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Book of Abstracts: Main Conference

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List of Papers

Authors	Title	Paper Number
Daniel Domeher and Raymond Adbulai	Land registration and access to SME credit: preliminary findings	2
Gary Owen Garner	The significance of financial barriers caused by holding costs in greenfield residential development	3
Jean Dube and Diego Legros	Using spatial econometric specification in hedonic pricing model: Is there a problem?	5
Keener Hughen and Dustin Read	Extending the real option framework to analyse the economic effects of inclusionary housing policies in different types of markets	6
Lawrence Chin and Kok Soon Yu	Analysis of land tenders in Singapore	7
Noriko Ashiya	The role of listed REITs in global interdependence, business cycles and real estate market	8
Sandy Bond and Zoltan Moricz	The impacts of the Canterbury earthquake on the commercial office market in Christchurch, NZ	9
Nick French	Reversionary properties - valuation methods revisited	11
Ruben Cox	Households, intermediaries and originators in mortgage markets	12
Dermot McGeown and Catherine Howell	Developing real estate students professional capacities: The role of group work	16
Sara Wilkinson	Conceptual understanding of sustainability in the Australian property sector	17
Eric Le Fur and Benoit Faye	Urban renewal of a port city and the dynamic of house prices: An analysis of the I2 - convergence of prices on the redevelopment of the waterfront in Bordeaux City	18
Bert Kramer	CVaR optimization of real estate portfolios in an ALM context	19
Kim Hiang Liow	Volatility interdependence in European securitised real estate markets: who is the most influential?	20
Seow Eng Ong and Cheng Xiang Wong	Evaluating REIT exchange traded funds	23
Charlotte Coleman, Neil Crosby, Pat McAllister, and Pete Wyatt	Development viability appraisals: applying the residual method of valuation in a planning policy context	24
Paloma Taltavull de La Paz and Michael White	The credit channel, liquidity and house prices: Evidence from UK and Spanish housing markets	25
Stephen Lee	The investment performance of freehold income trust	26
Eric Heberlig, Suzanne Leland, and Dustin Read	Understanding the relative influence of local government interest groups within the domain of land use policy	27
Ruben Cox	Behavioral aspects of insurance purchase: Evidence from mortgage insurance	28
Kim Hiang Liow	Convergence dynamics in international real estate securities markets	29
Ed Nozeman and Arno Van der Vlist	Planning regulations and their impact on European metropolitan commercial property dynamics	30

Abstracts

Paper Number: 2

Land registration and access to SME credit: preliminary findings

Daniel Domeher and Raymond Abdulai, *Liverpool John Moores University*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G9

Most SMEs especially in the developing world are credit constrained which limits their ability to contribute to economic growth and poverty reduction. On one hand it is being argued in the literature that this credit constraint is attributable to the lack of collateral resulting from poverty and the lack of valuable assets; on the other hand the lack of collateral is blamed on the absence of registered titles over land which allegedly makes land an unacceptable collateral asset. The aim of this paper is to establish whether or not the absence of registered land titles is a barrier to credit access amongst SMEs. The study involved credit officers and the results amongst other things show that most formal lenders accept landed property for collateral purposes irrespective of whether they are registered or not. The paper concludes that even though land registration is important in facilitating the verification of land ownership, its absence is of no empirical consequence in terms of the availability of credit to SMEs.

Paper Number: 3

The significance of financial barriers caused by holding costs in greenfield residential development

Gary Owen Garner, *Lincoln University*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D7

Developer infrastructure contributions are regularly cited as the most significant contributor of planning or development costs. However, other non-financial barriers are also emerging as significant impactors. This includes inconsistent planning requirements, development assessment procedures, and conflicts between developers and local councils. Such findings have underpinned a diverse range of planning reforms currently underway in various regions throughout Australia, many of which are specifically designed to target these "non-financial" barriers. Examples include systematic enhancements intended to provide greater standardisation, and reduced administrative requirements, system complexity and timeliness. However, aside from the advent of new infrastructure charging regimes that address cost barriers, it is apparent that these reforms actually address another invasive impact relating to holding costs - rather than the infrastructure charging regime itself. It is indisputable that developer infrastructure costs strongly impact housing costs and therefore affordability: and, compared to holding costs, they are much more visible and easily quantified. In contrast, holding costs may seem less tangible as they typically stem from issues revolving around uncertainty, timeliness and inconsistency. Nonetheless, it can be established that they represent a potentially formidable financial barrier. In determining the impact of holding costs, this paper presents a number of operating scenarios and in the process identifies the financial benefits arising from planning reform and intervention. Whilst in many cases it may be true that development contributions expended towards infrastructure represent the largest planning related cost, their existence also impacts part of the holding cost equation which together with its other elements may be demonstrated to rival apparently more pervasive, obvious costs involved in property development.

Paper Number: 5

Using spatial econometric specification in hedonic pricing model: Is there a problem?

Jean Dube and Diego Legros, *University of Quebec, and University of Bourgogne*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G3

Since the formal paper of Can (1992), several attention have been paid to correction of spatial pattern among residuals in hedonic pricing model. Recent development of the spatial econometric have facilitate the correction of such pattern. However such applications are usually based on strictly spatial context, ignoring

that real estate data are in fact a collection of spatial data pooled over time. Such mechanical applications can introduce bias on estimated coefficients since temporal dimension is unidirectional effect as opposed to the multidirectional spatial effect. The paper addresses the possible bias generated on estimated coefficient when spatial weights matrix, as opposed to the spatio-temporal weights matrix, is used in hedonic applications. The results suggest that ignoring the temporal dimension and applying strictly spatial econometric tools can generate bias in estimated autoregressive coefficients while potentially generating other important problems.

Paper Number: 6

Extending the real option framework to analyse the economic effects of inclusionary housing policies in different types of markets

Keener Hughen and Dustin Read, *University of North Carolina, Charlotte*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G7

Inclusionary housing policies enacted by municipal governments rely on a combination of legal mandates and economic incentives to encourage residential real estate developers to include affordable housing units in otherwise market rate projects. Although these regulations provide a means of stimulating the production of mixed-income housing in parts of a community where it would not otherwise exist, they may also slow development activity and put upward pressure on the price of market rate units if a financial burden is imposed on the private sector. The following paper extends the real option framework to explore the effects of inclusionary housing policies on housing prices and development timing. Overall, the results demonstrate that both market conditions and consumer perceptions about mixed-income housing can influence the economic outcomes of these affordable housing initiatives.

Paper Number: 7

Analysis of land tenders in Singapore

Lawrence Chin and Kok Soon Yu, *National University of Singapore*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D3

This paper adopts the event study methodology in examining the market reaction of the stock price of the winning tenderer from the announcement of the tender win. The companies studied are those listed in the Singapore Stock Exchange (SGX) during the period between 2003 and 2010. The findings from the study show that land tender win announcements resulted in positive abnormal return for the winning companies' stock prices. The underlying factors which are responsible for the positive abnormal return are the level of experience of the winning tenderer, level of uncertainty of the development, number of participating bidders and the type of land zoning for the site. On the other hand, negative relationship is observed between the bid margin and the abnormal return. The higher the margin the lower the return will be.

Paper Number: 8

The role of listed REITs in global interdependence, business cycles and real estate market

Noriko Ashiya, *Meikai University*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B3

It is widely accepted that REITs provide a range of important benefits to companies and investors; if listed on the main market of the stock exchange, they also provide all the other usual benefits associated with the equity market such as access to new investors/capital, tax transparency, access to property for minimal outlay, portfolio diversification, liquidity, and so on. In this paper, we take a global view of those aspects and investigate the role of listed REITs in global interdependence, business cycles and real estate markets. For this purpose, we extend the traditional Keynesian international macroeconomic model, presented by Branson and Buiter (1983), in two stages and formulate an example of a recent international economy with expanded securitization markets. Then we use it to investigate the impacts of the foreign interest rate hike, one of the

many typical influences from foreign countries, on the business fluctuations of the home country; the impact of which we compare with those before the world wide starts of the listed REITs market. It is found that REITs, widely held by a variety of investors, may weaken the impact of a foreign influence and they may reduce the fluctuations of the value of the Gross Domestic Product. Given the familiar relationship between land prices and the GDP, this finding could also be seen as an insight into the future prospect of land prices, as well as the future real estate markets.

Paper Number: 9

The impacts of the Canterbury earthquake on the commercial office market in Christchurch, NZ

Sandy Bond and Zoltan Moricz, *Lincoln University and CBRE*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F4

The 22 February 2011 Canterbury earthquake had a devastating impact on Christchurch property with significant damage caused to land and buildings. As at November 2011, around 530 buildings have either been demolished or identified to be demolished in central Christchurch. In addition, around 140 buildings have either been partially demolished or identified to be partially demolished. The broad aims of the research were to (i) examine the nature and extent of the CBD office relocation, (ii) determine occupier's perceptions of the future: their location and space needs post the February earthquake, and the likelihood of relocating back to the CBD after the rebuild, and (iii) find out what occupiers see as the future of the CBD, and how they want this to look. To address these issues, an online survey was developed. Potential respondents were obtained from two sources: 275 suburban office occupier contact details obtained from a physical survey of office occupiers as of August 2011, and 368 contacts obtained from a business database held by CB Richard Ellis. With a 22% response rate, 55% of respondents were relocated CBD occupiers and 45% were existing suburban office occupiers. Results indicate that 66% of respondents have reduced their office size since the earthquakes. Half of businesses are paying less rent than before the earthquake, probably due to 45% of respondents being in poorer quality space. More than a quarter of relocated tenants have signed leases of one year or less, and 27% of businesses are now working out of residential premises. Of the businesses that relocated out of the CBD the biggest group (38%) want to return to the CBD into low-rise buildings of 3 floors or less (80%) that meet Earth Quake codes with good amenities and public transport. The speed of rebuild is important to respondents.

Paper Number: 11

Reversionary properties - valuation methods revisited

Nick French, *Oxford Brookes University*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A3

In the last 40 years the UK valuation profession has relied heavily upon the "hardcore" or "layer" method for valuing reversionary properties (under and/or over rented). This approach is not used elsewhere in the world and, prior to the rent freeze of the 1970s in the UK, it wasn't a principal method in the UK. However, valuers today, particularly in London, use this method exclusively despite it producing erroneous answers in certain cases (over-rented; non normal cash flows). It is the opinion of this paper that the UK property market is now so different from the market that prevailed when this model was introduced that it no longer has a place in the valuers' armoury of methods to use. This paper looks at a number of case study examples and offers other (more appropriate) options for valuing reversionary interests.

Paper Number: 12

Households, intermediaries and originators in mortgage markets

Ruben Cox, *Erasmus University*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G6

Is there a conflict of interest between households and mortgage intermediaries when originators keep mortgages on their balance sheet? This paper shows that in an originate-to-hold setting, intermediaries are not systematically underwriting mortgages that exceed acceptable underwriting criteria (in terms of loan-to-value and debt-service ratios) once controlled for the originator. Originators have an incentive to monitor the underwriting process, regardless whether an intermediary is involved during origination. If mortgages are insured, than the involvement of intermediaries raises LTV-ratios by 6-7 per cent compared to mortgages directly originated at banks or insurers. It is further found that mortgage underwritten by intermediaries, are more likely to be of a deferred amortization type. Although this is not necessarily an adverse outcome for the household, the combination of deferred amortization debt and increased LTV-ratios is a potential risk for insurers of mortgages.

Paper Number: 16

Developing real estate students professional capacities: The role of group work

Dermot McGeown and Catherine Howell, *University of Melbourne*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D8

Purpose: A well-established principle of curriculum design in higher education is that 'capstone' or final-year subjects should represent the culmination of student learning and skills development across the degree. This paper represents a case study highlighting the value and limitations of group work for capstone assessment in Real Estate, drawing on the final-year undergraduate subject 'Property Analysis Studio'.

Design/methodology/approach: The Critical Incident Technique (Flanagan 1954; Chell 2004) was adopted in order to gain a deeper understanding of learner perspectives. A feedback form was designed and administered to the cohort (n=61). Data was de-identified, transcribed, and coded using a grounded approach (Glaser & Strauss 1967). A member of the research team observed the students' group presentations and made field notes; these were similarly transcribed and coded. Data was then compared with an analysis of the overall academic performance of the cohort.

Findings: Previous research on peer learning in higher education has found that students are often resistant to group work, with conflicts commonly arising in relation to assessment and the division of labour. The evidence from our research confirms these findings, with a proportion of the cohort reporting some negative experiences of group work. Nevertheless, the majority of students reported positive overall experiences of learning from peers. For this cohort, the value of developing teamwork skills in an authentic learning context was seen to outweigh the perceived disadvantages.

Originality/Value: The case study represents an original contribution to research on peer learning, collaborative learning, and teamwork in Real Estate education.

Paper Number: 17

Conceptual understanding of sustainability in the Australian property sector

Sara Wilkinson, *University of Technology Sydney*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A5

The built environment is responsible for around half of total greenhouse gas emissions with the majority of emissions produced during the building lifecycle. As such the property sector has considerable potential to reduce lifecycle emissions and can contribute in mitigating global warming. Our existing conceptual understanding of sustainability is variable to the point of being disjointed and ambiguous. An excess of terms is used in connection with sustainability and property, such as ecologic, green, Gaian which fall in and out of use over time. The question is; do these terms mean the same thing or are they different? Moreover do firms in the Australian property sector demonstrate a clear conceptual understanding of sustainability or; are they confused? The outcome of ambiguous ideas and a lack of insight is that the property sector will be unlikely to bring about "˜sustainability' adeptly or even at all with more onerous costs for society.

Published information on property company websites regarding sustainability was analysed to address the questions; (a) what is the conceptual understanding of sustainability within the top 20 Australian property

firms and, (b) what is the implication of this level of conceptual understanding with regards to delivering sustainability?

Paper Number: 18

Urban renewal of a port city and the dynamic of house prices: An analysis of the I2 - convergence of prices on the redevelopment of the waterfront in Bordeaux City

Eric Le Fur and Benoit Faye, *INSEEC Business School*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C7

The phenomenon of led-gentrification concerns many port cities around the world. Technical and urban constraints forced the port operations to leave their original site leaving large areas in central cities. The authorities then implemented major projects whose ambitions are to restore an identity based on a new report from the city to its waterfront, and rebuilding a centrality degraded by port activity. We propose to produce a measure of results by reading the movements of prices in surrounding spaces with a Î²-convergence analysis. This analysis is developed in the case of the city of Bordeaux, with the exhaustive database on real estate transactions. It appears that the new identity unifies home prices and generates a new centrality by a gentrification in which the speed and distribution are still dependent on the historical structure of prices.

Paper Number: 19

CVaR optimization of real estate portfolios in an ALM context

Bert Kramer, *Ortec Finance*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H2

In this paper we show the result of an optimization study of sector and region allocation within real estate portfolios. The optimizations are performed in an ALM context. That is, we try to determine optimal allocations based on a funding ratio risk measure for Dutch pension funds. The risk measure we use is the Conditional Value at Risk (CVaR). In our optimizations, we assume a fixed portfolio for the non-real estate part and optimize the composition of the part allocated to non-listed real estate. We conclude that within Europe, the number of countries and sectors that appear in the optimal portfolio is limited. So the diversification gain from investing in a large number of sectors and countries is relatively limited within Europe. For countries outside Europe, the results are sensitive to changes in the input and assumptions. Furthermore, we conclude that high leverage is only acceptable when the underlying real estate market is very stable. Finally, although the optimal weights differ per type of pension fund, the countries and sectors that appear in the optimal portfolios are quite stable.

Paper Number: 20

Volatility interdependence in European securitised real estate markets: who is the most influential?

Kim Hiang Liow, *National University of Singapore*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C2

This paper investigates interdependence of weekly conditional volatility in 10 FTSE-NAREIT-EPRA European developed securitized real estate markets (The United Kingdom, France, Germany, Netherlands, Italy, Finland, Norway, Sweden, Switzerland and Spain) from November 1990 to December 2011. We first model the returns in a VAR-BEKK framework to obtain the conditional variances, and then apply the vector-autoregressive model (VAR) to the ten market variance, with focus on variance decomposition and volatility spillover index. Under the variance decomposition methodology, the decomposition of the forecast error variance determines explicitly how much of the conditional volatility movement in one market could be explained by other markets in terms of the volatility of the forecast variance of that market. Following the procedures developed by Diebold and Yilmaz (2007) (Measuring financial asset return and volatility spillover, with applications to global equity markets, http://ssrn.com/abstract=956918), a volatility spillover index is constructed for the full period, as well as for the recent global financial crisis period. This process hopes to reveal which real estate securities market is

the most influential in transmitting volatility to the other European securitized real estate markets. Finally, since international investors incorporate into their portfolio selections no only the return correlation structure but also the market volatility interaction, the results of our study can shed light on the extent to which investors can benefit from international real estate securities diversification in the European developed countries.

