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Developments in Urban Housing and Property Markets

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Summary. Real estate, encompassing housing, land and commercial property, is a key driver of the urban economy—in terms of economic development, the distribution of opportunities across space and through the evolution of the local built environment. Certain aspects of real estate research are not directly related to urban issues but, through finance and investment decisions, for instance, they do have a major bearing on our towns and cities. Thus, a Review Issue on urban real estate is timely and important. This paper both introduces and provides an assessment of the articles within this Review Issue. First, the paper sets the issue in its wider context. Secondly, it then pulls out the main themes from each contribution before elaborating on the cross-cutting themes that emerge from the collected papers taken together. The final main section outlines a forward-looking research agenda for real estate analysis.

Introduction

The purpose of this Review Issue is to bring together international scholars dealing with topical academic and public policy questions in the broad area of urban real estate. This encompasses housing markets, housing finance, real estate or commercial property markets, property investment, urban regeneration and the analysis of market phenomena commonly associated with real estate. Not all of the papers in this review are specifically about urban property markets, but they all have consequences for towns and cities.

This Review Issue is the latest in an annual series of themed review editions published by *Urban Studies*. We view this as an ideal opportunity to bring together papers assessing the contemporary literature across the wide domain of housing and property economics and finance research. This domain encompasses research in the UK and North America, but also in Europe and further afield. We hope that the authors and the subject matter selected reflect developments within the wider literature.

In recent years, the evolution of real estate societies in America, Europe, Asia, the Pacific Rim, Latin America and Africa has facilitated the globalisation of real estate research. Instant electronic communication has greatly enhanced the capacity of international collaboration, as is demonstrated by a number of papers in this issue (and, not least, by

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the editors themselves). The idea for this Review Issue actually arose from one such society, the European Real Estate Society (ERES). The Ninth ERES Conference was held in Glasgow in June 2002 and the *Urban Studies* Editorial Board agreed that a Review Issue on property could be linked to the conference. Several of the authors were able to present draft or embryonic papers and also discuss paper development at the conference.

In the paper to follow, an overview is provided of the Review Issue. This is done in a series of stages. First, housing and property are briefly put into context. Secondly, the paper pulls out the main themes underlying each of the papers that follows. Thirdly, it reflects on the more cross-cutting or overlapping issues that arise from examining the Review Issue as a whole. Finally, it speculates on the emerging research real estate agenda.

Real Estate in Context

Real estate is important and worthy of academic and public policy study. Land and property are generally viewed as key drivers of urban economies (see, for example, Begg, 2001). Recent studies in the US, the UK and France have estimated the size of the property sector and suggest that it might involve as much as 15–20 per cent of GDP (see DiPasquale and Wheaton, 1996; Hu and Pennington-Cross, 2000; Friggit, 2001). Property is a major balance sheet item for the corporate sector (Hu and Pennington-Cross, 2000) and performs a vital risk-diversifying role in investment portfolios (for a review, see Hoesli and MacGregor, 2000, ch. 10). It is estimated that real estate constitutes as much as 35 per cent of investable wealth (Francis and Ibbotson, 2002) and thus constitutes one of the major asset classes. Housing is typically the largest portion of household wealth and consumes a significant portion of disposable incomes. Real estate development shapes the built environment and different planning systems around the world seek to regulate and set bounds on that process (see the paper by White and Allmendinger in this issue). Governments at national and local level devote considerable volumes of public resources to direct and influence housing and property markets (the broad proportion of GDP in the EU devoted to housing from public sources varies from 1–3 per cent, according to Maclennan *et al.*, 1997). The direction of housing development, the on-going pipeline of affordable and flexible commercial space and the effectiveness of housing policy are all matters of legitimate public policy and tax-payer concern.

Scholars have developed models and testable theories in an attempt to understand better the essential market processes. Researchers have also compiled extensive evidence showing how and why property markets do not, in all cases, work efficiently. Evidence on thin markets, information problems, cyclical instability and sub-markets, among other dimensions of market failure, help the business sector to make better market decisions and improve the chances of public policy intervention working more effectively (in this regard, the paper on rational 'bubbles', by Hendershott *et al.*, is a relevant example).

