New Directions: Maastricht–Cambridge Symposium 2002

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This special issue of the Journal of Real Estate Finance and Economics presents papers presented at the Maastricht–Cambridge Symposium 2002. The Limburg Institute of Financial Economics (LIFE) hosted this third symposium, which was attended by 43 participants.

The Maastricht–Cambridge Symposium has followed the same format throughout its existence, with a broad range of topics and papers, without a predetermined subject. The presented papers reflect the current state of research in real estate finance and economics, and the papers and the debates they stimulated are an indication of the breadth of the field.

In all, eleven papers were presented, with nine being selected for publication in this special issue of the Journal of Real Estate Finance and Economics. Of these nine articles, four are written by research teams based in the United States, another four are from Europe, and one is from the Far East. That means that the special issue of the journal is becoming increasingly international in scope, which underlines the growing quality of research in real estate finance and economics outside of the United States.

“Effects of Noise on Optimal Exercise Decisions: The Case of Risky Debt Secured by Renewable Lease Income” by Paul Childs, Steven Ott and Tim Riddough is a joint extension and integration of existing literature on leasing and risky debt valuation. The heterogeneity in their physical and legal characteristics, and the lack of a continuously available benchmark, implies that precise asset values are unobservable. The authors analyze the valuation and default exercise policy associated with risky coupon debt that is secured by a lease-encumbered noisy real asset. If the rate of lease income flow exceeds the rate of debt payment, default will not occur prior to the debt maturity date. The lower bound, as of the lease restructuring date, depends on potential realizations of debt value, as a function of the lease-encumbered asset value estimate. The dynamics for the lease encumbered asset value are assumed to adjust to the spot pricing process asset, its volatility increases over time in direct proportion with the present value of the residual noisy asset value component. It is shown that the lower bound of the default exercise region changes depending on the noise volatility parameter. An increase in noise volatility implies a slower rate of information arrival, which induces the borrower to act as if the true
asset value were less volatile than it actually is, and therefore to default sooner than they would in a full information setting.

Paul Kupiec and David Nickerson investigate the design of capital regulations to control systemic risk in “Assessing Systematic Risk Exposure from Banks and GSEs Under Alternative Approaches for Capital Regulation”. Under a functional regulatory system, the optimal set of capital requirements from the perspective of a regulator will differ according to the stakeholder interest that is being protected. The minimum regulatory capital requirements differ markedly among banks and such non-bank financial intermediaries as insurance firms and the United States housing GSEs (such as Fannie Mae and Freddie Mac). The authors analyze alternative schemes of capital estimate house values. They show that the model is able to provide estimates of individual house prices with an average standard deviation vis-à-vis the true sales price of 18 percent. Their results show that the model’s performance is especially strong for smaller market segments with relatively few transactions.

Andrey Pavlov and Susan Wachter in “Robbing the Bank—Non-recourse Lending and Asset Prices” provide a succinct demonstration of how rational lenders may choose to underprice the put option implicit in non-recourse loans even though they correctly estimate the value. In a two-states model, it is shown that underpricing of the put option results in an inflated asset price. Because any underpricing of the option is detected only in the bad state, short-term managers have relatively little to lose if their underpricing is discovered. In the good state, if managers underprice the option they may be able to increase profits and earn a higher bonus. This behavior leads to lower lending rates and to increased lending activity, which needs to be financed through increased deposit rates. To test their models prediction, the authors use the data on real estate asset prices in the Los Angeles area to test two hypotheses: the spread between lending rates and deposit rates is negatively related to asset prices and the deposit rates are positively correlated with asset prices. It is found that the observed data are consistent with the model’s prediction.

The article by Min Hwang and John Quigley, “Selectivity, Quality Adjustment and Mean Reversion in the Measurement of House Prices” aims at three of the known shortcomings of repeat sales house price indices: quality changes of the houses between transactions, bias in the transaction sampling procedure (the “stater home” problem), and the assumption that house prices follow a random walk. The authors develop two models of house price formation, both of which are essentially adjusted repeat sales models with hedonics. The first model accounts for the changes in quality of the houses sold, and the second one adjusts for sample selection bias and the non-randomness in house prices. They use this model for a Swedish sample of housing transactions consisting of all the houses sold in the metropolitan area of Stockholm, between 1982 and 1999. They then compare the house price indices based on their models with a conventional repeat sales index. The results show that all three indices follow roughly comparable time paths. However, the index adjusting for quality changes only shows less increase in house prices than the straight repeat sales index, and the hybrid index, which is not based on a random walk assumption, shows even less of an increase.

