John P. Harding

Rank: Associate Professor

Department: Finance

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Educational Background

Ph.D.	1994	Finance and Real Estate	University of California at Berkeley
MBA	1968	Mathematical Methods	University of Chicago
BS	1967	Industrial Engineering	Northwestern University

PROFESSIONAL EXPERIENCE:

8/96 to present **UNIVERSITY OF CONNECTICUT**
Associate Professor--Finance Department

My responsibilities include teaching Ph.D. , MBA and advanced undergraduate courses. My Ph.D. seminar covers advanced topics in financial markets and financial economic theory. Emphasis is placed on the application of continuous time models. I teach an MBA level course on Real Estate Finance at Stamford and Hartford. At the undergraduate level, I teach financial institutions, principles of real estate and real estate finance. Teaching evaluations during the 1999-2001 academic years averaged approximately nine on a scale of ten.

My research program covers three distinct but related streams. The primary focus of my research is the structure and valuation of securities in the real estate field. Interest rates, rents, and transaction prices are critical drivers of real estate related cash flows and play prominent roles in my work. My work consistently uses modern methods of derivative valuation including numerical methods for evaluating stochastic differential equations.

The first stream focuses on mortgage valuation models. A recent paper in this area develops a multinomial logit model for the competing risks of prepayment, moving and default This paper represents one of the first research efforts to separately model refinancing and mobility triggered prepayments. The second stream studies the bargaining process associated with transaction prices and loan workouts. The most recent paper in this area proposes a method for including buyer and seller demographic characteristics in a hedonic model that avoids the omitted variable bias and enables us to study issues such as discrimination and seasonality in house prices. The second paper in this area provides a theoretical explanation for lender's use of maturity extension as a means of forbearance. The final stream looks at the relationship between house prices and maintenance. A recent paper in this area studies the incentives that homeowners face to over-utilize their housing similar to the incentives faced by renters.

I participate in the activities of the Center for Real Estate including planning for and participating in the two annual conferences sponsored by the Center, curriculum design and student counseling. I have served on the School of Business Administration's facility planning, undergraduate curriculum and technology committees and the finance department's undergraduate curriculum committee and Ph.D. committee. I advise more than thirty undergraduate finance majors and have served as associate advisor on ten Ph.D. committees.

5/95 to 7/96 **FEDERAL HOME LOAN MORTGAGE CORPORATION**
Senior Vice President - Research and Planning

My responsibilities at Freddie Mac included directing the research efforts and the corporate planning process. At the time, Freddie Mac was a $300 billion, stockholder-owned, corporation established by the United States Congress to create a continuous flow of funds to mortgage lenders. Freddie Mac purchases mortgages and issues debt and mortgage-backed securities. The research area was responsible for both basic and applied research related to pricing credit risk, portfolio management and capital planning. The corporate planning department was responsible for directing and coordinating the preparation of the annual corporate plan and budget and for analysis of special business and strategic issues.

8/89 to 5/95 **UNIVERSITY OF CALIFORNIA AT BERKELEY**
Ph.D. Program in Finance and Real Estate

My dissertation, <u>Rational Mortgage Valuation Using Optimal Intertemporal Refinancing Strategies and Heterogeneous Borrowers</u> extended previous work on rational mortgage valuation. I solved for the prepayment boundary using a dynamic programming algorithm that minimizes total borrower cost (interest plus transaction cost) over the borrower's remaining horizon. By including borrower heterogeneity in expected tenure, I overcome many of the problems traditionally associated with rational prepayment models. While pursuing my degree, I served as teaching assistant for courses in Real Estate and Finance at both the graduate (MBA) and undergraduate levels. During the fall 1994 semester, I served as adjunct professor at Berkeley.

12/86 to 8/92 **H.F. HOLDINGS, INC.**
Senior Vice President and Chief Financial Officer

H.F. Holdings was a savings and loan holding company owned by William E. Simon and a small group of investors. During the time I was CFO, H.F. Holdings and its affiliates acquired five savings and loan associations and one commercial bank with total assets of approximately $10 billion. My responsibilities included directing the financial analysis related to the acquisitions, negotiations with FSLIC, preparation of business plans for the new acquisitions and overseeing the performance of the acquired institutions. In addition, I participated in the negotiation of the financing (both public and private) of the acquisitions and the sale of both public and private debt and equity issues. I worked full time for H.F. Holdings until 8/89 and then worked on a part time basis while attending the University of California.

10/85-9/86 **NATIONAL PERMANENT BANK, FSB**
Senior Executive Vice President & Chief Financial Officer

I joined National Permanent as part of a regulator-directed change in management. I managed the finance, asset/liability management, investment, planning and data processing departments. During my tenure as CFO, the Bank's operating loss improved from a $10 million loss in 1985 to a breakeven operation in 1986. I directed the implementation of new systems and procedures that assisted in the marketing of the bank to potential acquirers. In September 1986, Citibank acquired the bank from the FSLIC.