Property markets are contentious because they have such wide-ranging and long-lasting consequences. Three examples can illustrate the source of at least some dimensions of such disputes. It is sometimes claimed that good housing can have positive external effects. Haurin *et al.* (2000), for instance, report evidence that home-ownership is associated with a range of positive social outcomes including educational attainment. Similar arguments (using less rigorous methods) have been made in the UK about the impacts on crime and neighbourhood quality through housing policy interventions. The contested nature of these external effects is analagous to a second controversy: the wider urban regeneration effects of property investment in disadvantaged areas (see the paper by Adair *et al.* in this issue). Some commentators take a sceptical position on the long-term effects of property development, especially in terms of the local community and locally retained jobs (for example, Turok, 1992). Thirdly, and despite consensus in much of the economics literature regarding the optimal structure of benchmark housing taxation (see the paper by Englund), there is considerable debate about the correct way to achieve improvements in existing systems and the balance between taxes on capital, income and transactions.

It was said at the beginning of this paper that real estate analysis has an important urban dimension. We stress that this is a multifaceted relationship. Several of the papers of this issue deal explicitly with land, housing and property in an urban context (see, for instance, the papers by Meen and Meen, Adair *et al.*, Meese and Wallace, and White and Allmendinger). Other contributions (for example, by Geltner *et al.*, Lizieri, Sirmans and Worzala, and Worzala and Sirmans) have no explicit intraurban, urban or metropolitan content. However, by its nature, almost any conceivable analysis of the property sector will have spatial ramifications. Real estate is both a key driver of urban change and a potential constraint on city performance. Moreover, property plays an important social justice role by redistributing resources, jobs and opportunities across space. Because of its long-lived nature, property development specifically impacts on the long-term evolution of the urban built environment. At the same time, however, the urban economy, governance and the performance of both will influence property returns, property development strategies, housing market behaviour and the use of business space. National or global finance and investment markets will also have indirect effects through prices and returns on the way urban systems evolve. Thus, even where the relationship is not immediate and direct, it is difficult to escape the influence of real estate on cities and towns.

The Papers in This Issue

In this Review Issue, the articles cover land markets, housing economics, land-use planning, housing policy, mortgage finance, commercial property markets, real estate investment and the commercial market's occupier sector. The authors primarily come from Britain and the US, but also from Australia and Sweden. Below, the main themes of each paper are briefly outlined.

Why is the housebuilding industry organised the way it is in modern economies? Michael Ball asks this question in order to tease out wider implications for housing markets. His focus is on market conditions and production characteristics, and also on institutional, regulatory and land market influences on contemporary housebuilding. In his paper, he draws extensively on evidence from the UK, France, North America and elsewhere. Ball stresses the characteristics or stylised facts that differentiate the institutional forms of housebuilding in different countries and asks whether these are related to the relative efficiency of domestic industries. Key explanations for these differences include potential economies of scale, market factors such as instability, asymmetric information, regulation and risk. His conclusion is that, while one may not be able legitimately to treat housebuilding as a competitive industry within traditional industrial economics modes of analysis, standard economic analysis remains valid in order to explain observed institutional structures. These structures, however, are believed to explain differences in both supply elasticities and wider system efficiencies.

The paper by David Meen and Geoff Meen is concerned with new ways of housing modelling using general equilibrium approaches to study local housing markets. They argue that local housing market models must capture three distinctive features: strong social interactions between agents, observed highly non-linear behaviour and the centrality of social exclusion or segregation. They explore each of these themes and then turn their attention to innovative modelling tools that might effectively capture these phenomena. The models they look at include frameworks based on cellular automata and refined discrete choice models that can capture important externalities. They argue that these classes of model can help to explain important empirical phenomena in local housing markets, such as multiple equilibria and hot spots, increasing returns and segregation. Furthermore, these are precisely the tools required to analyse contemporary urban housing problems in the UK. Government acknowledges that effective policy responses are required to tackle cumulative neighbourhood decline and low-demand housing and these would greatly benefit from the bottom–up tools suggested by the authors. This is a stimulating and challenging paper. They recognise that we are a long way from an operationalised general equilibrium model but it is, they believe, perfectly feasible.

