

B8453 Real Estate Debt Markets

Fall 2023

Professor Brian Lancaster

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Office Hours: Please contact me at the above email and we can arrange a meeting or call.

Course schedule

Tuesdays, Kravis 420 6:00 pm- 9:15pm

TEACHING ASSISTANTS

Teaching Asst (and grading): Candy Martinez

PhD Candidate CMartinez24@gsb.columbia.edu,

832-775-3644

Office Hours: Please email to arrange a meeting

Teaching Assistant: Brendan Keen,

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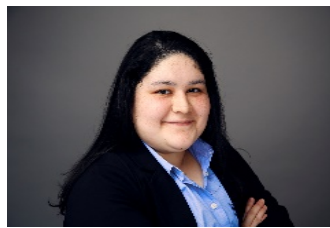
Office Hours: Please email to arrange a meeting.

Communications from the instructor and teaching assistants about the course will take place through Canvas.

Students should make sure they regularly check for announcements and messaging notifications.



Brian Lancaster



Candy Martinez



Brendan Keen

COURSE BACKGROUND

The development of the commercial real estate debt markets has revolutionized the commercial real estate industry providing unprecedented capital availability and pricing, reshaping valuation metrics, heavily influencing private capital formation and providing real estate and security investors with a greater array of investment, hedging and arbitrage opportunities. However, as the past several years have shown, the integration of public CRE debt markets also creates volatility in the CRE property markets that can be driven by factors well outside the realm of commercial properties. Indeed, the flow of debt capital can often have a greater impact on property values than the trends underlying property market fundamentals (rents, NOI etc.).

Today's professional real estate investor must have an investment view and strategy which are informed by and integrated with the opportunities and risks inherent not just in the property markets and their fundamentals but in the CRE debt markets as well. Why asks an owner, did Russia's debt default in the late '90s prevent me from refinancing my Kansas City shopping mall causing me to default? How did money market funds almost "breaking the buck" contribute to the collapse of commercial real estate property prices in 2008? Why did so many "dirt CRE analysts" at top firms,

make such wrong calls then? Could CRE debt capital market developments cause another downturn today? What is driving the current resurgence in CRE CLOs, how do these differ from the old CRE CDOs and how can they best be used by borrowers and investors? How did COVID-19 impact the CRE debt markets and CRE property values? How is current negative leverage (mortgage rates greater than cap rates/discount rates) impacting the CRE property markets? Understanding the real estate debt capital markets, the focus of this course, is essential for every commercial real estate borrower, lender, developer or investor.

COURSE DESCRIPTION

This half session “B” course is focused primarily on the commercial real estate debt markets and is complemented by the half session “A” course, Real Estate Equity Markets which precedes it. Students may wish to take both half courses sequentially for a complete understanding of the Real Estate Capital Markets or individually.

The purpose of this course is to provide the student with a comprehensive understanding of the commercial real estate debt markets from the perspective of real estate debt capital *providers*, real estate debt capital *users* (the borrower/property owner) as well as real estate debt *investors*. The approach will be to make sure students first understand the debt products and then to apply that understanding to “reality”. Students will learn how to underwrite, size, and analyze a variety of different types of commercial real estate debt including balance sheet first mortgage loans, first mortgage loans for securitization and CMBS, and subordinate debt structures including mezzanine loans, B- notes and preferred equity. The course will also cover transitional lending (construction lending and bridge financing). To tie everything together from the perspective of a real debt capital user we will then have a senior debt user (guest speaker) discuss these various instruments and their application from the perspective of a borrower. Why do borrowers use different types of debt (fixed, floating, IO, amortizing, hybrid IO, mezz, preferred equity etc. under different situations be they for first mortgages, bridge financing, distressed property purchases, development, etc.