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6/75-10/85 **FEDERAL NATIONAL MORTGAGE ASSOCIATION**
Acting Chief Financial Officer & Senior Vice President for Planning and Financial Analysis

In my last year at Fannie Mae, I managed the finance, accounting, planning and administrative services departments. During that time I chaired both the Asset/Liability Committee and the Loan Pricing Committee.

I began my career in the planning department and steadily took on additional responsibilities in the areas of finance, mortgage-backed securities and financial accounting. Some of my accomplishments at Fannie Mae include:

-Developed state of the art models for evaluating mortgage products and asset/liability strategies.
-Implemented a new approach to asset/liability management that helped return the corporation to profitability while reducing interest rate risk.
-Created a corporate finance department that sold innovative securities and tapped new markets to save the corporation more than $10 million per year in interest expense.

11/73-6/75 **BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM**
Program Manager- Financial Planning and Control

Served as financial and quantitative analyst in the Bank Operations area.

1/69 - 11/73 **UNITED STATES STEEL RESEARCH**
Senior Research Engineer

Served as internal consultant for U. S. Steel applying operations research techniques to lower the cost and improve the quality of steel manufacturing processes.

Other Professional Experience:

Boards of Directors

6/87-7/92	Honfed Bank, FSB Honolulu, Hawaii
9/88-5/91	Western Federal Savings and Loan Marina Del Rey, California

Professional Designations:

Chartered Financial Analyst

Professional Societies:

AFA, AREUEA, ARES, AEA, CFA Institute, ICFA

Publications:

“Explaining the Variation on REIT Capital Structure: The Role of Asset Liquidation Value” with E. Giambona and C.F. Sirmans, forthcoming, *Real Estate Economics.*

“Depreciation of Housing Capital and the Gains from Homeownership” with S. Rosenthal and C.F. Sirmans., forthcoming, *Journal of Urban Economics*.

“The Role of Executive Stock Options in REIT Repurchases**”,** with C. Ghosh, O. Sezer and C.F. Sirmans. forthcoming *Journal of Real Estate Research.*

“Underwriting Commercial Mortgages: How Well Do Lenders Manage the Risks?” with G. Turnbull, R. Grovenstein, C.F. Sirmans and S. Thebpanya. *Journal of Housing Economics* (December 2005) 14(4):

"Pricing of Commercial Mortgage-Backed Securities: Evidence from Modern Conduit Issues," with C.F. Sirmans and Sansanee Thebpanya. *Journal of Fixed Income* 14(1) (Summer 2004); 69-87.

“Investment Characteristics of Low- and Moderate-Income Mortgage Loans,” with G. Goldberg. *Journal of Housing Economics*. 51(3) (September 2003) :151-180.

"Estimating Bargaining Effects in Hedonic Models: Evidence from the Housing Markets" with J. Knight and C. F. Sirmans. *Real Estate Economics.*(Winter 2003) 31(4):601-622.

“Estimating Bargaining Power in Markets for Heterogeneous Products”, with C. F. Sirmans and Stuart S. Rosenthal. *The Review of Economics and Statistics* (February, 2003). 85(1):178-188.

“Renegotiation of Troubled Debt: The Choice between Discounted Payoff and Maturity Extension” with C. F. Sirmans. 2002. *Real Estate Economics.* v30, n3 (September 2002):475-503.

“Movers and Shuckers: Interdependent Prepayment Decisions” with J. Clapp, G. Goldberg and M. LaCour-Little. 2001. *Real Estate Economics*. v29, n3 (September 2001): 411-450.

"Mortgage Valuation with Optimal Intertemporal Refinancing Strategies." 2000. *The Journal of Housing Economics,* v9, n4 (December 2000): 233-266.

“Deficiency Judgments and Borrower Maintenance: Theory and Evidence” with C. F. Sirmans and T. Miceli. 2000. *The Journal of Housing Economics* v9, n4 (December 2000): 267-285.

“Do Owners Take Better Care of Their Housing than Renters?” with T. Miceli and C.F. Sirmans. 2000. *Real Estate Economics* v28, n4 (December 2000): 663-681.

“Expected Mobility: Part of the Prepayment Puzzle” with J. Clapp and M. LaCour-Little. 2000. *The Journal of Fixed Income*, v10, n1 (June 2000): 68-78.

"A Closed Form Formula for Valuing Mortgages"; 1999. with P. Collin Dufresne. *The Journal of Real Estate Finance and Economics.* 19(2):133-146..

"Estimating Borrower Mobility from Observed Prepayments." 1997. *Real Estate Economics*. v25, n3 (Fall 1997):347-371.

"Commercial Mortgage-Backed Securities: An Introduction for Professional Investors." with C. F. Sirmans. *Real Estate Finance.* v14, n1 (Spring 1997): 43-51.

"Research on CMBS -- Is the Past Prologue to the Future?" *Real Estate Finance*. v24, n4 (Winter 1998).