Over the past 20–30 years, a number of important analytical topics have dominated the housing economics literature. They have done this because, in the case of measuring prices, they are essential to understanding and modelling markets. In the case of housing taxation, the study is important conceptually but also in policy and efficiency terms. Taxing housing residential capital is the subject of Peter Englund's review paper. Englund contrasts the optimal treatment of housing taxation (as a benchmark) with existing practice in his own country, Sweden, and elsewhere in the OECD. He argues that the existence of housing tax advantages in most systems leads to consequences in the form of different consumption patterns, amended savings and investment decisions. In turn, this impacts on the distribution of welfare in society. Cutting through the housing taxation debate, Englund focuses on the potentially beneficial use of property taxes but concludes that there are important reasons why more use is not made of the taxes (and why they are so politically unpopular). This may be because of positive externalities associated with home-ownership that might be risked by increasing its relative price. Secondly, in practice, the assessed value used for taxation purposes is often highly imperfect. Thirdly, revaluing the assessed value on moving is a major constraint on mobility. Thus while attractive in theory, property taxes need to be used cautiously.

The possible impacts of land-use planning on housing markets are another long-standing topic in the housing economics (and physical planning) literature. Regulation has costs and benefits for affected parties and this is keenly felt in debates about land release, the location of new housing, the sustainability of development and the pressures created by either sprawl on the one hand or urban cramming on the other (Adams and Watkins, 2002). In their paper, White and Allmendinger compare and contrast US and UK literatures, distinguishing between standard economic approaches focused on outcomes and more institutionally oriented studies concerned with process and the role of different parties in the planning system. They conclude that in both countries, although as a result of different planning regimes, constraints induced by physical planning typically do raise land and house prices, reduce housing supply and increase new-build densities; also, for the UK, there is evidence that household choices are reduced. However, they note that some commentators believe that, apart from other non-economic benefits, a relatively strict planning system does imbue the housing system with a degree of certainty that reduces risk.

Why do many countries have such a confusing array of housing policies? Grigsby and Bourassa build up a picture of the objectives and attitudes surrounding low-income housing subsidy policy in the US. In so doing, they argue that examining the societal reasons for such policies explains why, in the US case, they are both confusing and irrational. In particular, they take the view that the programmes are aimed at "multiple, often conflicting, higher-level objectives for multiple competing client-groups" (pp. 981–982). Moreover, these objectives change over time and across different market contexts. The paper goes on to look at the 'centrepiece' of this policy area: the Section 8 Allowance. Grigsby and Bourassa argue that it is, *de facto*, operating as an income supplement and would do so more efficiently if its housing regulatory ties were removed.

Grigsby and Bourassa ask large and important questions about housing assistance programmes. Why is it that successive US federal governments have been unwilling to provide sufficient support to fund fully low-income housing subsidies for those in need? The authors attribute this to a mix of ignorance about the living conditions of the poor, uncertainty about the root causes of deprivation (and the consequent mix of housing and non-housing policies required to overcome deprivation) and a perception that past and current policies are part of the problem. They argue that now is the time for a fundamental reconceptualisaton and design of both the ends and means of low-income housing subsidies.

These arguments have a wider currency than just the urban poor of the US. Successive British governments have wrestled unsuccessfully with reform of the pivotal Housing Benefit system for low-income tenants. Equally, it might well be argued that UK policy is caught in a structural imbalance between the means and ends of policy (Barr, 1998) and also the purposes that allowances become used for. In the UK, social-sector rents are largely met by Housing Benefit. This means that the allowance system has underpinned an expansion of private lending to fund investment in social housing. At the same time, social security is premised on housing costs being met in full for the lowest income-groups. Reform of the system is rational from a behavioural point of view but, politically, both the social security system and leveraged investment in social housing depend on the *status quo* (Kemp, 1998, 2000).

Spectacular bubbles and subsequent reversals are common to both equity stock prices and to real estate. How can one explain such phenomena using financial models underpinned by rational behaviour assumptions and do these explanations transfer across to the traditionally volatile real estate sector? Hendershott and colleagues address this question, illustrating their approach with analysis of the Internet stock bubble. They argue that the presumption in the real estate literature of irrational bubbles should be replaced with a rational explanation—otherwise, why are bubbles not more frequent and why do rational investors not trade against such market irrationality? The authors discuss the problems with transferring their approach to the property sector (although they argue that rational bubbles might be more likely in the real estate world). They conclude that investors rationally build mean reversion in real cash flows into their valuations—indirect evidence of rational behaviour in the face of bubble effects.