Paper Number: 23

Evaluating REIT exchange traded funds

Seow Eng Ong and Cheng Xiang Wong, *National University of Singapore*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F2

Since the inception of the first ETF - a broad-based domestic equity fund tracking the S&P 500 in 1993, Exchange Traded Funds (ETFs) have grown in acceptance and coverage. This paper examines the performance of REIT ETFs in terms of tracking the respective benchmarks and the effect of including REIT ETFs in a mixed asset portfolio. Our research shows that classical ETFs have high correlations with the NAREIT index and tend to provide better tracking while non-classical ETFs have higher tracking errors and deviation from net asset values. We also find that the allocation to REIT ETFs is significant when constructing efficient portfolios.

Paper Number: 24

Development viability appraisals: applying the residual method of valuation in a planning policy context

Charlotte Coleman, Neil Crosby, Pat McAllister, and Pete Wyatt, *University of Reading*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A3

Due to the requirement to demonstrate financial feasibility of policy proposals and scheme-specific planning obligations, development viability and development appraisal have become core themes in the UK planning system. Whilst there is an array of variations of the residual model that can be used to undertake financial appraisals of real estate development opportunities, development appraisal models and techniques have received little attention from the academic community. Most real estate development textbooks focussing on commercial property development outline and illustrate these conventional techniques. This, in turn, underpins their dominance in pedagogy, professional practice and commercial software. A critique of development appraisal models has evolved focussing on their oversimplified representation of reality and intrinsic theoretical weaknesses. However, there has been little critical analysis of the extent to which models are being applied in the context of the UK planning system. It is therefore timely to review the theory and practice of development appraisal in its emerging role at the centre of planning negotiations. The first section of this paper describes conventional development appraisal models and this is followed by a critique and a review of textbook applications of approaches to development financial appraisal and, drawing upon the corporate finance literature, the ways in which they violate the mainstream project appraisal. There is then an examination of practice followed by a discussion of the practical problems of using conventional approaches to development valuation to planning viability studies. Finally, conclusions are drawn.

Paper Number: 25

The credit channel, liquidity and house prices: Evidence from UK and Spanish housing markets

Paloma Taltavull de La Paz and Michael White, *University of Alicante, and Nottingham Trent University*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A6

Increases in mortgage lending, lower interest rates and increasing liquidity are considered to have caused house price increases. In this paper we test price behaviour focusing on the credit channel as a transmission mechanism for Monetary Policy. We examine the interaction between the housing market, the financial sector, and the macroeconomy both nationally and regionally, drawing comparisons between outcomes across the two countries. We find empirical evidence suggesting that liquidity effects are stronger in those regions where housing demand is stronger but not in others. Regional analysis shows how the effect of fundamental variables

are concentrated in some but not all regions and suggests that the bubble in house prices could be spatially disaggregated.

Paper Number: 26
The investment performance of freehold income trust
Stephen Lee, *City University, London*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F4
Investment in ground rents are coming to the attention of more investors, as continuing volatility in financial markets focuses attention on products paying stable returns. However, due to their operational nature, ground rents are often better managed over the long term by specialist operators that possess the relevant management infrastructure and a depth of knowledge that cannot be matched by individuals and generalist fund managers, hence there as been a growing interest in ground rent funds. Yet little, or nothing, is known about the investment performance of ground rent funds. This paper rectifies this issue by examining the returns of the oldest and largest ground rent fund in the UK, the Freehold Income Trust.

Paper Number: 27
Understanding the relative influence of local government interest groups within the domain of land use policy
Eric Heberlig, Suzanne Leland, and Dustin Read, *University of North Carolina at Charlotte*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F2
Regime theory, when applied to interest groups at the local level, predicts institutional groups to have consistent influence over policy decisions, whereas the influence of episodic groups is anticipated to be relatively random. The following paper tests this theory within the domain of land use policy using data collected from a national survey of American Planning Association (APA) members. A series of empirical models are estimated to assess local government planners' perceptions of aggregate interest group influence over land use policy decisions, as well as the relative influence of specific interest groups, while controlling for the mitigating effects of government structure and municipal characteristics. The results link regime theory to the existing land use policy literature and offer new insight into the politics of planning.

Paper Number: 28
Behavioral aspects of insurance purchase: Evidence from mortgage insurance
Ruben Cox, *Erasmus University*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H6
This paper examines behavioral aspects of insurance adoption by households, applied to mortgage insurance. Using a comprehensive dataset, I show that households who are more financially literate, more financially active, less risk averse and those with a higher locus of control are significantly less likely to purchase mortgage insurance, whereas households with bequest motives are significantly more likely to obtain insurance. In general, it appears that households who choose not to insure exhibit a greater degree of confidence in their financial knowledge and control over the consequences of their actions. Since these behavioral explanations are not mutually exclusive, a joint-analysis is conducted and it is found that especially financial literacy and locus of control are strong predictors of insurance adoption. The results are not explained by local housing market conditions, presence of financial advisors or effects of peers. House price expectations, concerns about future prospects and the current financial situation of the household were found to be insignificant.

Paper Number: 29
Convergence dynamics in international real estate securities markets

Kim Hiang Liow, *National University of Singapore*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B4

In this paper, we adopt the concepts of risk-return convergence and beta-convergence to measure and evaluate securitized real estate market integration for 16 FTSE-NAREIT-EPRA developed markets from North America, Europe and Asia-Pacific from November 1990 to December 2011. As securitized real estate market continues to expand in size, it represents an increasingly significant but not yet well-understood segment of the financial system in the global economy. We define real estate securities market integration to indicate convergence of returns and risks of the markets in different national economies. Specifically, the risk-return convergence concept is an extension of the sigma-convergence concept in the economic growth literature since sigma-convergence is unable to simultaneously evaluate the risk and return attributes of the data. In addition, beta convergence measures the speed of integration. If the markets' risk-return characteristics are found to "converge" significantly towards each other over time, then they have become more similar to each other in terms of risk and return performances. Moreover, if the risk-return convergence is accompanied by beta-convergence, it would imply that the securitized real estate markets are moving faster towards integration and consequently there is diminished long-run diversification opportunity in international real estate investing. Conversely, if the securitized real estate markets are found to have diverging risk-return characteristics over time, as well as accompanied by lower speed of convergence, then the gains from international real estate securities portfolio diversification should still remain attractive. Finally, we examine the empirical relationship between international correlation change and risk-return convergence to evaluate whether increasing correlation necessarily implies risk-return convergence.

Paper Number: 30

Planning regulations and their impact on European metropolitan commercial property dynamics

Ed Nozeman and Arno Van der Vlist, *Rijksuniversiteit Groningen*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F1

ABSTRACT

The authors aim to extend previous literature on variations in returns across local commercial markets by examining the linkage of commercial market dynamics (viz. dynamics in stock, vacancy and direct and indirect returns for offices and retail units) at the European Metropolitan level to planning regulations as an important element of the institutional structure of local markets. Previous literature suggests that return rates differ widely across local office markets, substantiating the view that returns are intertwined with conditions at the local level. Whether and to what degree differences in local markets relate to differences in planning regulations has not been addressed. This is the central issue of this research proposed. The research design consists of three coherent steps to address the central issue. Step 1 addresses the issue of how institutions may determine differences in commercial market dynamics. The literature on institutions and regulations is vast, however typically addressing housing market institutions. Yet, this literature forms a relevant source to draw on when considering how planning regulations and commercial market behaviour are intertwined. We use current contributions in the literature, culminating in a concise review of the literature on planning regulations and commercial market behaviour. Step 2 aims to measure the degree of differences in commercial market returns. We use a cross-country approach to first determine the degree of differences in local markets between countries. For this we use data across European Metropolitan areas.. Step 3 considers the interrelations between commercial market dynamics and planning regulations to explain the observed differences in step 2. For this we model commercial market dynamics now including the various types of planning regulations identified in step 1. These results will indicate which and to what degree regulations explain observed differences in local commercial market dynamics.

Paper Number: 33

Landmark buildings and diversification opportunities in the residential market

Gianluca Mattarocci and Lucia Gibilaro, *University of Rome Tor Vergata and University of Bergamo*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G3

Landmark buildings are outstanding constructions recognizable on the basis of their unique design, high visibility and/or extraordinary relevance for the country (Appleyard, 1969). Empirical analyses demonstrate that residential buildings designated as landmarks sell for a substantial premium over comparable properties (Noonan, 2007) and also a rent premium could be paid for "good" architecture (Hough and Kratz, 1983).

Literature points out the advantages related to diversification opportunities in a real estate portfolio applying the standard Market Portfolio Theory (hereinafter MPT) to this market (Pagliari, Webb and Del Casino, 1995). The main issue is the identification of the type of asset class in the real estate industry because diversification benefits of real estate investment can be accurately estimated only once the investment categories of real estate are sufficiently homogeneous (Hartzell, Heckman and Miles, 1986). In the residential market submarket specification has typically been performed on an ad hoc basis and researchers stratify a sample based on prior expectations related to municipal boundaries, school districts, racial divisions, or housing types (Goodman and Thibodeau, 1998). Studies on the trend of the price and rental yields for different types of residential buildings distinguish normally for the building size and the geographical area (Brown, Li and Lusht, 2000) and sometimes they discriminate between standard and luxury houses (Hui, Ng, Lau, 2011). No studies use also historical or artistic features as discrimination criteria in order to identify the residential asset class.

The paper contributes to existing literature about the intra-sector diversification opportunities in the residential real estate units focusing the attention on the distinctive features of the landmark buildings. Using appraisal data we point out some difference in the rent and appreciation yield of landmark buildings respect to other type of residential buildings and we demonstrate that, under the assumptions of the standard MPT, landmark buildings can play an important role in diversified portfolio with high risk / return profile. Nowadays, Real Estate Institutional Investors considers mainly the bigger landmark buildings in the office and commercial sector (i.a. Block, 2011) but results obtained demonstrate that also smaller investments in the residential sector could be reasonable on the basis of a portfolio optimization process.

Paper Number: 34

Compulsory purchase of properties: a comparative study of Polish and UK solutions

Marek Walacik, Richard Grover, and Sabina Źróbek, *University of Warmia and Mazury, and Oxford Brookes University*

Date: Friday 15th June
Time: 0900-1030
Parallel Session D3

Compulsory purchase (or eminent domain) is one of the last resort methods of land acquisition used in many countries. Since it infringes the property ownership right it is regulated both by international legal acts and legal acts in particular countries. As many scientific papers show different countries developed different rules of compulsory purchase. Some countries had to change their legal acts due to very important investment projects undertaken during last years.

These study compares different aspects of compulsory purchase systems of two countries that in the last few years carried out one of the biggest infrastructural investment in Europe: - Poland (the coorganizer of UEFA EURO 2012) and United Kingdom (the organizer of 2012 Olympic Games). It Describes legal acts regulating them, characterizes differences in land acquisition procedures and rules concerning compulsory purchase compensation determination.

Paper Number: 37

The effect of mineral interests on land appraisals in the shale-gas regions: The case of the Barnett shale

Joseph Lipscomb and J.R. Kimball, *Texas Christian University, and J.R. Kimball Inc.*

Date: Friday 15th June
Time: 0900-1030
Parallel Session D3

Mineral interests and the issues that appraisers must consider in regions impacted by shale-gas formations are the subject of this paper. The Barnett Shale in north central Texas is the example; however, the issues and concepts apply to many states with shale-gas formations. We emphasize the need for appraisers to focus on

mineral estates attached to or severed from subject properties when valuing land. The effects of severing the mineral estate from the surface estate and the resulting value implications, including the dominance of the mineral estate, are major topics in this paper. We conclude with an example of the sales comparison approach to estimating the value of land with and without the underlying mineral estate.

Paper Number: 38

Is second home price appreciation explained by production costs? Evidence from the Swedish second home market

Sacha Lategan, David Manase, Malawi Ngwira, and James Somerville, *Glasgow Caledonian University*

Date: Saturday 16th June
Time: 0900-1030
Parallel Session H7

A second home is a real estate asset primarily used for leisure, holiday and recreational purposes. It is per definition purchased by a buyer who already owns a primary home. Suggesting that it has one or more heterogeneously distinct characteristics which compensate for the quality of a primary home. Second home ownership is however often only achievable at the cost of a substantial housing investment due to appreciating prices. Despite this many buyers are willing and able to make this housing investment. No more so than in Sweden which has one of the world's highest second home per household ratios (approximately 50 percent) despite uninterrupted second home price appreciation between 1995 to 2010. Although second homes are a significant component of the aggregate housing portfolio in Sweden, their price determinants are under researched when compared to primary homes. This paper partly redresses this imbalance by examining the extent to which production costs determined second home price appreciation between 1995 to 2010. A two-tailed inversely formulated null hypothesis - 'Production had no or negative causality on aggregate second home transaction price appreciation' - is tested for this purpose. Both of the null hypothesis's inverse conditions are found to be untrue thereby verifying production's positive causality on second home price appreciation.

Paper Number: 39

Why do people buy second homes? A needs based review of second home purchase motives

Sacha Lategan, David Manase, Malawi Ngwira, and James Sommerville, *Glasgow Caledonian University*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G7

Diverse purchase motives are reported in the second home research literature. Among these are utilitarian considerations, increased opportunities for recreation and leisure, urban escapism, housing investment and the compensation hypothesis, i.e. the greater the degree of a primary home's urban density the more likely its owner will purchase a second home to compensate for this characteristic. The purpose of this paper is to apply the five level needs hierarchy proposed in Maslow's theory of motivation (1943; 1954) as a heuristic device to organise a narrative review of reported second home purchase motives. In accordance with the hierarchy, second home purchase motives can be conceptualised in terms of the satisfaction of psychological, safety, belonging, esteem, and self-actualisation needs. Once lower level needs are gratified, purchase motives are then motivated by higher level needs. Closer examination of second home purchase motives is merited as this provides an improved understanding of the demand forces that have driven the international increase in second home ownership since the 1950s. Additionally a behavioural needs based view of second home demand brings into focus that the decision to purchase a second home is, in most cases, driven by multiply motives.

Paper Number: 40

An analysis of time on market and advertised to sale price differences over time

Peter Rossini, Valerie Kupke, Paul Kershaw, and Stanley McGreal, *University of South Australia, and University of Ulster*

Date: Thursday 14th June
Time: 1100-1230
Parallel Session A7

This paper investigates the changes to Time on Market (TOM) and the advertised to sale price differential for a residential property market over a 10 year period using an extensive data set. The study is based in Adelaide, Australia which is a geographically isolated but active market with over 20,000 residential transactions each year. The study uses sales for detached dwellings from 2002 to 2011 and includes over 80,000 observations that result from combining sale transaction records from the South Australian Government, with details of property marketing collected from advertisements in newspapers and websites and available through a commercial supplier (RPData).
During the period of the study there were substantial regulatory changes affecting the practice of real estate agency as well as a change in the level of government subsidy partly as a result of the Global Financial Crisis. This paper uses time series analysis and charts to explore the effect of the regulatory and subsidy changes as well as investigating the seasonal changes to time on market and the advertised to sale price differential.

Paper Number: 41
Broker compensation patterns and trends: 2005 - 2009
Marsha Courchane, Rageev Darolia, and Peter Zorn, *Charles River Associates, and Freddie Mac*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D7
Abstract
Changes in the mortgage industry have been swiftly effected over the past few years. Many of the changes have come about as a response to the high level of observed delinquencies and defaults on residential mortgages as house prices plummeted and others have evolved from continuing concerns about the treatment of borrowers during the mortgage origination process. The segmented mortgage industry of the early part of the decade, with loans being originated in the prime, subprime and government mortgage sectors has been largely replaced with a bifurcated system. By year end 2010, the FHA/VA (government sector) combined with the conventional, conforming market share of originations was 90.8 percent. FHA lending standards are governed by the Department of Housing and Urban Development ("HUD") while in the conventional, conforming market lending standards are governed by Fannie Mae and Freddie Mac, or their conservator, the Federal Housing Finance Agency ("FHFA"). Both the conventional, conforming and FHA loan products can be originated in different channels either through a typical retail channel, or through a wholesale broker channel through brokers or correspondent lenders.
In this paper, we examine some of the observed trends and changes in the types and levels of broker compensation that existed before the regulatory change that brought about the implementation of the Federal Reserve Board's ("FRB") new loan officer compensation rule. Among other questions, we examine the variance in broker compensation across geographies, across lenders, across borrower types and across loan products. The intent of this ex post analysis is to provide an understanding of the potential impacts of the declining broker industry on both access to mortgage loans and on the pricing of mortgage originations.

Paper Number: 42
Office energy conservation by motivating occupants
Eeva Määttänen, *Aalto University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A5
Buildings account for ca. 40% of the total energy use in Europe. Energy management and energy efficiency issues are gaining more and more interest in the building sector. However, buildings still use more energy than necessary. The purpose of this study is to understand how the customers of energy management services perceive the value of energy management. The aim is to find out what are the strengths and the weaknesses in energy management service delivery. The study was conducted with a qualitative interview method. The results present three categories of characteristics that represent energy management service delivery: information, split incentive problem and professional skill. The weaknesses of energy management service delivery show as challenges in information flow, lack of information, split incentive problem, key-personnel turnover and full utilization of energy management expertise. The strengths of energy management service delivery show in the high appreciation of the professional skill of the service provider.

