

Dartmouth College
Tuck School of Business

Housing
Spring 2021

Professor Brian T. Melzer
Woodbury 314
Phone: 603-646-6434
Brian.T.Melzer@Tuck.Dartmouth.edu

SYLLABUS (as of 5/17/21)

Course Description

Households allocate nearly one-quarter of their assets to owner-occupied housing and spend more on housing services than on any other expenditure category. Over the last decade, housing transactions have been the focus of many innovative firms that use technology to transform old ways of doing business. This course examines the housing market from occupants', investors', entrepreneurs' and policymakers' perspectives. The course is divided into five modules. The first module explores the economics of owning vs. renting, asset valuation and supply-demand dynamics. The second module focuses on the housing search process, with a particular emphasis on fintech innovations that disintermediate real estate brokerage. The third module delves into home financing decisions. The fourth module studies investments in rental housing, including vacation and other short-term rentals facilitated by person-to-person rental platforms. The final module takes up economic and social policy questions pertinent to housing, such as housing affordability and discrimination, the role of housing in monetary policy, and the optimal policy response to housing market crashes.

Learning Objectives

- Build financial knowledge and expertise by applying to housing investments the concepts and methods learned in the finance core, such as valuation, risk assessment, capital budgeting and optimal financing.
- Build knowledge of economics through study of housing supply and demand, housing search, and monetary policy.
- Build knowledge of business strategy through study of fintech entrants to the housing and mortgage services markets.
- Build knowledge of economic and social policies that impact or relate to the housing market.

Organization

The class is organized into four modules:

- I. Introduction to the Housing Market.** The first module covers the basic institutional details of housing markets. Key topics include: owning vs. renting and home valuation.
- II. Intermediation of Home Sales: Search Platforms, Brokerage and iBuying.** The second module focuses on the economics of housing search. Home buyers and sellers have traditionally relied on

real estate brokers, but the entry of housing search platforms such as Zillow and Redfin has changed the search process considerably. We will evaluate these entrants' impact on the brokerage market, contrast their strategies, and discuss their prospects as housing market makers, or iBuyers.

- III. Financing Home Purchases.** The third module delves into the financing of housing assets. The module also reviews the financial methods used to make housing investment and financing decisions.
- IV. Investments in Rental Housing.** The fourth module examines investments in rental housing. We first consider valuation and investment strategy in single-family and small multi-family rental housing. We then consider the impact of short-term rentals facilitated by person-to-person rental platforms such as Airbnb and VRBO.
- V. The Role of Housing Within Social and Economic Policy.** The fifth module takes up policy questions that impact or relate to housing. Social policy issues of interest include discrimination, climate change and environmental sustainability. Economic policy issues of interest include housing affordability, housing and monetary policy, and responding to market crashes.

Fintech Innovation. This topic is not an independent module, but instead a theme that cuts across the course modules. Over the last decade the landscape of housing and mortgage markets has changed considerably with the entry of fintech firms. We will analyze a number of these firms to understand the market opportunity they identified and the strategy they pursued to create value.

Schedule

	DATE	TOPIC	CASE #
Introduction to Housing Markets			
1	4/20	<p><i>Lecture 1</i> – Introduction to Housing Markets</p> <p>Topics: Housing affordability; buy versus rent; valuation of housing; housing supply elasticity; housing as an investment asset</p> <p>Reading:</p> <p>Stupak, Congressional Research Service, “Introduction to the U.S. Economy: Housing Market”</p> <p>Fox and Tulip, Reserve Bank of Australia Research Discussion Paper RDP 2014-06, Section 3 on The User Cost of Housing within “Is Housing Overvalued?”</p>	

Glaeser and Gyourko, *Journal of Economic Perspectives*, “The Economic Implications of Housing Supply”

Intermediating Home Purchases: Search Platforms, Brokerage and iBuying

2 4/26 *Case application* – Redfin: Redefine Real Estate HBS 9-718-430

Topics: Value of brokerage services; price competition in real estate brokerage and barriers to competition; principal-agent conflicts; price discrimination

Case response due

3 4/27 *Case application* – Zillow Offers: Winning Online Real Estate 2.0 HBS 9-220-021

Topics: Online housing information and housing search; impact of search technologies on brokerage fees; comparing Zillow and Redfin approaches to disrupting brokerage market; iBuying and the use of market making in lieu of brokerage

Case response due

Financing Home Purchases

4 5/3 *Lecture 2* – Introduction to Mortgage Markets

Topics: Introduction to mortgage contracts and mortgage market institutions; tax deductibility of interest; role of mortgage financing in home purchases; optimal mortgage refinancing; home equity borrowing and consumption; foreclosure and credit supply

Reading:

Weiss and Jones, Congressional Research Service, “An Overview of the Housing Finance System in the United States”

Fuster et al., FRBNY Staff Report, “The Role of Technology in Mortgage Lending”

Keys, Pope and Pope, *Journal of Financial Economics*, “Failure to Refinance”