A significant part of the course will also teach the student how to analyze bonds and deals in the \$800 billion CMBS market, the largest public commercial real estate debt market as well as the rapidly emerging CRE CLO sector. Time allowing the CMBX (synthetic CRE derivative) market, and its use in hedging, trading, investment and shorting CMBS and CRE will also be covered. The CMBS markets have financed as much as one quarter of all commercial real estate debt. They were also at the heart of the recent commercial real estate bubble, collapse and rebirth. The oft forgotten (in academic courses at least) but very large Agency “CMBS (multifamily)” markets including FNMA DUS MBS, FHLMC K certificates and Ginnie Mae Project and construction loan certificates will be discussed both from a real estate developers and an investor’s perspective. Regulations impact on CRE debt flows, property values and the creation of new profitable investment opportunities will also be covered. Student teams will be given a CMBS deal to analyze on Trepp to learn how institutional investors stress test and analyze CMBS deals. That class will be led by the head of CMBS Analytics at Trepp, Shari Linnick. All students will be given a Trepp account free of charge during the semester which may be used by the students for the duration of the course.

All students who would like to understand these critical markets and their connection to the commercial property markets are welcome. The course is particularly appropriate for students wishing to pursue careers in real estate finance and/or trading, lending, creating, investing in, researching, selling or regulating commercial real estate debt and securities. The course is also recommended for students wishing to pursue careers as developers or investors in

commercial real estate properties (“the dirt”) but want to understand how to use the different forms of real estate debt to fund their ventures, which ones to use and the tradeoffs among different forms of debt.

Please note that because each class meeting is 3 hours, each class will be divided into a first half, 1 ½ hour “A) session”, followed by a break and then a second, 1 ½ hr. B) session” as noted below. In some cases, two different topics will be covered, or a guest speaker will present in one half and then a regular lecture in the other half etc. Students should prepare for both sessions for each class accordingly doing the readings and preparation as required.

PRE & COREQUISITE COURSES

Real Estate Debt Markets builds on a variety of topics taught in the core courses particularly Corporate Finance, Global Economics, Managerial Economics and Strategy.

Core Course	Connection with Core
Corporate Finance	1. Time value of money 2. Opportunity cost of capital 3. Risk
Strategy Formulation	1. Creation of value vs. value capture 2. Trade-offs
Leadership Development	1. Ethics 2. Decision making 3. Influence & Persuasion 4. Negotiations
Global Economic Environment	1. Inflation and the business cycle 2. Fiscal policy 3. Role of financial markets in the economy

Corporate Finance (B6300), Capital Markets (B8306), and Real Estate Finance (B8331) are prerequisites for B8453 as it is important that students have a working understanding of finance and real estate investment concepts.

STUDENT LEARNING OUTCOMES

- Conceptual understanding of how CRE debt markets operate and impact CRE property prices and development
- Learn how to underwrite/size a commercial real estate mortgage
- Learn how to analyze and invest in CRE debt, such as CMBS, mezzanine debt, B notes and preferred equity
- Learn how and when to use different CRE debt instruments e.g mezzanine debt in a distressed refinancing situation
- Learn how to use portfolio manager/trader analytical tools (e.g. Trepp to evaluate and invest in CRE debt.

CLASSROOM NORMS AND EXPECTATIONS

Core Culture

Students are expected to adhere to [CBS Core Culture](#) in this class by being Present, Prepared, Participating. **Students found in violation of the CBS Honor Code will receive an automatic F for the assignment or exam and an F for the course.**

Please bring name plates to every class. Class participation will count for a significant part of your course grade. Please participate. Please turn off cell phones, Blackberries, etc. Absences or late arrivals will be considered as a factor in class participation. Materials covered by guest lecturers are required.

Inclusion, Accommodation, and Support for Students

At Columbia Business School we believe diversity strengthens any community or business model and brings it greater success. The school is committed to providing all students with equal opportunity to thrive in the classroom by providing a learning, living, and working environment free from discrimination, harassment, and bias on the basis of gender, sexual orientation, race, ethnicity, socioeconomic status, or ability.