Paper Number: 43

Do landlords discriminate against families with children?

Jane Londerville, *University of Guelph*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F7

There is considerable anecdotal evidence that families with children, particularly single parent families, face prejudice from landlords when attempting to rent apartments. The same applies to lower socio-economic class families versus those with higher socio-economic status. This research attempts to measure the extent to which this prejudice exists.

Using the Craigslist site for Toronto, Canada, two e-mails were sent to each landlord offering a unit for rent to measure reaction to two different types of tenant households. The various categories of households are shown in the chart below.

Socio-Economic Status:

High

Low

Household type:

Couple

Single Parent w/ Kids

Married Couple w/ Kids

Whether a response is received and the time to respond is recorded for each e-mail sent. As well, the tone and content of each e-mail is analyzed. For example, a landlord could be sent an e-mail from a couple and a couple with children to examine differences in response to families with children. Alternatively the landlord might be sent an e-mail from a high socio-economic couple and a low socio economic couple to examine differences in whether and how long it takes to respond. Socio economic class was indicated through grammar, spelling and amount of information provided in the e-mail. The percentage of responses received by each group and the response time difference measures whether landlords respond differently to one group or another. Content of the e-mails will also be analyzed.

Paper Number: 45

Value-at-risk: A specific real estate model

Charles-Olivier Amedee-Manesme and Fabrice Barthelemy, *University of Cergy-Pontoise*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A4

Value at Risk is a convenient and popular risk measurement tool. It represents the maximum potential loss on a specific portfolio of financial assets given a specific time horizon and a confidence interval. Principally Value at Risk is used in finance for risk management, financial reporting and capital requirement. In real estate, the calculation of this risk measurement is still rare even if it is now common to compute and disclose it in numerous other fields of finance.

In particular, this calculation is even rarer in the case of direct real estate. In this paper we review the major issues face by real estate academics and practitioners to determine the Value at Risk of real estate investments. We propose a new methodology that we believe is more accurate and more relevant to compute Value at Risk of real estate portfolio. This model allows taking into consideration the specificities of a real estate portfolio such as the type of properties, the lease structures, the obsolescence or the possibility of vacancy. We analyze to what extend our proposed model allows a better Value at Risk assessment. To do so, we introduce the components of our model step by step, foremost by proposing the use of bootstrapping method, then by introducing the lease structure, then the possibilities of vacancies and finally the obsolescence of the properties. Lastly we propose a way to link all these characteristics in order to compute a relevant Value-at-Risk.

After a brief review of literature on Value at Risk especially related to real estate, the paper describes the main methods used to compute Value at Risk. We then introduce a new model to compute Value at Risk of real estate investment. We test and compare the proposed model against the historical one. We conclude with a sensitivity analysis.

Paper Number: 46

The affordable housing policy in Jos, Nigeria: A diminishing dream after 35 years

Samuel Wapwera, Ali Parsa, and Charles Egbu, *University of Salford*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H8

This paper evaluates the low-cost housing program in Jos, Nigeria and the challenges faced by the government in meeting its stated targets.

The purposive random sampling has been employed to select the local government areas that have the Low-cost housing in Jos Metropolis. Utilising secondary data based on the 2006 National population census data, National Housing Policy (NHP), National Housing Fund (NHF) and the Land Use Act, of 1978 the study will analyse the quantity of housing delivered by each local government. The result of the data analysis shows that the housing policy and program has not met the stated goals. As the policies and programs of government administrations did not satisfy the quest of the average Nigerian for housing due to lack of political will, the study recommends measures that would reduce the challenges and the way forward to ensure sustainable and affordable housing in Jos, plateau state.

Paper Number: 47

The effect of urban infill residential development on housing prices

Velma Zahirovic-Herbert and Karen Gibler, *University of Georgia, and Georgia State University*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C7

Urban residential infill development is a controversial topic in many cities. Supporters point to social value of replacing vacant lots and run-down buildings with housing for residents who help stabilize and improve inner city neighborhoods. Economic benefits include increased property tax revenue. Among the complaints levied is that the houses often overbuild the neighborhood creating McMansions or Starter Castles that are more expensive than the existing neighboring houses, driving up values and resulting in increased property taxes and rents, which may displace elderly and low-income residents who are priced out of the market. To examine the impact that residential infill has on urban neighborhoods, we use a hedonic model to estimate the influence of both scattered and concentrated new construction on the sales prices of existing houses over a 15-year period. We also look at whether construction of homes of larger scale than average houses in the neighborhood has a positive or negative impact on the sales price of existing houses. The results explain the nature and level of influence that residential infill development has on surrounding property values and provide policy guidance as to whether scattered or concentrated infill development will lead to greater positive externalities.

Paper Number: 48

Land leverage dynamics in property markets

Greg Costello and Chris Leishman, *Curtin University, and University of Glasgow*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F6

This paper examines the Land Leverage Hypothesis through a detailed study of data from the city of Perth, Western Australia. Through the land leverage framework, this paper examines property assets as a form of composite asset where major components of value are commonly classified as comprising a land and an improvements (structural) component as relevant proportions of the total value of the asset. The term, Land Leverage, reflects the proportion of total property value embodied in the value of land as distinct from improvements. The research is performed in two ways; a market approach where it follows transactions of vacant land through subsequent improved transactions, and an assessed value approach where it utilises a significantly larger sample with local assessment records for land value as at the date of transaction. The results confirm significant land leverage influences within the aggregate Perth housing market over the sample

period 1988-2011 and significant variation in the pattern of land leverage dynamics when the housing market is disaggregated, both in terms of the age of the housing stock and spatial region. Another feature of the results confirms significant temporal influences for land leverage. These results have important implications for housing market analysis. The results indicate the importance of considering land leverage as a "fundamental" influence in housing markets, most relevant within the context of measurement of house prices and identification of rationality in housing markets within the context of either existing or potential housing price "bubbles". These results also suggest that there are important implications for the interaction between housing and financial markets. Land price dynamics play an important role in connecting housing wealth to financial markets. As the land component of home value has increased over time, housing as an asset class appears to have become a more volatile financial asset due to the influences of increasing land leverage with resultant implications for capital markets and personal wealth portfolios.

Paper Number: 50

Investor attention for retail and institutional funds: a test on the real estate market

Georgios Siligardos and Gianluca Mattarocci, *University of Rome Tor Vergata*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C2

Attention is a scarce cognitive resource (Kahneman, 1973) and investors' limited attention can affect asset pricing statics as well as dynamics (Peng and Xiong, 2006). Literature on the measurement of the investor attention proposes indirect measures based on market data or news.

Market proxies are identified by the extreme returns (Barber and Odean, 2008), trading volume (Gervais, Kaniel, and Mingelgrin, 2001), and price limits (Seasholes and Wu, 2007).

News and headlines represent a more direct approach for the investor attention measurement, under the assumption that the analysis of financial/economic newspapers or websites, influence significantly the investor attention (Yuan, 2008).

Da, Engelberg, and Gao (2011) proposes the first direct proxy of the investor attention based on a aggregate search frequency in Google. The approach proposed by the authors is assumed as an appropriate proxy of the investor attention only for retail investors but no empirical evidence support this assumption.

Real estate funds represent the main indirect real estate investment opportunities for the European market and in some countries (Germany, Italy, etc) fund managers can offer products to all investors or restrict the subscribers only to institutional investors (Hoesli and Lekander, 2008). The role of institutional real estate funds for these markets is not residual on the basis of the number of products offered and on the basis of the asset under management (Scenari Immobiliari, 2010).

We test the different usefulness of the Google proxy for real estate fund available to retail investors respect to those reserved to institutional investor. Considering data collected from Google insight and Factiva for the time period 2004-2011, we compare the measures of investor attention for all the Italian funds reserved to institutional investors respect to other funds. The results of the Google measures are correlated with news concerning both institutional and retail funds. From our analysis emerged that the correlation is higher and more significant for the institutional funds and the availability of news implies an increase of the amount of research made on Google search engine.On the basis of the results achieved, also institutional real estate funds have to consider their visibility on the Internet because any news can cause an increase of the investors' attention to all the information available on Internet.

Paper Number: 51

The place of long income property in real estate portfolios

Ed Trevillion, Jon Bailey, and Farida Namata, *Scottish Widows Investment Partnership*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A2

The paper argues that a balanced real estate portfolio ought to extend the concept of diversification beyond the traditional sector and geographical approach to include a consideration of lease profile. While sector and geography are clearly important diversification factors, investment decisions need to take account of the wider risk profile and results can be counter-intuitive because of the mediation role of supply on economic and other

market drivers of property performance. Lease profile offers a further diversification route and in this context the paper revisits the reasons why lease lengths have changed and the place of (and potential for) long income property in balanced institutional portfolios. The article also considers the implications of new accounting rules and how these might limit use of such property in real estate portfolios.

Paper Number: 52
Sharia compliant real estate finance
Ali Parsa and Azadeh Farhoush, *University of Salford*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G4
According to the latest report by Ernst & Young, Islamic finance assets are expected to hit $1.1 trillion in 2012. This is equal to 33 percent growth from their 2010 levels. With the diminishing of conventional sources of finance, Islamic compliance finance and investment offer attractive potential for global real estate. This paper examines the different methods of Sharia compliant finance and explores their application to real estate finance and investment in Iran and Dubai. Utilising interviews in Iran, Dubai and Germany the paper will compare the different methods of Ijarah financing in the Middle East. This in turn is compared with conventional method of real estate financing.
An important result of this study is that ijarah is, in general, not so different from conventional leasing. Although Iran is an Islamic republic operating within an Islamic law for the banking system which prohibits interest exists, interest is still to be found. This shows that changing the legal situation does not suffice to eradicate interest. Ijarah in particular offers the possibility of using an asset for a longer period of time without buying it and therefore it is an alternative to credit financing. It is a famous financing method and an alternative to murabaha, which has been used often. In addition, it is very similar to conventional leasing andfacilitates the shrinkage and closing of contracts for conventional institutes. Thus, it is preferred by conventional financial institutions which are trying to position themselves on the Islamic market.

Paper Number: 55
Current issues in real estate management
Ryszard Zrobek, *University of Warmia and Mazury*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D9
The importance of real estate management as a part of spatial management system is not arguable , as real estate resources are limited and sustainable development requires rational allocation. The interdsciplinarity of real estate management sector and the necessity of relations among varius levels of govermental and local administration should be underlined. Basing on own detailed studies conducted in 2000-2010, and additonally on results of researches published by FIG and FAO , in this particular article some dilemmas and directions for solutions regardinng active real estate management were also highlighted.

Paper Number: 56
Adding value through corporate real estate asset management alignment
Barry P Haynes, *Sheffield Hallam University*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H9
Purpose: This paper aims to evaluate the relationship between corporate strategy and corporate real estate strategy
Design/methodology/approach: The paper will identify, and evaluate, a number of components that collectively form the corporate real estate strategy. Linkages between the business environment, the aims and objectives of the organisation and the real estate solution will be explored.
Findings: The paper will illustrate the alignment of the CRE strategy to the corporate strategy through the development of a corporate real estate alignment model. The model will demonstrate that only when optimum

alignment is achieved can the corporate real estate strategy deliver added value and enhanced organisational performance.
Practical Implications: CRE managers can use the model to evaluate the alignment of their CRE strategy with their corporate strategy
Originality/Value: The paper fills a void by proposing a framework that seeks to identify the true impact of real estate to business by examining the benefits of optimal alignment between, planet, position, purpose, place, paradigm, processes and people to produce performance and productivity.

Paper Number: 57
New Zealand local government initiatives and incentives for sustainable design in commercial buildings
Mark Perkins and John McDonagh, *Lincoln University*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C5
Concern for all aspects of environmental sustainability is advancing rapidly as the evidence of potentially devastating climate change mounts. One response to this concern is for local governments responsible for enforcement of building controls to encourage environmentally sustainable commercial building design via various initiatives and incentives. In this research an international literature review was undertaken to identify what initiatives and incentives have been trialled in different countries. This was followed by survey to gauge the degree to which these incentives and initiatives have been implemented in the New Zealand local government context. All territorial authorities were invited to respond and a response rate of 46% was achieved. A low degree of implementation was reported by the respondents that contrasted with a high level of interest and willingness to try more initiatives and incentives. A number of reasons are proposed for this low implementation rate. These include; a lack of both financial and human resources to effect implementation, as well as a lack of clear long-term goals and an integrated set of sustainability policies across the different levels of government.

Paper Number: 59
Regional differences in housing price dynamics: panel data evidence
Elias Oikarinen and Janne Engblom, *University of Turku*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D6
The aim of this study is to examine empirically the regional differences in housing price dynamics by estimating panel data models that allow for regional variation in the dynamics. In particular, we investigate whether there are large regional differences in the housing price "momentum" ("bubble builder") and in the speed of adjustment of housing prices towards their long-run fundamental level ("bubble burster"). Using annual data for 14 Finnish cities for the period 1988-2009, we estimate fixed-effects models that include both main effects and interaction effects to allow for regional differences in the dynamics. While, the results indicate that the differences across regions are generally quite small in Finland, the analysis shows that the adjustment towards the long-run sustainable price level is significantly slower in the Helsinki Metropolitan area (HMA), the largest urban area in the country, than in the other cities. The results also provide evidence for cointegration between housing prices and income.

Paper Number: 62
Ad valorem - new challenges to a very old tax
Michael Hefferan, *University of Sunshine Coast*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D7
Property and wealth taxes based on real property value (ad valorem) represent one of the oldest and most resilient forms for government revenue raising globally. The fundamentals of assessment are established in

international valuation standards. Over recent decades however the overall valuation approach has undergone increased scrutiny and, in some jurisdictions, challenge.
In many cases, existing legislation is dated or at least based on approaches that extend back many decades. Particularly in urban environments where valuations of all types have become more complex given the specialised land uses that have emerged. These changes create difficulties in the application of the established mass appraisal assessment techniques whilst also ensuring that the individual characteristics of each property is recognised and the rights of the individual owner to object or appeal to proposed values are respected.
Regional shopping centres sites are often identified as exemplifying these problems however, in practice there are many other properties with central business districts, development sites, airports, heritage sites, tourist resorts and a range of others - that are often involved. Their specialist use and their development parameters often result in considerable difficulty in establishing relationships with surrounding properties using accepted mass appraisal techniques.
This paper explores the nature of these changes and recommends ways in which mass appraisal valuation techniques can be adapted to better address contemporary circumstances. It draws particularly from very serious challenges to the land valuation/mass appraisal system in Queensland, Australia over the past five years and how innovative changes have been applied to improve both valuation methodology and the application/administration of the scheme. These changes appear to have had significant benefits in assisting with consistency of the valuation approach and systems and in restoring the confidence of stakeholders. A number of these innovations may have relevance to other jurisdictions.

Paper Number: 63
Predictibility of downturns in housing markets - A complex system
Maximilian Brauers, *European Business School*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D6
This paper applies a complex system approach to predicting downturns in housing markets. We test the Log-Periodic-Power-Law (LPPL) model on 20 years of housing price data over nine regional subsamples within the U.S. We propose a new restriction to the model to remedy estimation issues due to the low frequency of house price data. We find that the restricted LPPL model well describes the times before the downturns. The out of sample predictions of the timing of the downturns lie within a narrow time span. With the restricted model we achieve a high success rate in issuing predications before downturns and not issuing predictions before no downturns.

Paper Number: 65
Inside a bubble and crash: Evidence from the valuation of amenities
Ronan Lyons, *University of Oxford*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A1
The housing market is one of the most important markets in any economy, constituting typically both the most important class of consumption good and the most widely held investment asset. The origin of the Great Recession in the U.S. housing market has shown the importance of linkages between housing and the wider economy. Yet not only are these links poorly understood, so too are the mechanics of the housing market itself. Property-specific attributes aside, the housing market is an inherently spatial one, with location choice and price determined by bundles of amenities. This paper examines four issues related to understanding housing markets and their cycles. To do so, it uses a rich dataset of one million property listings in Ireland, from the end of bubble in 2006 to 2011, by which time property prices had halved. The dataset covers not only bubble and crash periods, but also sales and lettings segments and urban and rural markets. It finds, firstly, that over twenty location-specific amenities, in five broad categories from environmental to market depth, are reflected in costs of accommodation. Signs are in accordance with expectations, once congestion and flooding effects for certain amenities are considered. Secondly, it investigates whether amenities are subject to Tiebout-style sorting and income elasticities. It finds that the price of most amenities is indeed amplified in urban markets.

Thirdly, it exploits coverage of both sales and lettings segments to investigate whether the relative valuation of amenities differs between prices and rents. It finds that typically there is a greater valuation of amenities in the sales segment than in lettings. This is indicative of either indivisibilities related to tenant search costs or a desire on the part of buyers to lock in access to amenities. Such lock-in concerns would be reflected in procyclical amenity prices. The final contribution of the paper is an investigation of whether amenity valuations vary with the market cycle. While there is no one clear overall picture from the amenities included, there is more evidence in favour of countercyclical amenity prices, a "property ladder" effect, than procyclical prices and the desire to lock in access to amenities.