5 5/4 *Case application* – A Case in Point: Shared Home Equity HBS N1-221-026

Topics: Contractual innovation in home financing; understanding consumer value proposition from sharing home equity payoffs; frictions preventing shared equity investments

Case response due

Investments in Rental Housing

6 5/10

Case application – Hospitality and Housing: The Rise of Airbnb

Topics: Impact of home rental platforms on hospitality industry; business strategy for growing a two-sided market; valuation of a short-term rental investment; analyzing landlord's strategic choice to rent on short-term vs. annual basis; Valuing a home rental; evaluating the risks and returns of housing rentals compared to financial investments, mortgage financing decisions

Case response due

7 5/11

Case application – Roofstock: The Cloud of Real Estate Investing HBS 9-219-021

Topics: Single-family rentals (SFR) as an investment asset; liquidity in housing investments; creating a secondary market for trade of SFRs – strategy, pricing, determinants of success and failure

Case response due

The Role of Housing Within Economic and Social Policy

8 5/17

Case application – Via Verde HBS 9-214-105

Topics: Valuing an affordable housing project; understanding tax and financing subsidies, analyzing trade-offs for developers, consumers and governments in different approaches to low-income housing subsidies

Case response due

9 5/18

Lecture 3 – Housing within Social and Economic Policy

Topics: Monetary policy, house prices and consumption; fiscal policy and house prices; housing policy during periods of economic

distress; housing discrimination; housing affordability programs; climate change and home prices

Reading:

Aaronson, et al., FRB Chicago Working Paper, “The Long-Run Effects of the 1930s HOLC ‘Redlining’ Maps on Place-Based Measures of Economic Opportunity and Socioeconomic Success”

Bernstein, Gustafson and Lewis, “Disaster on the horizon: The price effectr of sea level rise”

Diamond, McQuade and Qian, *American Economic Review*, “The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence form San Francisco”

Giglio, Maggiori and Stroebel, *Quarterly Journal of Economics*, “Very Long-Run Discount Rates”

Quigley and Raphael, *Journal of Economic Perspectives*, “Is Housing Unaffordable? Why Isn’t It More Affordable?”

Cases, Lecture Notes and Data Files

The cases, lecture slides, and other handouts are posted on Canvas. The Canvas site also contains spreadsheet files (Excel) containing relevant data from case exhibits.

Assignments

There is one graded assignment due each (excluding week 1).

Case assignments. The case responses are group assignments worth twenty points each. Please upload your answers to Canvas, either as a text-box entry or an uploaded PDF. You may also upload supplementary materials such as a spreadsheet model. The responses are due before class on the day we discuss the case. I will not accept late submissions.

Case groups. You may work in groups on the cases, with a maximum of four students per group. In the past, groups have been more successful than individuals in preparing the cases, so I strongly urge you to work in groups. Please turn in one response per group.

Final project. The final project is an optional assignment to be completed individually. You must complete the assignment in order to be considered for an Honors (H) grade for the class. It is worth forty points. Your task is to find a home that is currently for sale and evaluate its purchase as an owner-occupied or rental property investment. As part of your analysis, you should gather relevant market

data, create a pro forma financial model and consider financing options. Decide whether to buy/rent (for a potential owner-occupied property) or invest (for an investment property), and justify your decision using your quantitative analysis as well as other relevant considerations. The final deliverable is a memo describing the prospective investment and detailing your analysis, decision and rationale. The memo should be no longer than five pages, excluding supplementary tables or figures.

Assignment	Due Date
Case Responses	
Redfin OR Zillow Offers	4/26
Point	5/3
Airbnb OR Roofstock	5/10
Via Verde	5/17
Final Project (Optional)	5/24

Class Participation

I expect students to attend class and participate in case discussions. I will assign individual participation grades to reflect students' attendance and contributions to class discussions. The maximum participation score is forty points.

Grading

Your total score for the class will be computed as follows:

Assignment	Points
Case Responses (Group)	80
Class Participation (Individual)	40
Optional Final Project (Individual)	40
Total	160

Re-grades. If you feel that your case or exam has been graded incorrectly, you can submit a re-grade request. All requests must be made in writing within ten working days after the case or exam has been graded and returned. The request should include an explanation of why you think the grading is incorrect. Upon submission of a re-grade request, I will review your entire assignment/exam for errors in grading. Your final grade will be based on this complete review. Therefore, your grade can either be raised or lowered upon re-grading.

Honor Code

The Tuck honor code strictly applies to all aspects of this course, including class assignments and exams. Exams are to be completed individually. Solutions to previous years' problems should not be used in solving case assignments. The complete honor code can be found

on the Office of Student Affairs website. Please ask if there is any uncertainty as to how the honor code applies to this course.

Office Hours

I will hold virtual office hours via Zoom every Thursday from 1:30 to 3:00 pm. In normal times, my office is Woodbury 314. Please do your best to attend office hours if you have questions outside of class. If you are unable to attend, I am available to meet by appointment. Please email me at least one day in advance to schedule a meeting.