The article “The Hierarchical Trend Model for Property Valuation and Local Price Indices” by Mark Francke and Gerjan Vos is mainly methodological in nature. The
authors propose a dynamic pricing model for housing sales, the hierarchical trend model, which addresses three common issues in hedonic models of house prices: the spatial and temporal dependence of selling prices and the dependency of price index changes on housing quality. The model is based on general and cluster price trends, with clusters constructed by location and house type. The authors subsequently test the model using two samples of Dutch housing transactions. From the perspective of the tenant, the optimal lease structure depends on the exit costs of the lease, which in turn depends on the characteristics of the tenants and the characteristics of the location of the property. For example, firms with large stocks of capital equipment, or with substantial labour acquisition and training costs will have very high exit costs, and will prefer to stay as long as possible once committed to a location. On the other hand, firms with very low exit costs and high tenancy opportunity costs will prefer shorter tenancies. In other words, the rental term structure is partly driven by a clientele effect, which means that it is impossible to paint a complete picture of the term structure of forward rents from observed current market rents.

Marcel Theebe analyzes the impact of traffic noise on property prices for the western part of the Netherlands in “Planes, Trains and Automobiles: The Impact of Traffic Noise on House Prices”. The development of large planned infrastructure projects (Amsterdam Schiphol Airport and construction of high-speed railways) has raised concerns about noise nuisance in the Netherlands. This paper adopts a hedonic approach and uses spatial autocorrelation techniques to examine the impact of noise on house prices. The empirical analysis draws on an extensive database, over 100,000 sales transactions, with many individual property characteristics, combined with noise levels for 2 million small 100 by 100 meter areas. The spatial estimates indicate that house prices are affected by traffic noise substantially if the sound level exceeds 65 decibels. The negative impact rises with the sound level, the maximum price impact is about 5 percent. The house price discount varies across sub-markets, and is a non-linear function of the noise level.

The article by Tien Foo Sing, Seow Eng Ong, GangZhi Fan and C. F. Sirmans, “Analysis of Credit Risks in Asset-Backed Securitization Transactions in Singapore”, explores a real estate related financial instrument that is quite new to the capital market of Singapore, but which has had far-reaching consequences on other capital markets, and especially for real estate: asset backed securitization. The main contribution of this article lies in the central idea that the securitization of real estate resembles a swap, with the (floating) rental cash flows being traded for a (fixed) coupon on the asset-backed bond. Sing et al. apply a theoretical credit swap valuation model to determine the credit risk of these bonds. Although they illustrate their analysis using a securitization deal from Singapore, this idea can be applied to real estate securitization in general. Since their model cannot be solved analytically, the authors use Monte-Carlo simulation to provide numerical solutions for the model. Their results indicate that the critical determinants of asset-backed bonds’ default risk are the dynamics in the rents of the securitized real estate and the volatility of the riskless interest rate.

Danny Ben-Shahar in “Productive Signaling Equilibria and Over-Maintenance: An Application to Real Estate Markets” focuses on how the informed seller might signal asset quality to prospective uninformed buyers by investing in asset improvements. Specifically,
under asymmetric information, investing in pre-transaction asset improvement serves as a signaling mechanism for better quality of a durable asset. In the model, the maintenance level chosen by the owners is divided into one of two observable maintenance categories: ‘‘good’’ and ‘‘bad’’. Within the bad maintenance category, there are assumed to be two publicly indistinguishable maintenance types, which differ by the cost associated with having them upgraded from the bad maintenance category to the good category. It is shown that the type one seller is always better off undertaking asset improvement, thereby getting the true upgraded asset value, than abandoning improvement and thereby being pooled with type two. From a social welfare perspective, however, asset improvement in this case represents over-investment in maintenance.

Philip McCann and Charles Ward address the term structure of rents in their article entitled ‘‘Real Estate Rental Payments: Application of Stock-Inventory Modeling’’. Their analysis is based on a multi-period stock inventory model and shows that the value of a real estate contract for the regulation using a simple numerical version of the generic finite state space model with opportunities for moral hazard on the part of financial intermediaries. The focus is on the distinction between unconditional and contingent liabilities as a fundamental difference between bank and non-bank intermediaries. With contingent liabilities non-banks are argued to need far less equity capital to prevent insolvency. The efficient method of capital regulation is argued to be through lower capital requirements but with pre-commitment requirements to a diversified portfolio of loans, and a penalty system to remove the incentive for moral hazard. Implementing such a system would increase market efficiency and reduce systematic risk by enabling more complete capital markets as a result of providing a credible process of signaling the true riskiness of intermediaries.

We owe very special thanks to many colleagues who submitted papers for their offers, the discussants, referees and the members of Advisory Board for their assessments. We would also like to thank Vesteda, KFN, Kempen & Co., VOGON, SBV and METEOR for their support of the 2002 Maastricht-Cambridge Symposium, and the RICS Foundation for sponsoring this Special Issue. We were extremely fortunate to have at this Symposium meeting more than the usual number of really outstanding discussants, and their contribution is in evidence throughout this volume. We should also like to thank C. F. Sirmans and Editorial Board of Journal of Real Estate Finance and Economics for inviting us to act as Guest Editors.