Paper Number: 66

Macroeconomic risk factors in Turkish REIT returns

Isil Erol, *Middle East Technical University*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I2

The asset pricing models affirm that the expected returns of securities are related not only to the risk premiums associated with the macroeconomic factors but also to their sensitivities to those macroeconomic factors that can also vary over time (Karolyi and Sanders, 1998). This paper employs a multiple-beta asset pricing model to explain the variation in Turkish REIT returns. The legal framework for the Turkish REITs was introduced in 1995 by the Capital Market Board. This date is much earlier than those for France, UK, Japan, and several other developed countries. Turkish REITs do not have to pay out dividends, yet enjoy the exemption from paying corporate taxes. This notable structural difference has considerable impacts on the performance of REIT industry in Turkey. Empirical evidence shows that Turkish REITs' inflation-hedging characteristics and systematic risk (time-varying beta) behaviour have been significantly different from other common stocks listed in Istanbul Stock Exchange. The purpose of this paper is to identify the fundamental macroeconomic drivers or risk factors that systematically affect real estate returns in Turkey. The results show that inflation risk premium explains a significant proportion of the total variation in REIT returns. On the contrary, both the stock and bond market risk premiums capture only smaller portion of the variations in real estate returns.

Paper Number: 67

Does public investment spur the land market? New evidence from transport improvement in Beijing

Wen-jie Wu, *London School of Economics*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A9

Over 140 billion RMB (1GBP=10RMB) has been spent between 2000 and 2012 in Beijing on the construction of new rail transit lines. Such massive investment allows me to examine the consequences of local public goods improvements for land prices near new stations. Conventional hedonic techniques for estimating amenity values mask the changing nature of geographical links between land parcels and stations induced by rail transit expansions. This analysis, illustrated with estimates using rich micro-geographical data from Beijing's emerging land market, has three important implications.

First, it improves on the previous difference-in-difference methods by providing a framework that not only exploits changes in the parcel-station distances that happen when new stations are opened, it also highlights the importance of price changes in planned station areas.

Second, it documents that the station proximity impacts on residential and commercial land prices generally decay with distance in heterogeneous non-linear trends. Thus this study clarifies the importance of conceptualizing amenity values not just in terms of its structural characteristics but how those characteristics interact with or are conditioned by local socio-demographics, and other location-specific characteristics.

Finally, beyond an obvious academic interest, the question of whether rail transit improvement has a substantial affect on land values has tremendous policy implications: showing complementary effects between public investment and private sector investment. However, if this is the case in the BRICS countries? My paper presents the first attempt to show that residential and commercial land parcels that receive increased station proximity experience appreciable price premiums, but the relative importance of such benefits varies over

space. At the minimum, these results suggest that public investment did spur the spatially targeted land market.

Paper Number: 70

Liquidity black hole and optimal behavioural model: an applied case

Gianluca Marcato and Giovanni Tira, *University of Reading*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D4

In turmoil periods, market liquidity can experience sudden dry ups connected with significant price movements. This unexpected change in liquidity patterns, often driven by irrational investors' behavior, is normally defined as Liquidity Black Hole (LBH). So far relevant research in this area explored macro-market level interactions rather than micro-agent decision making processes. In this study we show - both theoretically and empirically - that the LBH effect at market micro-level is originated by agents' decisions made at mutual fund level. We present a model of investors' behavior based on heterogenous expectations of market risk and return. The causes of a LBH are analyzed and the model is also applied to a specific mutual fund setting where leverage is allowed, but shortening the asset is forbidden (i.e. real estate mutual funds). Price creation is modeled both endogenously and exogenously. We show that the relationship between fund flows and expected liquidity risk follows an exponential function. Finally, we demonstrate that areas of absolute LBH exist and cannot be hedged. In those areas neither the available "cashlike cushion" nor the managerial skills of the market maker can avoid the "economic failure" of a fund.

Paper Number: 72

Access to literature in real estate education: Libraries and related solutions

Bob Martens, *Vienna University of Technology*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D8

As early as 1994, the Singapore government realized that more residential land would be needed to cater to the housing needs of a rapidly growing population. It decided to increase the intensity of land use by relaxing restrictions in the acquisition of development sites by private developers. Besides releasing new Development Guide Plans in 1994, it also amended the Land Titles (Strata) Act in 1999 to facilitate the process of land acquisition by private developers. Amendments to the Act were successful in facilitating en bloc sales (collective sales). These collective sales enabled owners of apartment units (subsidiary proprietors) to reap enormous gains compared to selling their units individually.

The amendments however, led to a tyranny of the majority (subsidiary proprietors) and abrogation of property rights of the minority (subsidiary proprietors). Minority owners who objected to the collective sales were often out-voted and had to sell their apartments. An analysis of cases before the Strata Titles Board from 2000 to 2009 show that amendments to the Act have not been successful in addressing issues such as majority rule, good faith and technicalities of the sale process. It is suggested that amendments to the Act have to be dynamic in order to balance the majority and minority rights of the subsidiary proprietors.

Paper Number: 74

Tax incremental financing: the key ingredients

Norman Hutchison, Alastair Adair, Jim Berry, Martin Haran, and Stanley McGreal, *University of Aberdeen, and University of Ulster*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D4

Amidst ongoing economic austerity, the UK government faces a significant challenge to fund major infrastructure projects. In many areas, market based solutions are not possible due to the scale of infrastructure required, at a time when land values are declining and occupier rents and yields remain uncertain. In order to create the conditions for growth, intervention by the public sector is considered an

essential part of the solution. Tax Incremental Financing (TIF) is seen as a possible funding mechanism and is currently being promoted through parliament as part of the Local Government Finance Bill 2012.
TIF is not a new concept having been introduced in the US in the 1950's and there is a significant evidence base to inform current thinking. Based on research funded by the RICS, this paper critically examines the TIF models that are operational in the US to identify lessons that can be learned prior to possible adoption in the UK. The paper considers issues over designation, legislation, implementation and proliferation as well as the variety of risk sharing schemes adopted and the methodology used to measure performance.
Using a case study approach, the research considers the key issues surrounding the introduction of pilot TIF schemes in Scotland and in Battersea, London and responds to the implementation process promoted by the UK government. The paper provides guidance on the key ingredients for a successful TIF and makes recommendations on the way forward.

Paper Number: 75
City rents in a global context
Richard Barkham and Maurizio Grilli, *Grosvenor*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D1
There is a great deal of variation in the 'prime' or 'Grade A' rents achieved in different cities across the world. The level of economic development, as proxied by GDP or GDP per capita is an important explanator, but it is by no means the only one. Many cities in advanced nations have relatively low rents given their size and economic output because of poor infrastructure and low standards of liveability. The data now collected and published by international real estate consultants on prime rents at the city level has begun to make it possible to describe and analyse the main reasons why rents vary between cities.
This study looks at rents in the retail, office and residential sectors and assesses the relative importance of factors such as GDP, population, population density, liveability and connectivity in determining city rents. Liveability is defined in terms of the availability of educational and medical facilities, good policing, good governance and other public goods. Connectivity is measured by the presence of multinational service sector HQs. The key drivers of global rents are identified. They are not the same for offices, retail and residential property. On the presumption that high rents are somewhat related to economic and social success, which is admittedly controversial, this paper is able to make some suggestions as to how cities can improve themselves.

Paper Number: 76
A segmentation study on global real estate market
Ali Hepsen and Metin Vatansever, *Istanbul University, and Yildiz Technical University*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D7
In the last decade, globalization has increasingly involved the internationalization of services sectors as much as of manufacturing, and the various sub-sectors of the real estate industry have been enthusiastic participants in this global area. Builders, brokerage firms, consulting and services firms, real estate finance firms and property investors have extended their area of operations beyond local markets to a world-wide base. From this point, it is important to understand the global real estate market. The main purpose of this study to determine homogeneous housing markets base on countries where house price indices move together. By clustering the housing markets, managers in multinational corporations can better understand the basis for similarities and differences between countries' housing markets. With this knowledge, they can select appropriate market areas and formulate efficiently diversified investment portfolios. Clusters also can help academicians, property investors by defining the extent to which results should be generalized to other countries. Properly employed results from one country can be generalized to the entire group of countries sharing a particular variable within the same cluster.

Paper Number: 77

Amsterdam: A just housing market? Measuring the 'justness' of Dutch housing market policy

Frans Schilder and Leonie Janssen-Jansen, *University of Amsterdam*

Date: Friday 15th June
Time: 1330-1500
Parallel Session F7

Among international urban scholars and professionals, the City of Amsterdam is often characterized as a competitive global city with a high degree of social justice (Fainstein, 2010). The Dutch housing market is characterized by a high degree of government intervention. Housing policy in the rented sector has traditionally been aimed at affordability which has resulted in a very large stock of social housing (Whitehead & Scanlon, 2007). In the discourse on housing market justness Amsterdam's huge stock of social housing in the core is said to offer substantial social benefits and increasing equity. Meanwhile, there is limited accessibility to social housing and high levels of competitiveness in the owner-occupied sector (Neuteboom & Brounen, 2011). The Dutch housing market in general, and the Amsterdam market in particular might thus not be as just as it often appears to be to urban scholars.

Starting from the assumption that a just housing market implies a certain balance between accessible housing stock and competitors for housing in a housing market region, we develop a metric to operationalize the concept of justness. We use this metric to assess the justness of the Amsterdam region and 39 other regions in The Netherlands. The metric is created using two large datasets from the Housing Needs Survey. Based on the waves of 2002 and 2009 we will compare the region of Amsterdam with results from other regions in the Netherlands, where we expect to find more just housing markets. Moreover, due to institutional changes in the period covered by our data we expect justness to decrease over the period surveyed.

References in abstract:

Fainstein, S. (2010) The Just City. Ithaca: Cornell University Press.

Neuteboom, P. and Brounen, D. (2011) Assessing the Accessibility of the Homeownership Market. Urban Studies, vol. 48 (11), pp. 2231-2248.

Scanlon, K., and Whitehead, C. (2007) Social Housing in Europe. In: Whitehead, C. and Scanlon, K. (eds.) (2007) Social Housing in Europe. LSE London.

Paper Number: 78

Booming housing markets, dying communities: mining led population growth in regional Australia

Steven Rowley, *Curtin University*

Date: Friday 15th June
Time: 1330-1500
Parallel Session F7

The mining sector was credited for saving Australia from the worst of the Global Financial Crisis. However, the wealth generated by mining does not come without cost. Much of the mining activity is concentrated in remote areas of Australia with regional towns experiencing dramatic changes resulting from new mining activity or an expansion of existing exploitations. Such areas have limited resources when it comes to preparing for what can be a very rapid population expansion. For example, local planning departments in remote towns are often understaffed and lack the skills and resources to plan for large scale land release on the back of unknown population growth. In order to deal with population growth of perhaps 5% per annum, not to mention the transient worker population housed in workers camps, towns need new land and housing supply as quickly as possible to avoid rapid house price and rent growth. Remote towns do not have surrounding housing markets to absorb new demand as often there are no neighbouring housing markets within hundreds of kilometres. As a result, demand shocks are translated directly into price and rent rises. Where there are small satellite towns, prices ripple outwards as residents on low incomes are forced out of private rental accommodation in the main town and seek affordable accommodation elsewhere. This paper uses a number of case study examples to illustrate how mining activity has had a dramatic impact on local housing markets and the communities within the towns, for example population displacement, non-mining sector business closures and social issues such as alcohol abuse. Conversely, many residents have benefited from massive price rises and net rental returns in double figures. This paper also documents State government responses and how lessons have still not been learnt from past mistakes.

Paper Number: 79

The determinants of redeveloping sites in a city: the Taipei experience

Tzu-Chin Lin and Yu-Hsiang Tsai, *National Chengchi University*

Date: Thursday 14th June
Time: 1330-1500
Parallel Session B1

In a city where land is scarce, this city cannot continue growing to accommodate increasing households or firms without re-use of developed sites. Even if this city is not growing, land uses might still need to be changed to adapt to new economic and social environments. To say the least, buildings need to be replaced at the time when they reach the end of their economic life. Taipei, similar to all high-density cities, has to cope with its rapid growth and economic transformation through the teardown and erection of buildings. Naturally, how a city grows largely depends on the way old buildings are replaced by new ones. This paper sets out to investigate the underlying factors that determine the replacement of buildings. The data sets analyzed include the official records of permits to demolish and to erect a building, together with the tax roll of buildings. This building-related information allows us to trace the trajectory of urban growth over time and across locations. Buildings are viewed as not only an economic asset but also brick and mortar. It is expected that three categories of determinants are at play; they are trend of housing price over time, local amenity level (public services, access to transport nodes) and building age. The macro, .locational and physical factors together determine the way how buildings are succeeded and consequently how a city grows.

Paper Number: 80

Underwater mortgages and mortgage default risk in a recourse market

Frans Schilder and Marc Francke, *University of Amsterdam*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G6

House prices have risen steeply globally during the late 1990's and early 2000's and, since the global financial crisis, decreased again. Meanwhile, household debt has increased to unprecedented heights in many countries. Increased leverage combined with decreasing property prices results in increasing numbers of households finding their mortgages "˜underwater': i.e. the outstanding mortgage debt is higher than the value of the dwelling. Theory predicts that households with underwater mortgages, possibly taking into account certain transaction costs, would default on their mortgage (Elul et al., 2010).

Indeed, mortgage delinquency in general and mortgage default in particular is increasing in the U.S. (Guiso et al., 2010). Recourse is a strong deterrent for defaults, which would help explain the low levels of defaults observed outside of the U.S. (Feldstein, 2008). In light of the fact that so many households are underwater, Thaler (2010) believes the default rate in the U.S. is surprisingly low. Development of negative equity is thus a necessary, but insufficient condition to explain mortgage default risk. In fact, Neuteboom (2008) reports recently moved households in The Netherlands, despite higher average leverage, to be not of additional risk; he explains this by the risk assessment procedures of lenders that assure, at least in the short run, the serviceability of mortgage debt. Regional development of negative equity might therefore be only a partial indicator of increased mortgage default risk.

In this study we seek to explain what makes households get underwater and to what extent the prevalence of underwater households affects mortgage default risk. We analyze a panel and a quasi-panel dataset covering both pre-crisis and current household information.

References in abstract:

Elul, R., Souleles, N.S., Chomsisengphet, S., Glennon, D., and Hunt, R. (2010) What "˜Triggers' Mortgage Default? Federal Reserve Bank of Philadelphia Working paper.

Feldstein, M. (2008) How to help people whose home values are underwater "" The economic spiral will get worse unless we do something about negative equity. Wall Street Journal, November 18th.

Guiso, L., Sapienza, P., and Zingales, L. (2010) The determinantis of attitudes towards strategic default on mortgages. EUI Working Paper.

Neuteboom, P. (2008) On the rationality of borrowers' behaviour: Comparing risk attitudes of homeowners.

Thaler, R. (2010) Underwater, but Will They Leave the Pool? NY Times 01/24/2010

Paper Number: 81

Delivering high density development in a low density city: the challenges faced by Perth, Western Australia
Steven Rowley, *Curtin University*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I7
The metropolitan region of Perth, Western Australia is home to around 1.6 million people with the population expected to grow to 3.5 million by 2050. Perth is characterised by very large, detached dwellings which make up around 80% of the overall housing stock. This contributes to a population density of around 1,000 people per square kilometre, around half that of Sydney. If the region continues with the current pattern of development Perth will need 3,000km2 to accommodate the population in 2050, doubling the size of the existing area. Perth already experiences significant traffic congestion and infrastructure capacity issues due to the narrow spread of development along the coast. Strategic planning documents highlight the need to increase the density of the region by doubling the current rate of infill development. Achieving this target presents a number of significant challenges, largely because the region is not familiar with the construction of medium and high density dwellings and the widespread public opposition to intensification within existing suburbs. This paper discusses the findings of a series of investigative panels held in Sydney and Perth which evaluated ways to overcome the barriers to infill development, particularly the challenges of delivering diverse and affordable housing in Perth, vital given the median house price in Perth is around $500,000 (£340,000). Framed within the context of the development process, the paper examines a series of recommendations at each stage of the process which could stimulate infill development. Analysis of Sydney, a city with a long history of successful infill development, offers a contrast. However, the paper describes how Sydney currently faces significant barriers to residential development, barriers very different from those present in Perth, many of which were caused by the global finance crisis with potentially long lasting implications for the housing market.

Paper Number: 82
Examination of property forecasting models - accuracy and its improvement through combination forecasting
Arvydas Jadevicius, Brian Sloan, and Andrew Brown, *Napier University, Edinburgh*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A1
This paper investigates property forecasting accuracy and its improvement. As it suggests, despite increased sophistication of property market modelling and forecasting, there still remains a degree of inaccuracy between model outputs and actual property market performance. Subsequently, the paper presents the principle of combination forecasting as a medium helping to achieve greater predictive accuracy. The research implements combination forecasting principle. It assesses whether combination forecasts from different forecasting techniques are better than single model outputs. It examines which of them - combination or single forecast - fits the UK property market better, and which of these options forecasts best.