Students with documented disabilities may receive reasonable accommodations. Students are encouraged to contact the Columbia University's Office of Disability Services for [information about registration](#).

Columbia Business School adheres to all community, state, and federal regulations as relate to Title IX and student safety. Read more about CBS' policies to support [Inclusion, Accommodations and Support for Students here](#).

Honor Code and Academic Integrity

The [Columbia Business School Honor Code](#) calls on all members of the School community to adhere to and uphold the notions of truth, integrity, and respect both during their time in school, and throughout their careers as productive, moral, and caring participants in their companies and communities around the world. All students are subject to the Honor Code for all their academic work. Failure to comply with the Honor Code may result in [Dean's Discipline](#). Here you can review [examples of Academic Misconduct](#) which may result in discipline.

Course materials (videos, assignments, problem sets, etc.) are for your use in this course only. You may not upload them to external sites, share them with students outside of this course, or post them for public commentary without the instructor's permission

Course Attendance Policies

Students from all programs should review and be familiar with the [MBA Core Attendance Policy](#) and the [Exam Policy](#). Students are required to attend each class. Students should reach out to the [Office of Student Affairs \(OSA\)](#) by using Core Absence Form on this course's Canvas page regarding excused absences (for religious observances; personal, medical, and family emergencies; military service; court appearances such as jury duty). Unexcused absences will affect your course grade.

METHOD OF EVALUATION

Participation	15%
Assignments (type A – group work)	15%
Cases (type A – group work)	20%
Final Exam (type C – individual)	50%

ASSIGNMENTS

Assignments should be turned in at the beginning of class on the day it is due. Late assignments will not be accepted.

All your assignment submissions are subject to the [CBS Honor Code](#). Violations of the CBS Honor Code may lead to failing the assignment, failing the course, suspension, and/or dismissal. To avoid ambiguity that may lead to unintentional violations of the Honor Code, assignment description types have been standardized and specified below.

Type	Designation	Grade	Preparation of submission	Discussion of Submission*	Discussion of Concepts**
A	Group Work (Assignments and Cases)	Same grade for all group members	By the group	Permitted to discuss (within group)	Permitted
B ¹	Individual w/ Discussions of Concepts and Submission	Individual grade	Individual preparation	Permitted to discuss; sharing solutions or submission files is not allowed	Permitted
B ²	Individual w/ Discussions of Concepts Only	Individual grade	Individual preparation	Not permitted to share/discuss solutions or submission	Permitted
C	Individual (Final Exam)	Individual grade	Individual preparation	Not permitted to share/discuss solutions or submission	Not permitted***

* The designated group can be either an assigned study group or a self-selected one.

GRADING

Your grade will be determined by one case write-up, two homework assignments, a final exam, and class participation

COURSE ROADMAP/SCHEDULE

1. Oct 24: **A) Overview of the Commercial Real Estate Debt Markets**

Course requirements, description and logistics. Overview of the various sources of commercial real estate debt and players in the market (on-balance sheet commercial bank and insurance company lenders, CMBS conduits, government sponsored enterprises, private equity CRE debt lenders, and mortgage brokers both from the borrower and lender's perspective).

How the public commercial real estate debt capital markets influence and create risks and opportunities in the commercial real estate property markets. Trends and factors affecting capital flows and ultimately CRE property markets. In class "case study" includes an analysis of the links between the commercial real estate debt markets and property markets before, during and after the 2007 market crash, during COVID and a discussion as to where we are now in the CRE property/debt capital market cycle.

Readings:

Required: Session 1A Lecture - Overview of Real Estate Debt Markets

Optional: Deloitte Expectations and Market Realities in Real Estate 2022,
IMF Report: Policies for Macro financial Stability: Options to Deal with Real Estate Booms

(B) Underwriting Commercial Real Estate Debt

The underwriting, credit analysis, risks, sizing, pricing, credit metrics, required documentation, covenants, prepayments of commercial real estate loans either for balance sheet or conduits from both from the borrower and the lender/investor perspective. Job and investment opportunities in the commercial real estate debt markets.