One area where international forces have been relatively weak has been the mortgage market (considered comparatively). Mark Stephens examines the impact of globalisation on different types of national housing finance system. He argues that, despite the process of convergence associated with globalisation, the distinctive nature of both housing finance circuits and housing systems in national economies will sustain national systems and limit convergence. In particular, Stephens contrasts the experiences of the advanced economies, where deep financial deregulation has often been associated with housing market volatility, with the potential that the emerging transition economies possess to shape their developing housing finance systems. Stephens emphasises the importance of non-financial factors in shaping mortgage products—for instance, focusing on foreclosure and valuation systems. These are normally nationally or even sub-nationally based, implying limitations on the process of globalisation within mortgage markets. Stephens contrasts the mobility of capital with the immobility of land and suggests that, contrary to much of the broader discussion about social policy, governments may have more control over housing policy than is commonly realised.

Meese and Wallace focus on a central concern of housing economics—the development of rigorous measures of house prices that can be used in formal models of housing market behaviour. Their paper is concerned with the fundamental determinants of housing prices, derived from the supply and demand sides. They then go on to adopt an error correction methodology before contrasting two-step and simultaneous procedures for estimating both a price index and the structural model itself. Their data come from Paris and they conclude that economic fundamentals constrain movements in Parisian house prices over the longer term. They find that the error correction speed of adjustment between previous differences in fundamental and actual prices is much quicker than previous work suggested for the Bay Area of Northern California.

As is the case with housing markets, it is also vital to be able to track price changes in commercial real estate markets. For housing, transactions data are in most cases widely available and transaction-based indices can be constructed (a Special Issue of the *Journal of Real Estate Finance and Economics* was devoted to house price indices; Vol. 14, 1997). Such indices can either not control for changes in quality (when simple averages of transaction prices are computed) or control for the heterogeneity of real estate by using either the hedonic approach or the repeat sales method. In commercial real estate markets, however, transactions data are scarce and appraisals are widely used for market tracking and as the basis for performance measurement. Appraisal-based indices are known to suffer from smoothing and the paper by Geltner *et al.* reviews the literature in this area. It also addresses the issue of price discovery—that is, the transmission of relevant price information from the public market (indirect or securitised market) to the private market (direct market). Clearly, all of these issues are of relevance to investors in particular institutions who are seeking the appropriate information on price determination in both the private and public markets to make informed investment decisions.

The paper by Adair *et al.* investigates important issues in relation to urban regeneration. The authors first discuss why regeneration often faces market failure in that strong public-sector commitment is usually needed to provide the conditions to lever private-sector investment. Policy responses are examined, mostly from a UK perspective. Public- and private-sector financing approaches are reviewed. Insights are also given on international approaches—in particular, tax-based mechanisms which prevail in the US.

The paper by Sirmans and Worzala reviews the literature in the area of international direct real estate investment. Investors, in particular institutions, have become increasingly global and a survey of the main conclusions from this growing body of knowledge is timely indeed. This paper constitutes the first comprehensive review of research on international direct real estate investment. The literature is divided into studies which have analysed international real estate in a mixed-asset framework and those which have used a within-real-estate diversification framework. A major issue when considering international real estate investment is that of currency hedging and a whole section of the paper by Sirmans and Worzala is devoted to a critical assessment of that research. Suggestions for further research are also provided.

The companion paper, by Worzala and Sirmans, examines the evidence on international real estate investment when securitised real estate is considered. The paper also examines some of the recent studies that have criticised the use of modern portfolio theory and have offered alternative types of analyses about international real estate investment. The main conclusion of the paper is that almost all studies find that diversification gains are possible but often reduced if currency risk is taken into account.

The paper by Lizieri deals with occupier requirements in commercial real estate markets. Despite the great importance of recognising occupier needs, in particular the effect of these needs on the return and risk of real estate investments, this topic is often overlooked and we feel that a review paper on occupier requirements should clearly be included in a Review Issue on urban housing and property markets research. The paper begins with a discussion of the traditional model and argues that this results in a model that is inappropriate to the new economic environment. The literature on new working practices, changing occupier requirements and the response from the property market is also examined. A critical examination of the assumptions and methods used in the literature is provided, as well as a research agenda.

Cross-cutting Themes

The papers in this issue each raise important themes about urban property and its interaction with economic, social and institutional phenomena. However, when these papers are considered as a whole, several further cross-cutting themes emerge that are worthy of discussion.