Paper Number: 83
The incidence of characteristics in housing prices and offer prices
Elena Fregonara and Patrizia Semeraro, *Turin Polytechnic*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C7
Traditionally the appraisal of house prices is conducted through hedonic approaches: the price is explained by structural and positional characteristics. Starting from these premises, we compare housing offer and transaction prices to discuss the role of the determinants of real estate house price in the two markets. For this purpose, we resort to a measure of association based on a proportional reduction in variation, proposed by Kendall and Stuart (1979): it represents the incidence of a characteristic X on the price variability.
The goal of the above association measure is twofold: on one side the computational simplicity, on the other side it is that it has been defined for a pair of variable (X, Y) where the response variable Y is quantitative and the variable X is qualitative. This is the case when one consider a characteristic (X) involved in the price (Y) formation. We perform the above analysis on the Turin real estate market. We consider a sample of 516

dwellings. In particular we examine the following characteristics: presence of the elevator, typology, dwelling preservation status, building preservation status, Microzone (spatially homogeneous submarket, a positional characteristics).
The data support the thesis that, as concerns the characteristics considered, the incidence is almost the same in the two markets. It is further remarkable that the characteristics whose incidence in price formation is higher are the typology and the Microzone: 52% and 63% respectively as concerns offer prices and 54% and 63% as concerns transaction prices, supporting the increasing role of spatial statistics in the real estate market.

Paper Number: 84
Spatial division of real estate investment and formation inhabitants' perceptions of their area of residence: Selected neighbourhoods in Riga
Normunds Strautmanis, *University of Latvia*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F4
Real estate investment (REI) as a set of activities aimed at generate income for persons investing through rental or lease and to achieve capital appreciation by committing of funds to property has been researched by many scholars in the past years. However the impact of investors' decision to invest at a specific place on the place itself and the inhabitants living at the area has not been studied so widely although it is almost evident that both the area chosen for investment as well as people's living there lives are been changed as a result of real estate investment at a particular territory. REI at a certain circumstances are generating the income not only for persons investing but for other parties like municipalities and other actors.
The purpose of this paper is to analyse both the spatial division of real estate investment in selected neighbourhoods (spatial entities) and the impact of real estate investment made on inhabitants' perception of their living area. A post-socialist city of Riga capital city of Latvia, largest city in the Baltic States and one of the largest in the Baltic Sea region has been chosen as a case study for the research, in particular selected neighbourhoods of the city where the largest and the smallest amount of real estate investment has been invested following the joining of Latvia to the European Union. With the help of analysis a spatial side of real estate investment in a post-socialist city is defined as well as correlation of the real estate investment and the inhabitants' perception of built environment is estimated thus allowing contributing both to the literature aimed at investing impact of real estate investment and individuals' perception of spatial (built) environment.
Analysis conforms that the real estate investment spatial side exists and is linked to the competitiveness of a particular territory as a set of specific factors and that perception of a local environment differs according to the time spent in the area by the individual and again is linked to the competitiveness of a particular territory as a set of specific factors.

Paper Number: 85
Causal relationship between macroeconomic indicators and housing prices: Evidence from Turkey
Yener Coskun and Ali Hepsen, *University of Ankara, and Istanbul University*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E6
The housing market is an essential part of a nation's economy and represents the most important component of the wealth accumulation. There is also a relatively recent, growing recognition about importance of the interactive nexus between house prices and macroeconomic variables. This casual relationship is apparently stronger in developed countries having strong real estate-finance linkages. But it would be also important to underline that globalization of the financial and real estate markets may also result similar outcomes in emerging countries.
By utilizing Vector Error Correction Model (VECM) and Granger Causality Tests for the period (2007:6) to (2011:12), the primary purpose of this paper is to examine dynamic causal relationships between house prices and a wide range of macro-economic indicators (including rent values, volume of mortgage loans, consumer price index, monetary aggregate, Istanbul Stock Exchange REIT index, exchange rates, unemployment rate, construction cost index, consumer confidence index, construction permits, mortgage loan interest rate, gross

domestic product, current account deficit and CDS spreads). In this context, the paper also empirically analyzes the negative impacts of global financial crisis into Turkish housing markets.
To our knowledge, this paper is the first attempt to use actual country-wide house price index in an analysis related to Turkish housing markets.

Paper Number: 87
Additive hedonic regression models for the Austrian housing market
Wolfgang Brunauer and Wolfgang Feilmayr, *Immobilien Rating, and Technical University of Vienna*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A8
In this paper we derive hedonic regression models for single family homes that account for nonlinearity in price functions as well as spatial heterogeneity. House prices belong to four hierarchical levels of spatial units: Census tracts (level 1), municipalities (level 2), districts (level 3) and federal states (level 4). Additionally to individual house attributes, locational covariates are available on three of these resolutions. We apply a multilevel version of structured additive regression (STAR) model on this data, which allows for nonlinear covariate effects and time trends as well as spatial effects to capture unexplained spatial heterogeneity on every level of the hierarchy. The model proposed is particularly useful for automated valuation purposes, as the decomposition of spatial effects results in improved predictive quality even in the case of unobserved spatial units. Furthermore, external price information can be integrated on various levels of the model. The presented results include nonlinear covariate effects of house and locational attributes as well as the distribution of spatial heterogeneity over Austria on maps. We also show how the inclusion of external house price information improves predictions.

Paper Number: 88
NAV discount analysis using the appraisal reduction
Giacomo Morri and Roberto Lupieri, *SDA Bocconi School of Management, and Bocconi University*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B4
This work is aimed at explaining the closed-end fund puzzle using the "rational" or funda-mental approach on a sample of tax-privileged real estate companies. NAV discounts in UK REITs and French SIICs over a five-year period is analyzed in order to find its drivers also us-ing a new methodologies. After a traditional approach testing seven independent variables over four model specifications, the ungeared discount formula is used in order to take in ac-count bias in the way the traditional discount is computed. Eventually, a new approach based on the "appraisal reduction" considers investor sentiment by reducing appraisals be-fore NAV calculation. By eliminating the market sentiment, it is possible to better identify firm-specific factors that capture their sole contribution to the NAV discount explanation.
Results show that there is indeed a change in the relationship between leverage and NAV discount. Moreover, liquidity and performance are not always significant, management re-muneration and investment activity are perceived similarly in France and in the UK while size has a different effect in the two markets.

Paper Number: 89
Are the auction prices of government-owned land too low? A retrospective perspective
Tzu-Chin Lin and Wan-Ling Chang, *Li-Gang Land Registration Office, Pingtung*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I1
In Taiwan, when a site owned by governments is put for sales through a sealed-bid public auction, it has to be valued by qualified professionals, and the market value of this site be used as the reserve price. This mechanism is to ensure the government-owned properties not to be sold under the market or fair price. However, the auctioned prices are constantly criticized as being far below the market values. This criticism is particularly popular in a booming property market. The builders are also thought to often make a superabundant profit due

to the undervalued land. This study analyses 41 sites that were auctioned between 1999 and 2007 at Kaohsiung City, Taiwan. All these sites were already developed into either single-family houses or condominiums when this study was undertaken. Given the sale prices of houses and condominiums are known, we are able to employ land residual method to estimate restrospectively the market value at the time when the sites were auctioned. We then compare the retrospective market values with the previous auctioned prices so as to determine whether the builders purchased those sites cheap as commonly alleged. The empirical results suggest that the auctioned prices of 24 sites (59%) are significantly lower than the ex post estimated market value. And the auctioned prices of the rest of 17 sites (41%) are not found to be lower than the ex post estimated market market. In conclusion, some builders indeed purchased sites at a cheaper price from public auctions, and make profits not only from building activities but also from the price difference in land. However, this conclusion is based on a retrospective view as the builders would not know for sure what the property market and housing prices would become in the future. This uncertainty represents a risk that shall also be reflected in price.

Paper Number: 90

Heating costs and rent - How efficient if the Austria rental housing market?

Gunther Maier, Doris Grill, and Kateryna Kurylchyk, *Vienna University of Economics and Business*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E7

In this paper we investigate the relationship between heating costs and rent in the Austrian rental housing market. More specifically, we test the hypothesis derivable from basic economic considerations that housing units with lower heating costs are more attractive and can therefore generate higher rents. In order to control for other characteristics of the housing units, we use a hedonic price approach including all available information as explanatory variables.

The paper extends an earlier analysis for the years 2006 and 2007. In the current paper additionally data for the years 2008 to 2010 are used, allowing for comparison over time.

The analysis is important for policy considerations. If the Austrian rental housing market lacks the expected negative relation between heating costs and rent, as our earlier analysis suggests, the market also lacks an incentive for landlords to invest into the energy efficiency of their buildings.

Paper Number: 91

Factors affecting the location of various types of real estate

Malgorzata Rymarzak and Ewa Sieminska, *University of Gdansk, and Nicolaus Copernicus University*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H9

In the period of socio-economic changes and the growing competition from the international market, value growth of the company's is treated as a strategic objective of its shareholders. In developed market economies, the role of real estate as assets creating and contributing to the value of the company is increasingly acknowledged. By appropriate modelling of real estate portfolios and implementation of real estate management strategies, it is possible to enhance the value of the real estate owned by the company, thus increasing the value of the company as such.

Managing the real estate portfolio of the company is connected with the need to analyse and solve numerous issues, including the location of a new facility or a change in its current location. This is so because locating a company at a given spot in space is connected with specific, spatially variable expenditures, incurred both at the stage of construction and operation.

The problem of location is complex, dynamic, and difficult. It requires studies and ongoing discussion of its nature, because, with the flow of time, the set of factors decisive for the location expands, and they are constantly being redefined.

The location theory has its micro~ and macroeconomic aspects. In the former case, deliberation concerns a single facility, in the latter "" there is a search for efficient spatial structures. In both cases finding a general and specific location is of primary importance. General location choice, i.e. placing the enterprise in a specific region and settlement unit is largely decisive for the future spatial ties of the company. In the process of specific

location choice, i.e. specific land lot, physical, economic, and institutional and legal characteristics of a given real estate are analysed.
In an attempt to join in the discussion of the issue, the authors of the paper are going to describe the location decision-making process, taking into account numerous factors and conditions. The paper tries to present the most important elements in their macro~ and microeconomic aspects which affect the choice of location of various types of real estate.
The deliberation will start with a presentation of real estate classification according to its purpose and will be followed by a discussion of important from the point of view of corporate strategies - factors, determining location decisions for various types of real estate investment projects.

Paper Number: 92
The importance of past experiences and social status for mortgage holders interest rate choices
Maria Hullgren and Inga-Lill Söderberg, *Royal Institute of Technology (KTH), Stockholm*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H6
The subprime related global financial crisis just seen has brought with it a number of international studies investigating factors influencing households' mortgage rate choice. These studies focus primarily on contract factors or are explorations of consumer financial literacy as an important aspect in understanding which factors underlies the outburst of the crisis. Pre-crisis studies have also focused on a number of consumer characteristics, such as age, income, education and risk aversion. Since the choice of mortgage interest rate often have a great impact on a household's financial situation and sub-optimal choices have been reported, this study brings forward the experiences of financial advisers and consumer narrated experiences as a way of contributing to a better understanding of consumer characteristics underlying mortgage choices.
The study originated as a pre-study of a larger nation-wide survey, but the findings have been found interesting enough to report on separately. The report is based on 20 interviews with financial advisers and 10 observations of encounters between advisers and customers at bank branches. Mortgage choice was in focus for the interviews and also part of what was discussed during the advisory sessions reported on. The paper also reports on three focus groups with mortgage holders with different previous experiences of having mortgages. The study has been conducted in a Swedish context in January/February 2012.
The chosen qualitative perspective offers new findings that are thought of interest for future research. The results show the importance of social status as a neglected but important factor influencing consumer mortgage choice. Other factors of interest for the mortgage decision found during this qualitative study are generation affiliation and with it earlier experiences of mortgages and of market fluctuations.

Paper Number: 93
Marketing green buildings - well structured process or forgotten minor detail? Evidence from Finland
Henna Eerikäinen and Anna-Liisa Sarasoja, *Aalto University*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B5
Previous research has shown that buildings have a significant impact on the environment and small changes in their sustainability can create major improvements to the current environmental impact of the whole society (Eichholtz et al. 2009; Junnila 2004). The technology needed to build environmentally efficient buildings and the knowledge about their benefits is available, however, the ways of marketing these benefits to the public and customers and through this increasing the amount of green buildings, has not been a subject of much research. The aim of this article is to examine the current marketing situation of green buildings from a Finnish real estate developer's perspective and deepen the market's understanding on this subject.
The theoretical part of the paper is conducted through an extensive literature study and for the empirical part; three different building development projects were examined. Great amounts of marketing material provided by the real estate developer were studied and interviews were made with their specialists on the green building field.

Results indicate that the environmentally efficient characteristics of the buildings are not considered to be their major selling arguments but simply something that is expected in today's market and thus the green marketing actions of the real estate development company were quite ineffective and subtle.
Based on the results of this study, it seems that at the moment, the marketing of green buildings lacks green ambition and not all are equally convinced about their differentiation potential. If the building market will end up in a situation where having a certification is enough in terms of being environmentally friendly, the development of a more sustainable built environment will fail, as no developer will be motivated to be innovative and more sustainable. However, by increasingly concentrating on the different benefits of green buildings and effectively communicating those to the customers, greenness can be made into a truly competitive marketing argument. The question is about being innovative and finding ways to compete differently than the competitors.

Paper Number: 94
Defining retail locational obsolescence: a new focus for the retail sector
Cathy Hughes, Cath Jackson, and Aidan While, *University of Reading and University of Sheffield*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B1
Location is of paramount importance within the retail sector, yet retail locational obsolescence remains an overlooked area despite significant concerns over the long term viability of parts of the retail sector. This paper explores the idea of retail locational obsolescence in depth and, through this, for the first time determines a definition and sets out a conceptual model. It is argued that, only by undertaking such an analysis, can the problem of disequilibrium in demand and supply be fully understood and, therefore, tackled. The analysis focuses on a number of areas, including the distinction between causes and effects; the multi-spatial nature of the driving forces that range from the global economy, to local markets and sub-markets, right down to individual property-specific factors; and, crucially, the need to disentangle locational obsolescence from other important concepts such as depreciation and functional obsolescence that are often mistakenly used as substitutes.
The analysis demonstrates not only the complex nature of retail locational obsolescence but the extensive and disparate nature of the parties with a vested interest in the retail property sector. Through this is becomes clear that any attempts at developing solutions for the difficulties faced by the sector must fully understand the challenge. Numerous reports have been published in the UK, not just the recent high-profile Portas Report commissioned by the Government, but a significant number of others over the past couple of decades. These are explored, using the definition and conceptual model developed above, to shed light on how the various efforts have been focused. Through this, a research agenda is suggested to better understand and focus future work on the health of the retail sector.

Paper Number: 96
Academic integrity: Achieving best practice in built environment degree programs
Clive M J Warren, *University of Queensland*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D8
Educational institutions globally are grappling with the rising incidence of academic misconduct, in part fuelled by the ever increasing access to online information. Recent audits of universities in Australia (AUQA 2009) indicated that students believed that their institutions did not have the necessary strategies in place to dispel students' perceptions that plagiarism may be tolerated. This paper reports on the development of teaching tools within Built Environment degree programmes at the University of Queensland. The objective of an online tutorial tool was to improve students' understanding of academic integrity and good academic practice and to do so in a supportive teaching and learning environment, through the development of an online interactive tutorial. The aims of the tutorial were to: develop learners' skills in knowing when to reference information and thus avoid plagiarising in their academic work; provide accurate information in an interesting, relevant and interactive way; ensure relevance to the institution's diverse student body; incorporate the ability to assess

students' understanding of good academic practice; and ensure that the tool would be accessible as a learning resource for students throughout their programs of study.
Through pre and post implementation surveys the changes in student perceptions of good practice are identified and used to refine the tutorial tool. Finally the paper reports on the adoption of the teaching tool on a university wide basis and its compulsory application to over 20,000 students.

Paper Number: 99
Locked in the house: Do underwater mortgages reduce labor market mobility?
Colleen Donovan and Calvin Schnure, *Charles River Associates International, and National Assoication of Real Estate Investment Trusts*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G6
The collapse of the housing boom led to an unprecedented number of homeowners who are "underwater", that is, owe more on their mortgage than their homes are worth. These homeowners cannot move without incurring significant losses on their homes, possibly causing a "lock-in" effect reducing geographic mobility. This raises concerns that a reduction in labor market mobility may hamper the ability to move to accept employment in another geographic market, degrading labor market efficiency and contributing to higher structural unemployment.
This paper examines housing market turnover and finds significant evidence of a lock-in effect. The lock-in, however, results almost entirely from a decline in within-county moves. As local moves are generally within the same geographic job market, this decline is not likely to affect labor market matching. In contrast, moves out-of-state, which are more likely to be in response to new employment opportunities, show no decline, and in fact are higher in counties with greater house price declines. Housing market lock-in does not appear to have degraded the efficiency of the labor market and does not appear to have contributed to a higher unemployment rate.

