. In spring 2008 I taught a course called “Real Estate Finance”, which (don’t be fooled by the name) covers roughly the same topics I’ll teach in Real Estate Capital Markets this coming spring. I’ve attached the syllabus for that old course below. It is a reasonably good guide for interested students, although there are some differences in the course topics.

### **Old 2008 Class: Course Objectives and Description**

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The course is intended to provide students with an in depth knowledge of real estate finance focusing on debt and equity secondary markets. On the equity side, we will study the legal foundations, financial analysis and structuring of Real Estate Investment Trusts (REITs), which are the primary traded equity structure used for real estate. On the debt side, we will cover the securitization of residential and commercial mortgages, and various types of debt instruments such as passthrough securities, CMOs, IOs, POs etc. We will study the basics of modeling prepayment and default on secondary mortgage instruments.

### **2008 Course Outline**

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The course will consist of a mix of lectures, cases, and guest lectures from industry practitioners. The main topics to be covered include the following:

1. Real Estate Investment Trusts (REITs), and private equity investments in real estate.
2. New markets for hedging real estate price risk.
3. Agency and nonagency mortgage-backed securities markets, and the process of securitization.
4. Introduction to prepayment and default modeling.
5. Structured mortgage products: CDOs, IOs, POs etc.
6. Discussion of the 2007 subprime mortgage crisis: causes and consequences.

### **2008 Course Materials**

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#### **Primary sources:**

Fabozzi, 2006, Handbook of Mortgage-Backed Securities, 6th Edition, McGraw-Hill Trade, ISBN (hardcover) 0-07-146074-8

Garrigan and Parsons (GP), 1997, Real Estate Investment Trusts: Structure, Analysis and

Strategy, McGraw-Hill Irwin, ISBN 0-7863-0002-7

**Other sources:**

Lewis, 1989, Liar's Poker, Penguin Books, NY, NY, ISBN 0-393-02750-3

HBS Case Study: Travelers Mortgage Securities CMO

HBS Case Study: The Bourland Companies

HBS Case Study: McArthur/Glen Realty Corp

Davidson, Sanders, Wolff, and Ching, "Securitization: Structuring and Investment Analysis"  
ISBN: 978-0-471-02260-2, 576 pages, September 2003

Hayre, "Salomon Smith Barney guide to mortgage-backed securities," Wiley and Sons, Inc, 2001

Additionally, there will be lecture notes and readings assigned to supplement the textbook readings. They will be posed on Blackboard.

## **2008 Course Assessment (approximate)**

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Cases and assignments: 25%

Class participation: 25%

Final exam / project: 50%.

## **2008 Other Considerations**

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### ***Attendance***

Class attendance is compulsory. 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 should inform me no later than the first week of class. Recruiting activities are not acceptable reasons for class absence. Students are also 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.

### ***Disabilities***

If you have a qualified disability and will require academic accommodation during this course, please contact the Moses Center for Students with Disabilities (CSD, [998-4980](http://www4.stern.nyu.edu/scorp/committee.cfm?doc_id=4797)) and provide me with a letter from them verifying your registration and outlining the accommodations they recommend. If you will need to take an exam at the CSD, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation.

### ***Code of conduct***

All students are expected to follow the **Stern Honor Code:**

([http://w4.stern.nyu.edu/scorp/committee.cfm?doc\\_id=4797](http://w4.stern.nyu.edu/scorp/committee.cfm?doc_id=4797))

Week		Textbook references	Date
1	Introduction to mortgages and the residential housing market. History of the mortgage market.	<b>Liars Poker:</b> Ch. 5, 6 and 7 <b>Fabozzi:</b> Ch.1, An overview of mortgages and the mortgage market	Feb 11
2	Overview of residential mortgages - Mortgage mathematics - Structure of mortgage contracts	<b>Liars Poker:</b> Ch. 5, 6 and 7 <b>Fabozzi:</b> Ch.1, An overview of mortgages and the mortgage market	Feb 25
3	Securitization and agency pass-through securities	<b>Fabozzi:</b> Ch. 2: MBS investors Ch. 3: Mortgage pass-through securities Ch. 4: Trading, settlement, and clearing procedures for agency MBS  <b>Guest lecture: Frank Nothaft, Freddie Mac</b>	Mar 3
4, 5	Prepayment modeling and valuation of residential mortgage backed securities	<b>Fabozzi:</b> Ch. 24: Overview of Recent Prepayment Behavior and Advances in its Modeling Ch. 25: Agency prepayment models: modeling the dynamics of borrower attributes Ch. 31: Valuation of Mortgage Backed Securities Ch. 32: Risk neutral prepayment modeling and valuation with prOAS Ch. 33: An option-theoretic approach to MBS valuation Ch. 34: Approaches for measuring the duration of mortgage-related securities	Mar 10 March 17
6	Non-agency mortgage-backed securities and the subprime mortgage crisis	<b>Fabozzi:</b> Ch. 5: Defining non-agency MBS Ch. 6: Credit enhancement for non-agency MBS products Ch. 28: Prepayment models to value nonagency MBS	Mar 31
7	Commercial real estate, mortgages and mortgage backed securities (CMBS)	<b>Fabozzi:</b> Ch. 49: Commercial Mortgage-Backed Securities Ch. 50: The impact of structuring on CMBS bond class performance Ch. 52: CMBS collateral performance: measures and valuations  <b>Guest lecture: Steven Schwartz, JP Morgan</b>	April 7
8	Structuring CMOs, IOs, POs, SIVs and other securities	<b>Fabozzi:</b> Ch. 19: Stripped Mortgage Backed Securities Ch. 20: PAC bond features and performance Ch. 21: Z Bonds Ch. 22: Companions with Schedules Ch. 23: Inverse Floating Rate CMOs  <b>Guest lecture: Kedran Panageas, JP Morgan</b>	April 14

9	Commercial real estate		April 14
10	Commercial real estate and project development		April 21
11	REITs	<b>Garrigan and Parsons:</b> Ch 1: Modern REIT Industry: An Overview Ch 2: Going Public: Formation of a REIT Ch 3: REITs as Legal Entities	May 5
12	Real Estate Investment Trusts Final Exam	Ch 9: REIT Mergers and Acquisitions Ch 12 and 13: Historical Behavior of REIT Returns Ch 14: Financial Analysis of REIT Securities	May 12