The first of these wider questions relates to the comparative nature of much of the research covered in the papers to follow. There are several aspects to consider. In the first place, there is growing economic transfer of real estate assets in terms of international portfolios, personal and corporate property investments in multiple national settings, transnational corporate real estate businesses and, less so, in terms of construction and development activities by firms in more than one country. Secondly, research on real estate is increasingly comparative and tends to draw its evidence (particularly in reviews such as the papers contained here) from many different national settings. Thirdly, important methodological issues arise both from the difficulties in doing comparative work in the real estate sphere because of institutional differences (for example, in physical planning and property law) and in inferring the differences in research findings that may be explained by nationally specific as opposed to behavioural factors. The increasing importance of international real estate transactions and research requires that increasing care is taken in the analysis of real estate research.

A second cross-cutting theme is the continuing and changing role of real estate in the economy. This is particularly true of the deregulated housing finance system and the housing market. Land and house price instability has fuelled changes in household wealth with knock-on effects on consumption, savings and the macro economy. Recent evidence from the UK suggests that, following on from sustained real house price inflation, housing equity withdrawal is now increasing consumption by levels last seen in the late 1980s. Of course, it is also argued that the UK's property market has sustained the economy from wider recession. This unbalanced approach to the economy cannot be considered to be long-term strategy but it is indicative of the centrality of the housing market to wider economic stability (and volatility). The early 1990s in the UK demonstrated the reverse situation when housing market recession, and overexposure to variable-rate mortgage debt, prolonged wider economic slowdown.

Another theme that emerges is the fact that investment decisions are becoming more and more integrated, and this trend will continue in the future. What is meant here is that decisions pertaining to property cannot be taken in isolation from decisions concerning financial assets and tax issues. For an individual, housing and retirement monies should also be incorporated in these decisions. This process is known as wealth management. Wealth management is increasingly becoming international, so currency movement issues have to be taken into consideration. In such a context, it is important to understand how bubbles are formed on financial and real estate markets (see the paper by Hendershott *et al.*), the evidence on international real estate diversification and on the benefits of currency hedging (the paper by Sirmans and Worzala and that by Worzala and Sirmans) and issues pertaining to real estate index construction (the papers by Meese and Wallace and by Geltner *et al.*).

At the level of the city and region, real estate plays a necessary part in the forward trajectory, negative or positive, that urban economies can make. The papers by Meen and Meen and by Adair *et al.* demonstrate in different ways that locality and property interact in sometimes negative and potentially positive ways that can facilitate or discourage mobility, investment, urban economic growth, neighbourhood change and revitalisation. The role of real estate should not be overstated—it is undoubtedly important and a necessary requirement of the physical change process, but evidence in the UK and elsewhere suggests that the local economic development returns may be modest and skewed away from local residents. However, making more of underutilised assets such as vacant and derelict land, the remodelling and use-class change of existing buildings and the potential for local labour in larger urban reinvestment programmes (for instance, on social housing modernisation) does offer the scope for wider regeneration prizes. The neighbourhood scale is brought into focus by the Meen and Meen paper and also by Grigsby and Bourassa. The latter suggest that the long-term implications of spatial concentrations of poverty need to be addressed through complementary labour market, transport and education policies, in addition to well-designed housing subsidies.

Towards a Research Agenda

Recent years have seen the emergence of several new books with the most up-to-date theories and techniques for housing and commercial real estate analysis. Examples of such books are: DiPasquale and Wheaton, 1996; Ball *et al.*, 1998; Brown and Matysiak, 2000; Hoesli and MacGregor, 2000; Geltner and Miller, 2001; O'Sullivan and Gibb, 2002. A review manuscript co-sponsored by the Appraisal Institute and the American Real Estate Society recently appeared on the important topic of Real Estate Valuation Theory (edited by Wang and Wolverton, 2002). As far as international real estate research is concerned, several Special Issues of journals have appeared with a particular focus on international issues; for example, *Real Estate Economics* in 1995, the *Journal of Real Estate Finance and Economics* in 1993 and 1997, the *Journal of Real Estate Research* in 1996 and 1997, the *Journal of Property Valuation and Investment* in 1997 and the *Journal of Property Research* in 2000 (see Newell *et al.*, 2002). Obviously, much research is still needed and this section provides some topics that would deserve further research.