Paper Number: 101
Matching in cyberspace - the search behaviour of suppliers and customers in an electronic real estate broker platform
David Koch and Gunther Maier, *ERES.NET GmbH, and Vienna University of Economics and Business*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A8
This paper analyses the behaviour of suppliers and customers in the electronic real estate platform "immobilien.net" in Austria. Suppliers (real estate agents) post their offers on this Internet platform. When doing this they decide not only about the published asking price, but also about which characteristics they underline in order to highlight the property. The potential customers, on the other hand, scan the available offers and retrieve additional information about a specific offer, fetch the contact information of the broker or directly write an email.
All these activities reveal key aspects about the behaviour of suppliers and customers and about the way the respective market functions. In our paper we will investigate this information in order to extract some of the central aspects about the actors. This analysis will give a unique insight into the strategies professional real estate brokers pursue on electronic platforms as well as into the search strategies of their customers.

Paper Number: 103
Housing loans and economic trends: An empirical analysis for Turkey
Yener Coskun, *University of Ankara*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H6
It may be observed that Turkish mortgage market has experienced a rapid development in recent years thanks to relatively stable macro-economic conditions. It is also important to note that housing market is of

comparatively sound during the process of global financial turmoil. But it is obvious that the market is less developed according to several market completeness criteria. In this context, the contribution of the paper is to empirically analyze the factors affecting housing loans in Turkey, assumed as the critical factor of the development of the mortgage market.
To employ vector error correction model and granger causality tests, the objective of the paper is to present the findings of dynamic causal relationships between housing loans and macro-economic indicators related to general economy and housing markets in Turkey. In the research, we empirically analyze both impacts of widely used macro-economic indicators (CPI, unemployment ratio, real interest rate, current account, monetary aggregate), and also some additional variables, specifically involving household assets, income, subsidies and also house price index. In addition to other contributions of the paper, longer period house price index constructed by the author by combining actual house price index and a proxy index would be specifically interesting for the current literature.

Paper Number: 106
Corporate governance and REIT performance: Turkish REIT industry with concentrated ownership and no dividend payout rule
Isil Erol, *Middle East Technical University*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G2
Klapper and Love (2003) argue that firm-level corporate governance matters more in countries with weak legal systems. On the contrary, Bianco, Ghosh and Sirmans (2007) state that the strict legal rules on payout, ownership and asset structure make REITs more attractive within global perspectives on corporate governance. This paper investigates whether the quality of corporate governance has significant impacts on the stock and operating performance of the Turkish REITs, which operate in a weak legal environment country. The Turkish REIT industry differs substantially from the global REIT market. First, Turkish REITs do not have to pay out dividends, yet enjoy the exemption from paying corporate taxes. The lack of payout requirement creates the free cash-flow problem (Jensen, 1986) and increases the agency costs. Second, Turkish REITs have a concentrated ownership structure. The legal requirement that a leader entrepreneur be present with a minimum equity position of 25% introduces the agency problem between the majority and minority owners. The leader entrepreneurs, as non-taxable institutional investors, appear to dictate Turkish REITs' dividend and debt policies and deplete REITs' dividends, causing them to go to the long-term debt market (Erol and Tirtiroglu, 2010). Hence, the need for corporate governance is more of concern for the Turkish REITs.
This paper uses an unbalanced panel data of 23 REITs between 2003 and 2011 in an attempt to examine the impact of corporate governance quality on the performance of REITs in Turkey. In particular, we regress both the periodical returns and operating performance (ROE, ROA, Tobin's Q) of REITs on governance-auditing measures and ownership structure characteristics.

Paper Number: 110
Structural vacancy revisited: are user demands changing?
Hilde Remøy and Philip Koppels, *Delft University of Technology*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F1
Financial and real estate crises and "the new way of working" reduce the need for office space, and office markets become replacement markets without a quantitative need for new office buildings: New buildings drive out bad buildings. In the Netherlands, currently 15% of the office space is vacant, of which 60% is regarded structurally vacant, meaning vacancy of the same square meters for three or more consecutive years, without perspective of future tenancy. The Amsterdam office market comprises 7 million m2 office space, of which 18% is vacant. Due to the on-going construction of new buildings and that only a small amount of buildings are demolished or otherwise taken off the market, the vacancy is expected to continue to increase.
When relocating, organisations consider buildings and locations within geographically defined markets. Though location characteristics are important, eventually building characteristics play an important role. Organisations prefer office buildings that facilitate their main processes and support their corporate image.

This paper presents results of studies on the association between structural vacancy and the characteristics of office buildings and locations. The revealed "˜veto' preferences of office organisations were analysed by relating structural vacancy to property characteristics. The physical characteristics of 200 office properties were studied using logistic regression analyses to determine if a relationship exists between physical property characteristics and structural vacancy.
Understanding office user preferences is important to understand movements within office markets. This paper studies the changes in office user accommodation preferences by studying the changes in structural vacancy over a time span of 10 years "" from 2001 to 2011. The results of this study reveal movements in the Amsterdam office market and shows which office locations and buildings involve the highest risk in the current market situation.

Paper Number: 111
Future value of obsolete offices
Hilde Remøy and Jurrien De Koning, *Delft University of Technology*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D1
Studies of several office markets indicate the importance of building and location attributes in relation to office user preferences. It is common practice to use hedonic pricing models to describe the relationship between rental levels and building and location attributes. However, office buildings that have been vacant for a long period of time in a market with few transactions are hard to assess, and another approach to value these buildings is needed: instead of considering the building's current use, the future possibilities and use value of the buildings should be considered.
This study examines the opportunities for investors and owners of vacant office space in a market where few transactions took place, aiming to reveal whether adaptation of obsolete office buildings can contribute to an increased future value of these buildings. Additionally, this paper examines whether this approach can contribute to an improved local office market. Subsequently, this paper answers the following questions: Which opportunities do owners and investors have for dealing with obsolete office buildings? What influence will their actions have on the (local) office market?
The office market studied in this paper is Amsterdam with a focus on the submarket Amsterdam South east which holds a substantial part of the Amsterdam office stock (1 million square metres, 15% of the Amsterdam office stock). The vacancy level of this submarket is near 30% and among the highest in Europe. The data used to answer the questions above were delivered by the research department of Cushman & Wakefield Amsterdam. The building and location characteristics of 104 office buildings were studied, which amounts to two third of the offices in Amsterdam Southeast.

Paper Number: 112
Dynamic analysis of house price diffusion across Asian financial centres
Jia-Huey Yeh and Anupam Nanda, *University of Reading*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C6
The aim of the paper is to explore both of the effects of macroeconomic variables on house prices and the lead-lag relationships of real estate markets to examine house price diffusion across Asian financial centres. The analysis is based on the Global Vector Auto-Regression (GVAR) model estimated using quarterly data for six Asian financial centres (Hong Kong, Tokyo, Seoul, Singapore, Taipei and Bangkok) over the period from 1991 to 2009. The empirical results indicate that the global economic conditions play significant roles in shaping house price movements across Asian financial centres. In particular, a small open economy that heavily relies on international trade such as - Hong Kong and Taipei, shows a positive correlation between openness and house prices, consistent with the Balassa-Samuelson effect in international trade theory. This suggests that a rise in openness may increase relative price of non-tradable goods and services. In addition, a high degree of economic linkages between the regions indicates existence of lead-lag relationships in house price movements that is transmitted through the housing wealth effect chains. However, the region-specific conditions also play

important roles as determinants of house prices, partly due to restrictive housing policies and demand-supply imbalances as in Singapore and Bangkok.

Paper Number: 113
On track to a greener future or running into the buffers?
Bob Thompson, *RETRI Group*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B5
The last thirty years have seen an European policy context in which rail has been favoured actively over road across the continent. As a result the volume of cargo carried by rail has increased, but road continues to be the dominant mode in a majority of European member states.
Investors and developers are confused - do logistics operators want rail connected warehouses or not? Will they command a value premium or not?
This paper examines the development of rail freight and its future highlighting the gradients and sidings that continue to derail anything other than glacial progress.

Paper Number: 114
Structural breaks in the Spanish housing markets: Evidence from a spatial panel for the periof 1995-2010
Ramiro Gil-Serrate and Jesus Mur, *Centro Universitario de la Defensa and LSE, and University of Zaragoza*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D6
In this paper we analyze the evolution of the Spanish housing market from 1995 to 2010. Between 1995 and 2007, the real estate market was a major driving force for the Spanish economy, with house prices increasing on average by over 10 percent per year. At the start of 2008, the year of the global financial crisis, the real estate sector's contribution to Spain's GDP reached a remarkable 19 percent. However, the three years since 2008 have seen a very different situation, with the Spanish real estate sector severely depressed. This, as expected, has considerably affected the Spanish economy as a whole. Our intention is to identify the main factors that have determined the behavior of the Spanish housing market during the period 1995 to 2010 in order to shed some light on, and better understand, the strong relationship that exists between Spain's real estate sector and its economy. In order to do this, we pay special attention to the spatial aspects of the Spanish housing market. Consequently, following recent literature, we develop a theoretical dynamic framework for this market with a spatial perspective. Then we estimate the resulting long run relationship between housing prices and its determinants for the period 1995-2010. When doing this estimation, we proceed with a detailed panel unit root study for the data, consider the possible existence of structural breaks in the sampling period, and take into account data heterogeneity and cross-sectional dependence. Our results ratify the developed theoretical framework and suggest the existence of a spatial pattern in the data.

Paper Number: 116
Dutch high rise ability after a downtime
Peter de Jong, *Delft University of Technology*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I9
Rotterdam is widely acknowledged as the high rise city of the Netherlands. This is also an integral part of the urban planning. The current crisis in combination with a killing vacancy rate stopped the flow of new developments of tall buildings. Will or should tall buildings still play a role in the renewed vision. The main global rational for high rise is land use. Due to a shift of harbor activities towards new areas near the sea, huge areas within the city boundaries will become available. An opportunity, but also a need for rethinking of land use and urban vision.
Students (500+) have been elaborating and producing master plans for such an abandoned harbor followed by the development (100+) of new functionality for one of the most important projects within this area, the

Europoint towers established in 1974. This project combines feasibility in a broad perspective (architectural, financial, social, sustainable) within the urban situation with the ability of transformation of vacant offices and the issue of dealing with high rise heritage.
The obvious limitation may be the student level. However the program and conditions are defined and the results are judged by professional public and private participants, due to the importance of acceptable solutions for all parties involved.
The findings are next to numerous designs for the specific case a reflection, based on cross case analysis, on future sustainable area development with a wide range of stakeholders from urban planners to investors, from architects to developers and from clients to neighbors.

Paper Number: 117
Urban renewal of an inner city derelict plant area as a green building shopping centre
Hermann Lebherz, *WLS Project Management*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I9
Urban renewal of an Inner City derelict plant area as a green building shopping centre.
An former enamelling plant from the 1920`s economic depression, became in the 60`s no longer economically viable. Various subsequently users accelerated the downfall of the inner city plant area.
In 2010 a semi state development agency "the OFB" a daughter company of the State Bank of Hessian, Germany, was asked to decontaminate the area and find a new economic live for the inner city site.
Three quarters of the derelict pant area were demolished and an lime stone faced early 1920`s building was retained and became a listed building, to commemorate the industrial heritage.
Therefore listed building funds were made available to help towards a new life cycle for the building. To prevent a further sprawling out of shopping centres at the outskirts of the city, it was decided to cater for the inner city shopping needs of the inhabitants in the inner city. The area is close to the railway station and linked to the inner city ring road for easy access.
To foster all the possibilities for development, the client decided to get a certificated building of the German DGNB "" Deutsche Gesellschaft Nachhaltiges Bauen "German Society for Sustainable Buildings " a silver grade certificate.

Paper Number: 119
Housing supply and price reactions: A comparative approach between Spanish and Italian markets
Laura Gabrielli and Paloma Taltavull de La Paz, *University of Ferrara, and University of Alicante*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E6
Spain and Italy represent two of the most important Mediterranean Countries belonging to the European Union. Both Italian and Spanish property market have experienced a sustained period of growth since the mid of the 1990s and until 2008, followed by a rapid decline. Those countries are both facing, since 2008, the credit crunch which strongly hits the property market, and an economic crisis combined with a high rate of unemployment. At the same time, those two nations experienced different reactions to real estate market crisis, showed by a different change in real house price and number of transactions, different housing policies and planning regulations.
This paper concerns house market boom and crisis from a supply perspective, and aims to add empirical evidence from those two markets to the literature on housing supply elasticity, as very little cross "" country empirical evidence exists. Differences in supply responsiveness to prices are very important as they define how the housing market is responding to the variation of the quantity and quality of demand.
Supply is also very important for prices volatility, economic stability and private investments in real estate. The paper means to estimate a new supply equation for Italian and Spanish markets, showing how price elasticity changes over different cycles, by means of data as house prices, cost of materials and labours in construction sector, interest rates, and house stocks. A pool EGLS method is used to account for cross-section heterokedasticity with fix effects in order to control space differences. The analysis has been developed at

national as well as regional level for both countries, allowing the estimation of the variation in responsiveness of new housing supply to prices. The empirical approach shows differences and similarity in the two markets.

Paper Number: 121

Modelling the real estate market dynamics with catastrophe theory

Mirosław Bełej and Sławomir Kulesza, *University of Warmia and Mazury*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F1

The paper concerns the description of the issues related to the dynamics of the real estate market in periods of sudden, unexpected changes in real estate prices, on positive or negative direction, which were observed in the last decade in many European countries and in the United States. Disturbances of stable trends resulted from the global macroeconomic instability, which indirectly affected the behavior of unstable real estate markets. When such phenomena occur in many real estate markets, it suggests that the markets take on the characteristics of structurally unstable systems, which are influenced by small changes in control parameters suffer sudden discontinuous changes in its state.

The essential problem is the need to define and give a new meaning for periods of stable and unstable real estate market development, giving large amounts of importance to discontinuous changes. The research would make it possible to model the hardly explored field of sudden changes in the real estate market in order to reveal the edge of discontinuity. The scientific hypothesis is that the periods of sudden price changes reflect an crucial feature of the real estate market, and they constitute the turning points of its development. The evolution path of the real estate market under the influence of the control parameters runs mostly over the areas of long-term stability, and occasionally enters into the instability area

According to the authors of the paper the current, classical approximate methods used in the analysis of long-term trends, do not give the right results with discontinuous changes in real estate prices. The proper way to model abrupt price changes is the theory of discontinuous change, also known as the theory of morphogenesis, or the catastrophe theory. The proposed research is interdisciplinary, because we are using the methods and theories from mathematics, physics and natural sciences to understand the mechanisms of real estate prices.

Paper Number: 123

New firms, old assets: Using Delphi technique to identify accommodation priorities for knowledge intensive firms

Michael J Hefferan and Pamela Wardner, *University of Sunshine Coast*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H9

The nature of contemporary businesses has become increasingly dynamic, particularly in sectors recognized as 'knowledge intensive'. This rate of change, in turn, impacts on all inputs to those businesses - including human resources, social capital, finance, intellectual property and commercial real property assets. Because of the fixed investment that property assets represent, they may not be as quick to respond to such rapid and radical change and large capital outlay will often be required for any reconfiguration or upgrades to accommodate these new requirements. The current property and asset management approach needs to better recognise the fundamentally different ways in which many of these firms consider and use commercial property.

A key starting point is to understand the demand drivers and the real priorities of these businesses particularly those generally defined as knowledge intensive which represent, arguably the fastest growing component of the commercial sector.

This empirical paper provides the results that emerged from a Delphi study which used ten experts to more accurately define these priorities. It is based on a study in the commercial sector in the high growth area of South-east Queensland in Australia. The demand priority responses varied depending on the lifecycle stage (start-up, established or mature) of the firm. Many of the findings are likely to be applicable to the commercial environments elsewhere and would provide a basis for investors, developers, asset owners and managers to better position their assets for future success.

Paper Number: 125
The significance of real estate in European pension funds
Graeme Newell, *University of Western Sydney*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C4

Real estate is an important asset class for pension funds. This has taken on increased importance in recent years in Europe, with changing demographics and the impact of regulations such as Solvency II. This paper examines the significance and role of real estate in European pension funds; particularly focusing on the real estate investment vehicles and strategies used to achieve this real estate exposure post-GFC. A survey of leading European pension funds examines their views on real estate in their portfolios, with interviews with leading real estate professionals in Europe adding further strategic insight into this important issue. Effective strategies for the ongoing inclusion of increased levels of real estate in European pension fund portfolios are also identified.