"Mortgage Sales: An Investor Analysis." with T. Ronzetti. *Mortgage Banker.* v38, n12 (Sept 1978):31-34,43-46.

Presentations:
"Introduction to Commercial Mortgages" at the quarterly meeting of the Connecticut Society of Mortgage Brokers. April 2005.

"Depreciation of Housing Capital and the Gains from Homeownership" (joint work with S. Rosenthal and C.F. Sirmans) at the Weimer School of Advanced Real Estate Studies. January 2005.

"Real Options with Depreciating Assets" (joint work with J. Clapp) at the ASSA Meetings, January, 2005.

"Allocation of Borrowers across Depository and Non-Depository Institutions: Effect of Proximity on Access to Banking Services" (joint work with AKM R. Hossain and Stephen L. Ross) at the ASSA Meetings, January 2005.

Is My Home Worth What I Think?" (joint work with S. Rosenthal and C.F. Sirmans) at the ASSA Meetings, January 2004.

"Estimating Bargaining Power in Markets for Heterogeneous Goods" (joint work with S. Rosenthal and C.F. Sirmans) at the University of California at Berkeley; March 2001.

"Estimating Bargaining Power in Markets for Heterogeneous Goods" (joint work with S. Rosenthal and C.F. Sirmans) at the ASSA meetings; January 2000.

"Movers and Shuckers: Interdependent Prepayment Decisions" (joint work with J. Clapp and M. LaCour-Little) at the ASSA meetings, January 2000.

"Renegotiation of Troubled Debt: The Choice between Discounted Payoff and Maturity Extension" at the George Washington University, December 1999.

"The Option to Renegotiate Maturity" at the Weimer School for Advanced Studies in Real Estate and Land Economics. May 1999.

"Movers & Shuckers: Interdependent Prepayment Decisions" at the AREUEA Mid Year Meetings. May 1999.

"The Option to Renegotiate Maturity" at Annual AREUEA meetings in New York. January 1999.

"A Closed Form Formula for Valuing Mortgages." with P. C. Dufresne at the AREUEA Meeting in New Orleans; January 1997.

"Rational Mortgage Valuation Using Optimal Intertemporal Refinancing Strategies and Heterogeneous Borrowers" at the AFA Meetings in Washington, D.C.; January 1995.

Discussed two papers on house prices at the AREUEA Meetings in San Francisco, CA; January 1996.

Discussed paper on mortgage pipeline management at the AREUEA Meetings in New Orleans; January 1997.

Discussed paper on mortgage valuation at the AREUEA Meetings in New Orleans; January 1997.

Working Papers
"The Effect of Liberalization of Foreign Investment Limits on Domestic Equity Prices: Evidence from the Indian Banking

Sector" with Chinmoy Ghosh and B.V. Phani; April, 2005. Currently being revised for second resubmission to *Journal of Banking and Finance.*

"The Role of Managerial Stock Option Programs in REIT Governance: Evidence from REIT Stock Repurchases" with C. Ghosh, E. Giambona, O. Sezer and C.F. Sirmans, February, 2007.

"The Option to Redevelop: A Case Study of Waltham Massachusetts" with R. Peiser, January, 2007.

"Real Options with Depreciating Assets: Implications for Hedonic Models" with J. Clapp. January, 2005.

"Extending the Lyons Pricing Model" with S. Hegde and R. Mateti, February, 2005. Presentated at the FMA meetings in October 2005.

"*The Optimal Capital Structure of Banks Under Deposit Insurance and Capital Requirements*" with Xiaozhong Liang and Stephen Ross. March 2006.

"Allocation of Borrowers across Depository and Non-Depository Institutions: Effect of Spatial Proximity," with Reza Hossain and Stephen Ross. 2005.

"Real Options: Applications to Real Estate" with C.F. Sirmans and Ozcan Sezer. August, 2000.

Advising of Ph.D. Students

I have served on the dissertation committee for the following students who have completed their Ph.D. at the University of Connecticut.
:
Robert Campbell
Kathy Czyrnik
Zhi-lan Feng
Ozcan Sezer
Sansanee Thebpanya
AKM Rezaul Hossain (Economics)
Xiaozhong Liang (Economics)
Rupendra Paliwal (Finance)
Ravi Mateti (Finance)
Michael Hammerslag (Finance)

Currently serving on the dissertation committee for the following students
Kevin McLaughlin (Finance)
Katya Salavei (Finance)
Biplob Ghosh (Economics)

Awards

Invited to become Fellow at the Weimer School of Advanced Studies in Real Estate and Land Economics of te Homer Hoyt Advanced Studies Institute. Completed first half of requirements in January, 2005 by presenting paper entitled "Depreciation of Housing Capital and Gains from Homeownership".

Named an Ackerman Scholar at the University of Connecticut School of Business 2003-2005.

Winner of 1999 Weimer School post doctoral award

Winner of the AREUEA Outstanding Dissertation Award for 1995.