Readings:

Required: Session 1B Lecture – Underwriting Commercial Real Estate Mortgages

OCC Commercial Real Estate Lending Handbook pp. 2- 16; pp. 36-47; pp. 49; p. 55; pp. 59 -61; p. 69; pp. 72 – 74.

CRE Underwriting Geltner excerpt. Pp. 442 - 451

Optional: CREFC – Principles-Based Underwriting Framework

Kroll CMBS Property Evaluation Criteria

Floating Rate Form of Loan Agreement

Sherling and Sterling CRE Lending in US

Cash Management and Security Agreement

Assignment: Assignment 1 Underwriting Commercial Real Estate due Nov. 15, 2022.

2. Oct 31:

(A) Underwriting Commercial Real Estate Debt (cont'd)

A) The underwriting, credit analysis, risks, sizing, pricing, credit metrics, required documentation, covenants, prepayments of commercial real estate loans either for balance sheet or conduits from both from the borrower and the lender/investor perspective. Job and investment opportunities in the commercial real estate debt markets.

B) Commercial Mortgage-Backed Securities – A Deep Dive; Agency Multifamily Securities

The history of CMBS and other commercial real estate debt securities and derivatives, what are they, how to analyze, price, invest, and hedge these commercial real estate instruments and to understand the opportunities and risks structured CRE finance pose to the investor. Theoretical build of a CMBS deal with collateral, the rating agencies before and after the crash, tranche warfare and intra deal conflicts of interest, master and special servicers, equity and economic driven refinancing and convexity analysis, the curious case of CMBS upgrades and downgrades; arbitrage between the public and private real estate markets. FNMA DUS MBS and Freddie Mac Multifamily K programs.

Readings:

Required: Session 2A Lecture Commercial Mortgage-Backed Securities

BACM 2006-6 Case Materials

Optional: CREFC Presentation CMBS 101
CREFC CMBS E-Primer
FNMA DUS Program
Freddie Mac K Multifamily Presentation

3. Nov 14: **(A) Guest Speaker: Catherine Chen, Managing Director, Apollo, and CBS alumna, will discuss the underwriting, structuring and execution of commercial real estate debt from both a lender and user perspective using a specific recent case and associated documents.**

Assignment 2: Commercial Mortgage-Backed Securities Analysis (BACM 2006-06) due Nov 29 (max. group of 3). Case study of specific deal BACM 2006-6. Real Estate debt markets from the CMBS originators/structurers perspective: Students will be given documents (prospectus, Trustee report, Servicer report etc.) pertaining to an actual commercial real estate debt markets borrower transaction. We will review and take a tour” through these documents in class so students can do **assignment 2 which will be due Nov. 29.**

Assignment: Assignment 1 Underwriting Commercial Real Estate due today unless notified otherwise (max. group of 3).

B) Commercial Mortgage-Backed Securities – A Deep Dive; Agency Multifamily Securities (cont’d)

The history of CMBS and other commercial real estate debt securities and derivatives, what are they, how to analyze, price, invest, and hedge these commercial real estate instruments and to understand the opportunities and risks structured CRE finance pose to the investor. Theoretical build of a CMBS deal with collateral, the rating agencies before and after the crash, tranche warfare and intra deal conflicts of interest, master and special servicers, equity and economic driven refinancing and convexity analysis, the curious case of CMBS upgrades and downgrades; arbitrage between the public and private real estate markets. FNMA DUS MBS and Freddie Mac Multifamily K programs.