Paper Number: 127
Assessment of the suitability of automated valuation models in commercial real estate valuation
Douw G B Boshoff and Leane De Kock, *University of Pretoria, and DDP Valuers*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F3
The paper investigates the recent research on Automated Valuation Model (AVM) technology in order to assess the suitability thereof for the commercial property market. It includes the history of AVMs, current development and use thereof. The method used for the research is a structured interview with various property valuers that are active in the market, and an empirical study to test the applicability of AVMs in the said market. The empirical study makes use of multiple regression of secondary data and is validated by comparing predicted to actual values. The research found that AVM research is mainly performed in the residential market and a need for further development in the commercial market is necessary. The possible uses for AVMs are found to be mass valuations, such as for rates purposes, financing and auditing of individually valued properties. AVMs are found to be suitable for commercial valuation, but only as a supporting method, not as main technique, as the necessity for individual inspection cannot be elliminated, but AVMs enhance market research. The value of the paper is an elaboration on AVM research that can be helpful in the development of an actual model for commercial use. It also adds to the property valuation body of knowledge, especially in commercial property.

Paper Number: 129
The German Passiv Haus System: A case study of a Frankfurt sustainable green building project - EuropaQuartett
Hermann Lebherz, *WLS Project Management*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G5
In the German city of Frankfurt on the Main, a political coalition of the conservative and the green party fosters green communal residential flats as a low carbon housing policy for its inhabitants.
Right in the middle of the city centre- a former railway goods yard has been redeveloped into an residential inner city area with "Passiv Houses". This concept of houses has been developed to use very limited energy resources during the year.
A highly sophisticated computer based model of energy consumption is being used during the whole design and construction process to evaluate energy consumption. A total of 15 KW per sqm per annum electrical energy may be consumed to be awarded "Passiv Haus".
Following design decision has to be taken as such:
- *Up to 300 mm high quality thermal insulation on the walls,*
- *Triple glazing with high performance windows,*

- *Up to 600 mm high quality thermal insulation on the flat roofs,*
- *Compulsory air ventilation of the flats with energy recuperation,*
- *High performance energy saving ventilation systems with heat pumps,*
- *High performance kitchen equipment such as stove, washing machine, dish washer, etc.*

The paper will show sustainable measures in the design process to reduce carbon consumption in the life cycle of the new Green Buildings.
The lecture can be delivered on Friday or Saturday.

Paper Number: 130
Real estate applications for smartphones: A market overview for Austria and Germany
Veronika Lang and Peter Sittler, *Vienna University of Applied Sciences*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C9

Our research focuses on the appliance of real estate applications (RE-Apps). These productive small programmes on smartphones and tablets will be classified by their usage and analysed concerning their functionality. A sub-classification is made for the ability of Augmented Reality (AR) functions.
Market analyses assume a rapid growth of the number of smartphone applications within the next years. The number of downloaded apps in Apples 'App Store' reaches the amount of 25 Billion downloads in February 2012. As we pointed out in our paper Looking for property via smartphone' at the ERES conference 2011 the usage for real estate applications will sharply increase. This trend is supported by the growing numbers of AR applications presented at the PRRES conference 2012. AR means that a value for the user is created by enhancing the real picture through the smartphone camera by additional information turning real and virtual objects in a multi-dimensional relationship to each other.
There are several RE-Apps concerning RE-search, architecture, buildings, real estate administration, refurbishment and housing renewal and even orientating in shopping centers. The field of applications for real estate is wide, but not explored. The paper analyses the usage of RE-Apps with special focus on Austria and Germany. The work is based on extensive literature research providing a methodical comparison of applications available. Based on the results of our research, the project covers the structural, technological and user related factors that facilitate or impede dissemination of RE-Apps. As a result it should be given a smart overview of the existing applications and the market potential of RE-Apps for real estate with a visionary conclusion of expected future developments especially in the field of AR.

Paper Number: 131
A critical analysis of industrial land demand forecasting
Erik Louw, *Delft University of Technology*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I1

In spatial planning and commercial property markets demand forecasts are an important tool to make policy and investment decisions. However, there is only a small amount of research on the accuracy of those forecasts, especially in the case of medium and long term forecasts. In this paper I will analyse various forecasts on the demand for industrial land in the Netherland on the national, regional and local level.
After a brief literature review on forecasting in commercial property markets, an overview will be given of the various forecasting models which are used on the various spatial levels. After this introduction, forecasts on the national and regional level in the period 1995-2005 are compared with the amount of land which was sold after the forecasts were made. It will be concluded that in almost all cases the demand forecasts exceeds actual demand. Also three case studies will be presented on how regional and local governments use forecasts during the planning of industrial estates.
The paper concludes with an analysis on the causes for the inaccuracy of the forecasts. The analysis indicates that insufficient knowledge about industrial land use is one of the reasons for the inaccuracy, but also that there is a kind of optimism bias among the makers and users of the forecasts which unwittingly pushes demand levels upwards during the planning process.

Paper Number: 133

Efficiency in the market for cooperative dwellings

Silje Eretveit, Karl Robertsen, and Theis Theisen, *University of Agder*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C8

Since the seminal contribution of Case and Shiller (1989) several papers on the efficiency properties of housing markets have appeared. Nevertheless, there is still not full agreement on whether the housing market functions as an efficient market or not. In the present paper we apply two different methods, developed by Hjalmarsson and Hjalmarsson (2009), and Robertsen and Theisen (2011), along with a new data set. We examine whether methodological differences may explain the somewhat conflicting results of these authors. In order to focus on the role of the modes of analysis, we use data only for cooperative housing, and concentrate on one single issue, namely on whether variations in mutual debt between different dwellings is perfectly reflected in the price at which the dwellings are sold.

Paper Number: 134

Taming the elephant: Helping landlords to invest for tenants benefit

Bob Thompson and Qiulin Ke, *RETRI Group, and Nottingham Trent University*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E9

Over the past two decades, the sustainability of buildings has grown in importance as part of a strategy of carbon reduction. However, the impetus for change has created a significant gap between the environmental performance of existing and newly built stock.

New stock meets stringent building standards and, in many cases, has to meet rigorous standards for environmental certification. Without substantial refurbishment, the performance of existing stock can only be improved by behavioural changes in the way buildings are used.

Yet it is clear that relatively modest investments by building owners can make a significant difference to the carbon footprint of an existing building. This may still fall some way short of a new build, but is significant nevertheless.

For owner occupied space, the rationale for investment is clear, but for leased space there is a dilemma. The tenant is unwilling or unable to invest in the fabric of a building, albeit to his advantage the landlord is unwilling to invest in the fabric of the building to reduce the tenants operational costs. This is the Elephant in the room.

One might expect that, given the greater economic utility offered by the reduced operating costs post such an investment, the rent paid for the space would be higher. This may well be the case over time, but there is insufficient evidence yet to persuade building owners to invest. Yet if they don't invest there will be no benefit!

One way round this impasse is to share the benefits that accrue between landlord and tenant by establishing a jointly owned company that buys utilities on behalf of the building the ESCO model.

This paper:

- *looks at examples of the ESCO and MUSCO in action;*
- *Models the impact of an ESCO on different types of building; and*
- *Establishes the likely returns to landlords and tenants.*

Paper Number: 135

House price developments in Europe

Peter Parlasca, *Eurostat, European Commission*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C6

House Price Developments in Europe

On 14 February 2012 the European Commission released its first Alert Mechanism Report (AMR) on macroeconomic imbalances in Member States. Based on a scoreboard the European Commission examines

economic indicators to identify internal and external imbalances. The scoreboard is made up of ten indicators in total. Among the new indicators are house price indices showing house price developments for 27 EU Member States. Earlier only a smaller data set was presented as "experimental house prices".
In addition, indices based on 2005=100 were released on the Eurostat website. As a consequence a European picture of national housing markets is now publicly available.
The paper will cover the data offering links for future updates envisaged quarterly for many countries - and explain methodological challenges for achieving the compilation in a harmonised manor. It will analyse the relationship with price data (HICP) and economic development i.e. growth or decline. Furthermore the paper will touch upon the impact of high and low ratios of owner occupied housing on house price developments.

Paper Number: 137
The allocative inefficiency of green buildings - why the number of green buildings is low and the premium for green buildings is high.
Nai Jia Lee and Tien Foo Sing, *National University of Singapore*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A5
The literature on green buildings has blossomed since the study by Eicholtz et al (2009). Researchers have attempted to search for green premiums using property data in different countries. While the studies focus on testing the significance of the green premiums (or discount in some cases), few studies have examined the low supply of green buildings despite the high rent premiums attached to the green buildings. Fuerst et al (2011) suggest that users of "green" offices enjoy an innovative advantage, which decreases over time when the supply of green offices increases. While the innovative advantage applies to most consumable goods, it is, however, more difficult to justify why firms in green offices command competitive advantage over those in non-green offices, if production processes of the firms are the same. For instance, would a legal firm in a green office commands a higher premium than another comparable firms in non-green office? Eicholtz et al (2010) found that the rental premium for green offices is equal to the savings accrued to the tenants over the years. This implies that the tenants surrender all the savings to landlords. This contradicts with the property tax literature (Wheaton, 1984), which argues that building owners absorb, instead of passing on property taxes to tenants.
Using the production theory, we develop a conceptual model to examine the high rent and low supply condition in the green office markets. In our model, there are two agents in the economy: a tenant and a landlord. Suppose firms require environmental goods, in addition to labor and office space (capital) inputs to produce their consumable goods. The landlord has an endowment of environmental goods, labor and office space. In the absence of a market for environmental goods, the production model suggests that the environmental goods will be over-used. With the Green rating scheme, it creates a market for the environmental goods. Firms that use environmental goods more intensely in the production will pay a high premium for the goods, while firms that do not require will not pay at all. However, firms that use environment goods intensely could mimic firms that do not use the environmental goods by paying nothing for the environmental goods. There are three possible factors that may lead to under-supply of green offices. On the supply side, higher costs are incurred by landlords in developing green features due to the lack of economies of scale. On the demand side, th

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Paper Number: 138
The impact of corporate social responsibility practices on the performance of property companies
Chyi Lin Lee and Graeme Newell, *University of Western Sydney*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E9

Corporate social responsibility (CSR) has taken on increased significance in the property sector in recent years, reflecting the global focus on sustainability. This has included all of the dimensions of CSR, including environment, social and governance (ESG) issues, with property companies taking a strong leadership role in the area of implementing CSR practices. The key ongoing issue is whether these CSR practices significantly influence property company performance. Using the ESG factors in the ASSET4 database, REITs and property

companies are assessed on whether these CSR practices are key factors influencing their performance in addition to the standard financial factors influencing performance (eg: market cap, BMV etc). This is assessed for REITs and property companies in Europe, US and Asia-Pacific over 2007-2011. The strategic implications for the ongoing implementation of CSR practices by REITs and property companies are also assessed.

Paper Number: 140

The sources of risk spillovers among US REITs: Asset similarities and regional proximity

Zeno Adams, Roland Füss, and Felix Schindler, *European Business School, and Centre for European Economic Research*

Date: Thursday 14th June
Time: 1530-1700
Parallel Session C4

In this paper, we estimate the risk spillovers among 74 U.S. REITs using the state-dependent sensitivity value-at-risk (SDSVaR) approach. This methodology allows for the quantification of the spillover size as a function of a company's financial condition (tranquil, normal, and volatile REIT prices). We show that the size of risk spillovers is more than twice as large when REITs are in financial distress and find evidence for the impact of geographical proximity: REITs that have their properties located in close distance to the properties of other REITs show risk spillovers that are on average 33% higher than REITs that have similar properties but at a larger distance. We estimate the risk gradient to decrease nonlinearly and to have zero slope for property distances of more than 400 km. Our empirical findings highlight the relevance of geographical diversification and have important implications for the investment and risk management decisions of real estate investors, mortgage lenders, home suppliers, and policy makers.

Paper Number: 142

Estonian housing market after crisis: Searching for origins of the demand change

Ene Kolbre and Angelika Kallakmaa-Kapsta, *Tallinn University of Technology*

Date: Friday 15th June
Time: 1330-1500
Parallel Session F6

During the last decade the Estonian housing market has experienced a rapid growth, decline and stabilisation phase and started on a new rise. The study seeks to discuss the effects of changes in the economic environment on the Estonian housing market; outline the dynamics of the housing market during and after the crisis and assess this using ratio analysis. The end of the housing boom also shows that there is a need for greater attention to the housing affordability problem. To analyse housing affordability the HAI index constructed for the Estonian housing market was used. Next to affordability problems a new real estate market rise has arisen real estate quality and assessment related problems. The Analytic Hierarchy Process (AHP) method and questionnaire of the market participants was used for evaluating the hierarchy changes of the factors influencing the quality grade of the real estate object,

Results of the research show that the situation in housing market stabilised at the end of 2010 and moved into slow growth in 2011. The P/I and P/E ratios prove that the situation has improved since the real estate bubble burst. Constructed HAI model, that chacterised the repayment affordability, shows that the situation has improved in 2009-2011 and faster improvement was in the repayment affordability situation compared to that of the purchase affordability index. Research results, based on the Analytic Hierarchy Process method, show a clear hierarchic changes of the factors influencing the quality rating during last years.

Paper Number: 143

A cross-sectional model of German high street retailing rents

Matthias Segerer and Kurt Klein, *International Real Estate Business School, University of Regensburg*

Date: Thursday 14th June
Time: 1330-1500
Parallel Session B1

This paper aims to identify the main determinants of German high street retailing rents using cross-sectional regression analysis. The German retail market primarily due to constant consumer de-mand has been becoming

more and more attractive for both international retailers and interna-tional real estate investors over the last years. Taking this development into account, an increasing interest on retail property market research could be expected. Surprisingly, LINSIN 2004 was the only one investigating the German retail property market, especially retail rents, from a scientific perspective. Like other studies, such as of TSOLACOS 1995 and BROOKS/TSOLACOS 2000 or D'ARCY/BROOKS/TSOLACOS 1997, Linsin found that the change of German retail rents can be mainly explained by the macro-determinants change of GDP and change of consumer demand. Hence, the surplus-theory according to FRASER 1986/1993 also holds for the German retail market. While all these results are very important for the forecast of retail rents at the macro-economic level, they neglect that retail rents are always and especially determined by the retail local demand and supply structure. Therefore according to ROBERTSON/JONES 1999 we try to identify the main determinants of retail rents in about 130 German cities using a cross-sectional regression technique. Within this approach we focus on macro- and micro-demand variables, such as population, passersby frequency and purchasing power, supply variables, such as retail sales and retail structure, as well as on variables representing spatial structure, such as centrality aspects. So far, the main findings of the model are: The retail rent is not only driven by macro- and micro-demand variables, but also by the spatial structure of the retail demand, especially by the retail centrality. From a theoretical perspective, this result on the one hand supports the surplus theory retail rents mainly depend on retail demand on the other hand it suggests that retail rents cannot only be explained by an undifferentiated demand potential but also and especially by the spatial distribution of demand and supply. From a practice investment perspective, this result means that retail property investors should not only invest in German cities which are usually in the focus of international investors, like Hamburg or Munich, but also in cities characterized by surplus meaning compared to its hinterland.

Paper Number: 145

The impact of energy efficiency and green performance on the value of corporate real estate portfolios

Ingrid Nappi-Choulet and Aurélien Decamps, *ESSEC Business School, and BEM Bordeaux School of Management*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A5

This article investigates the impact of energy efficiency on the economic value of existing buildings in a real estate investor's portfolio. The improvement of sustainability in real estate is largely supported by a reinforced regulation and the emergence of rating systems which certifies buildings for sustainability. However, it also allowed the actors to consider the potential value of sustainable buildings. Following this, a body of research studying "green buildings" has emerged.

The potential value of green buildings is attributed to attractiveness for occupiers and decreased risk for investors. Several empirical works demonstrate that these advantages can turn into rental premium, higher occupancy rates and thus higher asset values. These works concern mainly U.S. buildings from the CoStar database which are certified Energy-Star or LEED and use hedonic regression modelling to estimate the impact of green labels on rent and sales prices. This highlights the interest to study the potential valuation of sustainable practices for existing buildings.

The aim of this article is to contribute to the growing literature on "green buildings" by conducting a patrimonial approach using hedonic methods on a set of existing buildings. This approach is supported by a research convention which allows us to have access to a real estate investor portfolio including data on energy efficiency in the French context.

The potential valuation of green performance on a portfolio of existing buildings is tested using hedonic regression modeling. The results emphasize a positive impact of energy efficiency which is capitalized into rent and asset value. This effect seems stronger for rent than for asset value and differs regarding buildings' type.

Paper Number: 146

Shaping portfolio strategy using income security and asset quality segmentation

Xiaohui Bao, Malcolm Frodsham, and Ge Xu, *University of Cambridge and IPD*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F2

Conventional real estate portfolio construction seeks to diversify specific risks through allocating assets across property types and geographical locations. Empirical observations have suggested that assets of different qualities and securities of income have experienced rather different recovery paths after the 2007 credit crisis, bringing forward potential benefits by adding two more dimensions to the portfolio diversification process. Ample research has been devoted to segmenting the UK real estate market, thereby revealing the most efficient groupings for risk reduction, and hence also for optimal portfolio construction. This paper builds on past work, focusing on three market segments defined both according to their types and geographical locations, which essentially control for the two traditional dimensions. From this premise, this paper explores the diversification benefit in allocating asset across qualities and securities of income within each segment. Correlation analysis and efficient frontier construction will be used as primary tools to investigate the risk reduction potential. Acknowledging the non-normality in the distribution of real estate returns, this study employees the Mean-Absolute Deviation (MAD) model to span the efficient frontiers in each segment, based on these two dimensions of asset characteristics. Results from this work shall bridge the top-down and bottom- up portfolio construction strategies, by recognising the merit of considering asset specific features in the macro allocation stage.