An agenda for real estate research does not emerge from a vacuum. In Britain, the Economic and Social Research Council and charitable funders such as the Joseph Rowntree Foundation regularly publish thematic priorities, or criteria with which to base a research agenda. Governments also indicate such themes through their contract research agendas and the evolving of policy through consultation. Through trade bodies, private-sector interests can also demonstrate, singly or in collaboration with other funders, what they think research in real estate should be focused on. International real estate societies also provide a steer for what one might consider to be topics worthy of sustained research. What do the papers in this volume and the concerns they pinpoint tell us about the emerging urban housing and property research agenda?

First, they suggest that both housing and property are important drivers of urban economic performance. However, there is also a degree of endogeneity between real estate and the wider economy. Developing a clearer understanding of this two-way relationship is important not only conceptually but practically for the business community and for policy-makers interested in better understanding urban property processes and what actually works. A second important conceptual building-block is connecting the more aspatial elements of property investment and finance to the urban, regional and neighbourhood scales of analysis. These spatial dimensions require coherent economic and financial analysis and should not be left only to the human geographer to unpick and reassemble.

As a final reflection on the future research agenda, a series of specific topics and questions are listed that might usefully be addressed. For urban housing analysis, there are a number of specific questions worthy of extended research. Some of these would include

—How do housing markets function at local spatial scales and how can analysis of the neighbourhood level be operationalised so that it can assist market development by both planners and the private sector?
—How do housing markets respond to urban land-use planning regimes such as brownfield quotas (60 per cent of new development in the UK) and affordable housing quotas, within the wider framework of supplying adequate new housing and meeting other non-housing planning goals?
—How efficient and accessible are urban mortgage markets, and, where they fail to some degree, how can public policy effectively respond?
—How should low-income housing policy be reconceptualised and defined in an era of 'joined-up' government, and given the need to demonstrate value for money when exhausting scarce public resources? This question can usefully be extended to the wider evaluation of all relevant forms of intervention such as regulation, tax expenditures and other housing subsidies.
—How can housing systems, tax regimes, subsidy arrangements, housing development regulations, etc. be feasibly reformed to make progress in terms of economic efficiency, social justice and wider sustainability without falling foul of the institutional barriers and political constraints? Are there piecemeal tactics that can be deployed and are there lessons from different countries about how to proceed?

In the commercial property sector, the following areas would deserve further research:

—Understand why institutional investors allocate a substantially lower weight to real estate than the weight of 20–30 per cent suggested in the literature. It has been argued for instance that the weight which should be allocated to real estate is much more in line with the actual institutional weight when an asset–liability framework is used rather than an asset–only framework (Chun *et al.*, 2000; Craft, 2001), or when real estate market imperfections are considered (Kallberg *et al.*, 1996). These arguments need further testing with data from several countries. Another possible explanation is that institutions invest in the long run, while optimal weights are derived using monthly, quarterly or annual time increments. It seems reasonable to assume that higher correlations between real estate and financial assets, and hence less diversification benefits, exist in the long run. Unfortunately, no long enough time series of real estate returns exist which would enable the testing of such an hypothesis. However, as such new series are developed, this conjecture should be tested.
—The use of automated valuation models for real estate benchmarking and to create real estate derivatives (Gordon and Havsy, 1999; Geltner, 2000; Geltner and Ling, 2001; Pace *et al.*, 2002). What types of real estate indices would be most appropriate to serve as the underlying for derivative products? What steps forward can be made in the area of real estate benchmarking—i.e. in order to judge the performance of a portfolio manager with respect to the performance realised by other managers?
—The valuation of real estate using the discounted cash flow (DCF) method. How do we estimate the weighted average cost of capital (WACC)? Can the capital asset pricing model (CAPM) be used? What is the impact of financing on asset values?
—Understanding the drivers of real estate returns (Ling and Naranjo, 2002) and those of other asset classes in order to understand the cycles and bubbles on markets. Would one expect the cycles to occur concomitantly for the various asset classes and why (see the paper by Hendershott *et al.* in this issue)? Do bubbles occur at the same time? What is the relation between cycles and bubbles?
—Hedging of international real estate investments (see the paper by Sirmans and Worzala in this issue). Is it worthwhile to hedge? What hedging instruments should be chosen? How are hedging decisions affected when all asset classes are con-

sidered? How is an international strategy best implemented? Should direct or indirect vehicles be used?

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