Readings:

Required: Session 2A Lecture Commercial Mortgage-Backed Securities
BACM 2006-6 Case Materials

4. Nov 21: **A) Guest speaker Michael Nagelberg, Managing Director, Real Estate Debt Strategies Group, Blackstone** will discuss the analysis, risks and opportunities in construction/development loans; bridge financing; land loans; impact of Basel III and High Volatility Commercial Real Estate (HVCRE) loan classifications on developer financing and then follow with a specific case discussion at Hudson Yards.

Readings: Michael Nagelberg Presentation, read and be prepared to discuss. Transitional Lending Notes Construction Lending Industry Standard Practices Applicable to Construction Loan Litigation (Optional) AIA Pay application excel form. (Optional)

(B) CRE Subordinated Debt (B Notes, Mezzanine, Preferred Equity) Subordinate debt, mezzanine loans, B-notes, preferred equity, CRE CDOs/CRE loan obligations (CLOs), what they are, how and why they are used from a borrower and investor perspective, opportunities and risks. This class will also provide a foundation for those wishing to take Professor Kravit's Distressed Real Estate course in the spring.

Readings: Session 4A) Subordinate Debt Lecture

Lancaster, Understanding Managed CRE CDOs: An Analysis of Their Collateral, Structures, Opportunities and Risks P. 12 – 30. Other pages optional.

5. Nov 28: **(A) and (B) CMBS Secondary Market Investing and Analytics**

This class will be held in class using Trepp analytics led by guest speaker, Shari Linnick, VP CMBS Analytics, Trepp, LLC where students will gain hands-on experience in using Trepp to perform CMBS analysis and apply the concepts learned in the classroom including loan pool underwriting, collateral analysis, stress testing structures to see how changes at the property level impact tranche performance, defaults, loss given default, prepayments, yield analysis, B-pieces from the perspective of a bond portfolio manager.

Assignment 2: Commercial Mortgage-Backed Securities Analysis (BACM 2006-06) due.

6. Dec 5: **(A) CRE Collateralized Loan Obligations (CRE CLOs) and Unsecured REIT Debt**

Guest speaker Steven Marks, Managing Director, Head of CMBS, REITs, and CRE CLOS, Fitch Ratings will present on the rapidly growing CRE CLO market (issuance in 2021 hit a record \$42B annualized), what are the forces behind its growth, how bridge loan lenders use CRE CLOs to fund bridge loans, implications for bridge loan users, how to analyze a CRE CLO, who is investing in it. He will also discuss the "small corner" of unsecured REIT debt markets, including the size of the markets, comparison with corporate debt, how to analyze the credit risk of unsecured REIT debt.

Readings: 4A) CRE CLO and Unsecured REIT lecture notes.

B) Restructuring CRE Debt: Distressed, Workouts, Refinancings, Increasing Leverage etc.

Guest speaker: Paul Fried, Executive Managing Director, Greystone will discuss how to design creative financing options to minimize an equity raise, to fund a capital improvement plan, restructure debt to improve refinancing options and to workout distressed debt. This class will also provide a foundation for those taking Professor Kravit and Professor Sherman's Distressed Real Estate course in the spring.

Final Exam to be done at home. Exam period will be from December 9 in the late afternoon (depending on when Samberg Institute publishes it on CANVAS) until Dec 18 11:59PM. Exam will likely be 3 to 4 hours in length and must be taken continuously once started.

N.B. If time allows we will cover Investing, hedging and shorting commercial real estate debt with “synthetic CRE debt” (CMBX); CRE Credit Default Swaps).

COURSE HANDOUTS

Powerpoints of lectures, readings, and cases will be available on CANVAS before classes. Students should make sure to read lecture powerpoint slides and readings for each class BEFORE each class. Students may bring their lecture powerpoint slides with them to class however hard copies will provided at the beginning of each class. Readings that are optional are indicated. They are provided if students wish a deeper look into a particular talk. They are also helpful additional reference documents to keep should you pursue a career in real estate debt markets.

REQUIRED COURSE MATERIALS

Course readings for each lecture will be posted on CANVAS.