Paper Number: 147

Economics of valuation theory: The Marshallian synthesis and the theory of equivalence

Terry Grissom, *University of Washington and University of Ulster*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B3

This study distinguishes between value and valuation theory as specified by Wendt (1974) and Grissom (1981, 1985) with an investigation of Marshall's synthesis and hierarchal structure of price, capitalization, and cost as theoretical premises supporting valuation techniques. These techniques are based on neo-classical equilibrium economics associated with the momentary market, the short-run, intermediate and long-run markets phases. Marshall's hierarchal theory associating specific techniques with different time periods and problem situations is contrast with the acceptance in current practice as to what Wendt termed the theory of equivalence. In practice equivalence reconciles all approaches as support for a current measure of value without considering time implications. This study empirically tests, compares and illustrates the implication of theoretically distinct approaches to valuation. The empirical analysis applies these economic theories to office assets across six spatially defined CBD (city centre) markets in the U.S. The methodology integrates micro and macro-economic models, data and units of measurement with the traditional valuation approaches initiated with Marshall's Neoclassical synthesis as noted in the works of DeLisle and Grissom (2011), Grissom (1985, 1986), Graaskamp (1979), and Wendt (1974).

Paper Number: 149

Herding in real estate security analysis

Seung Han Ro, Paul Gallimore, and Simon Stevenson, *University of Reading and Georgia State University*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B4

In this study, we examine how the transparency of securities affects herding among security analysts, measured in terms of the prevailing consensus and recent revisions by other analysts. Prior literature suggests a relationship between market information and analysts herding behavior, with the likelihood of herding increasing with the strength of prior public information (Graham, 1999). When aggregate public information is strongly held and reinforced by the actions of the market leader, an individual analyst is less likely to take an opposing view based on private information. Welch (2000) finds that herding toward consensus among analysts is more prevalent in up-markets than in down-markets. Welch argues that there is less independent information in the market (poor information aggregation) when conditions are bullish. Bikhchandani et al. (1992), describe such a consequence of poorer information aggregation as "fragility", associated with more "fickle" markets.

An examination of this literature suggest a question: if greater transparency in a security makes the analyst's task easier, is herding toward the prevailing consensus less likely? To investigate this question, we develop the

research hypotheses that analyst herding towards consensus will occur less with REIT stocks than non-REIT stocks, and that the positive influence of analysts on the recommendations of other analysts is less when analyzing REIT stocks as compared to non-REIT stocks.
Following Emery and Li (2009), we will use data primarily from the Institutional Brokers Estimate System (IBES). IBES provides each analyst's name, brokerage affiliation, earnings forecasts, investment recommendations, and a unique code that allows tracking of analysts even if they change affiliations. Following Welch (2000), we consider a parsimonious parametric specification which examines whether herding does or does not occur and how the transition from one category to another is affected by the prevailing consensus and recent revisions by analysts.

Paper Number: 152
The rise and fall of Irish property developers
Laurence Murphy, *University of Auckland*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H1
In the late-1990s the manufacturing engine of economic growth in the Irish Celtic Tiger economy was displaced by an increasing reliance on the construction sector, which rose to account for 23 per cent of GNP. From humble beginnings, a small group of property developers rose to national and international prominence. On the back of a massive property boom, these developers assembled multi-billion euro property portfolios and amassed considerable personal wealth. Using case studies this paper examines the role of super-rich property developers in orchestrating spectacular property deals during the boom and how these deals unravelled during the global financial crisis. The paper examines the manner in which the financial problems of individual developers has become socialised through the establishment of the National Asset Management Agency (NAMA) and the impacts of NAMA's strategies on local and international property markets.

Paper Number: 153
The increasing importance of social sustainability - the contribution of social area analysis in housing market analysis
Richard Reed, *Deakin University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A8
An understanding of residential housing market drivers, particularly in relation to economic variations in house prices both within and between suburbs, continues to present challenges for researchers and stakeholders. Most urban cities contain precincts with high or low house values regardless of traditional price characteristics such as distance to the city centre, location of transport or topography. Exactly why these variations in suburb values occur is not always clear, although local residents are often able to easily identify differences between the status of each suburb which affect social sustainability, especially when one area is clearly perceived as superior to another. An understanding of reasons behind varying levels of purchaser demand has always been difficult to fully encapsulate in housing studies, even though clear links have been observed between housing affordability and the type of inhabitant that would live in a particular area. Economic indicators can not always observe the degree of purchaser and vendor willingness in the residential property market; additional consideration must also be given to characteristics of individual buyers and sellers within the marketplace. This research draws the disciplines of demography and housing research closer together and looks to social indicators for an insight into the level of house prices. To establish this link, a two-stage process was adopted based on an Australian housing market where social area analysis initially identifies the characteristics of suburbs within an urban area. This research examined variations in suburb values resulting in a clearer understanding of the relationship between demographic variables and house prices. While acknowledging the overall level of house values is influenced by external economic and political factors, differences between suburb values can be partly explained by demographic variables.

Paper Number: 154

The analysis of using psychological strategy to decrease illegal motorcycle and bike parking problems in city centres

Kuang-Yih Yeh, Hao-Ching Hsia, and Hsu-Sheng Hsieh, *National Cheung Kung University*

Date: Thursday 14th June
Time: 1530-1700
Parallel Session C5

The illegal parking problem of motorcycles and bikes is always regarded as a typical social dilemma. The individual behavior is the result generated from the entanglement of maximizing personal interests and personal moral consciousness in the context of social dilemma. The previous studies indicated that the structural strategy, i.e. punishment and reward, is a good way to force people to cooperate under social dilemma. However, the cost of structural strategy to some extent is high and becomes a burden of local government. The previous studies also pointed that moral consciousness existing in the mind also has significant effect on changing human behavior. Therefore, the psychological strategy is regarded as an assistant role of structural strategy to solve the social dilemma problem like illegal parking problem in the city centre. The purpose of this study is to investigate the effect of the application of psychological strategy on solving illegal parking problem of motorcycles and bikes in the city centre. The follow-up method is adopted in this study to collect panel data. The undergraduate students are treated as the subjects (sample size = 178). The subjects are assigned into 4 groups in this study. Each group receives a corresponding type of information (persuasive communication). The information lets them figure out the present state of illegal parking problem of motorcycles and bikes in the city centre and show the ways of solving those problems. Then, this study investigates whether the provision of different information causes the subjects behavioral change by second questionnaire survey. Consequently, the effectiveness of persuasive communication upon decreasing illegal motorcycle and bike parking is confirmed. This result supports that in order to resolve social dilemma, the psychological strategy which may make up the structural strategy to a certain extent should be incorporated in urban transportation plan, urban facility management plan and urban plan.

Paper Number: 155

Do European real estate stocks hedge inflation? Evidence from developed and emerging markets

Chyi Lin Lee and Ming-Long Lee, *University of Western Sydney and National Dong Hwa University*

Date: Friday 15th June
Time: 0900-1030
Parallel Session D2

This study examines the inflation hedging properties of real estate stocks in developed and emerging European markets over 1990 to 2011. A dynamics ordinary least squares (DOLS) regression is employed to study the long-run inflation properties of European real estate stocks. The preliminary results show that developed real estate stocks provide a positive inflation hedge against expected inflation over the long run, while no similar evidence is found in the emerging markets. The finding suggests that the inflation-hedging properties of real estate stocks are related to institutional involvement in the real estate stock markets. The finding could have profound implications to institutional investors.

Paper Number: 156

Platform competition of government sponsored enterprises and investment banks in mortgage securitization market

Quan Gan, *University of Sydney*

Date: Saturday 16th June
Time: 0900-1030
Parallel Session H6

This article examines platform competition in mortgage backed security market. This market is two-sided in its nature. Mortgage backed securities are used to attract mortgage buyers on one side and property buyers on the other side. While government sponsored enterprises (e.g. Freddie Mac) can only securitize conforming mortgages, investment banks can securitize any type of mortgage. A game theoretic framework is employed to characterize possible equilibria with and without government regulation on investment banks behaviour. Empirical policy implications are also discussed.

Paper Number: 159

REIT property investment decision making: theory and evidence

David Parker, *University of South Australia*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H2

Following a review of relevant literature, a theoretical property investment decision making process for REITs is proposed.

Through structured interviews with ASX 200 REIT CEO's, the property investment decision making process for REITs is observed.

The paper compares the theoretical approach with the practice approach to property investment decision making, with discussion of the findings and conclusions drawn.

Paper Number: 160

Analysing the cyclical co-integration of house price diffusion in Northern Ireland

Terry Grissom, Michael McCord, Stanley McGreal, and David McIlhatton, *University of Washington and University of Ulster*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C6

The Northern Ireland (NI) residential housing market witnessed a dramatic speculative boom-bust cycle far beyond that of any other jurisdiction in the United Kingdom. However, there has been limited empirical analysis undertaken to understand the stylised facts of the lead-lag relationships between the distinctive house price cycles within each market sector of the NI market. This paper analyses the cyclical co-movements, interactions and transmission between the different house price typologies within the NI housing market between 1999 and 2011 in an attempt to identify whether any transmittal and endogenous shocks are evident. The results of the cyclical interactions are supplemented to test for directional and causal lead-lag relationship between the house price cycles. Initial findings highlight the complex and highly correlated interaction between and within the different housing sectors, which seemingly appear to increase in the market downturn period. These findings have connotations for both the mortgage lending and valuation communities.

Paper Number: 161

Urban sprawl in megacities: Is it an unsustainable model?

Blanca Arellano and Josep Roca, *Technical University of Catalonia*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H7

The present paper has as goal the analysis of the urban sprawl phenomenon, from a planetary scale, assuming the hypothesis that this is an unsustainable process. It aims to demonstrate that what were initially a way of human settlement characteristic of many civilizations (northern and eastern Europe, nomadic tribes of America and Africa, etc.) and that represented in the early twentieth century a vernacular urbanism design, has become, particularly in the 70's of the last century, an International Style, a general trend in global scale. A model as a result of the widespread American Dream, based on the extensive land consumption, the car as basic transportation, and oil as primal energy, and some authors have characterized as counter-urbanization (Berry) desurbanization (Berg), edge-cities (Garreau) metapolis (Asher) or diffuse city (Indovina). Despite the diversity of urban development, the increasing consumption of land, the excessive use of land as a scarce resource, it is a constant in the urbanization process in the early twenty-first century around the world.

For this purpose the paper analyses in a first step, the urban sprawl in ten selected metropolitan areas: New York, Los Angeles, Chicago, Mexico, Sao Paulo, Tokio, Shangai, Moscow, London, Madrid and Barcelona.

The first specific objective is to delimitate, measure and understand the urban continuum inside and outside the administrative boundaries. The morphological analysis of conurbation will serve to identify the core city from the surrounding countryside and to compare the different structures of the studied megacities. The comparison between the different models of urbanization of the selected megacities allows making a first approach of the

differences and similarities of these megacities on the phenomenon of urban sprawl and the interaction existing between land consumption and a number of urban sustainability indicators, such as mobility, energy consumption and the generation of CO2. In parallel, the degree of monocentrism or polycentrism of the study areas will be analyzed, in order to validate the hypothesis relating to the improved environmental performance of polycentric metropolitan systems over those characterized by the macrocephaly of a single center.

Paper Number: 162

Statistical analysis in real estate valuation

Daniela Barbu and Ana Maria Gramescu, *SC management Expert International SRL Romania*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C3

Beside this valuation methodology stipulated by the International Valuation Standards Committee, the Automated Valuation Models (AVM) are growing in acceptance. These rely on statistical models such as the multiple regression analysis or geographic information systems (GIS). While AVMs can be quite accurate, particularly when used in a very homogenous area, there is also evidence that AVMs are not accurate in other instances such as when they are used in rural areas, or when the appraised property does not conform well to the neighborhood. AVMs have also gained favor in class action litigation and have been substantiated in numerous cases as appropriate method for dealing with large-scale real estate litigation and retrocession problems.

The central idea of this Paper is that instead of teaching based around three approaches to value we should base teaching on concepts of price distributions, pricing models and prediction error analysis. This ground real estate valuation more firmly in modern economics and finance theory and statistical methods as they have developed in recent academic literature.

*The key concepts are: possible price distribution, pricing model and error analysis. Thus, the price = coefficients * characteristics + error.*

Rely on these elements, the valuation methods fall into two main categories: objective and subjective. The objective methods stipulate the valuation as a science, leads to setting out methods and standards and performance criteria. The valuer reasons from evidence using quantitative methods. The subjective methods confirm the valuation as art. The valuer creates a value by subjective opinion based on experience. Modern societies are dedicated to rationality rather than superstition.

The use of econometrics and regression analysis is a superior tool compared to so-called "traditional" appraisal techniques. Appraisal valuation modeling techniques augment traditional appraisal practice, which differentiates them from automated valuation model systems that literally replaces the appraiser.

Paper Number: 164

Constructing investment performance sustainability indices for commercial office buildings in Australia

Anthony De Francesco, Peter McGuinness, and Drew Slater, *IPD*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E5

The property sector and broader investment community is constrained by a lack of adequate data surrounding the investment performance of sustainable property. In response, this paper details the construction of a green building index to track the investment performance of commercial property assets that have been awarded an environmental performance rating.

In Australia, two prominent tools for awarding environmental ratings to commercial property have emerged. These are the NABERS rating system for existing buildings and the Green Star rating system for design and construction of new buildings. Based on these rating tools the proposed index provides the first quantification of investment returns for 'green property'. The index provides tangible metrics on the performance of green buildings with a focus on investment rather than operational considerations. As such, the index can be used for benchmarking analysis on portfolios with green buildings.

Results show that assets with high sustainability ratings have strong investment returns and outperform non-rated buildings. Higher rated assets experience capital value stability through the trough and recovery phase of

the property investment cycle. In addition, assets with high ratings show lower capitalisation rates when compared to their peers, which is consistent with lower investment risk.

Paper Number: 165

The econometric analysis of parking location choice behaviour considering the presence of social interaction effects

Hsu-Sheng Hsieh, Kuang-Yih Yeh, and Hao-Ching Hsia, *National Cheung Kung University*

Date: Friday 15th June
Time: 1330-1500
Parallel Session F5

The circumstances caused by illegal and chaotic on-street scooter and bicycle parking have induced the severe negative effect upon passing on sidewalks, environment on shopping streets, and traffic on roads in central business district. The local government has attempted to solve this problem by implementing related strategies. However, the parking problem is not be resolved sufficiently owing to many types of travel behavior including parking location choice involve social interaction effect, leading society into social dilemma. The past travel behavior models, used to be bases for policy assessments, assumed that individual behavior is independent of others and therefore it resulted in the constrained performances. In view of the above, this study takes the CBD of Tainan City as the study area, where the stated preference data aimed at parking location choice behavior are collected to build an econometric model being capable of analyzing the collective behavior in the presence of social interaction effect. Accordingly, the threshold value, provided through policy interventions, achieving equilibrium shift of collective behavior could be assessed quantitatively. Consequently, reducing distance (from parking lots to destination) 140m, declining the fixed fee (the parking fee per time) 8 NT dollar (around 0.276 US dollar), or using composed policies, to reach threshold would increase the proportion of off-street parking from the present 5.0% to 71.4%. Moreover, the implementation sequence of policies combinations with feasibility is proposed and examined. Consequently, the result provides a useful reference for the phased implementation of urban transportation plan.

Paper Number: 166

Flooding and commercial property investment: what's the risk?

Gaye Pottinger and Anca Tanton, *RETRI Group, and Achilles Information Ltd*

Date: Thursday 14th June
Time: 1530-1700
Parallel Session C5

The UK experienced widespread and disastrous flood events in 2007 and 2010, and the future incidence of flooding is predicted to increase. Understandably much media attention and research has focused on the impacts on people, their homes and jobs, and the future implications for flood risk insurance that has been a feature of the UK market.

Research on flood risk and property undertaken at the College of Estate Management in 2006 found very little literature covering the effect of flooding on commercial property and the risks to property investment. Property is an important diversification asset in investment portfolios that underpins pensions, insurance and savings plans. Investors surveyed reported undertaking flood risk assessments in conjunction with property acquisitions, but none reviewed the flood risk status of property held in their portfolio, although they monitored other aspects of building performance. This is now changing and the IPD sustainable property index has introduced flood risk monitoring.

This paper is based on research in 2010-2011 that examines the process of due diligence for flood risk adopted by commercial property investors to identify risks, inform purchase decisions and devise subsequent actions geared to mitigating and managing flood risk. Case studies illustrate the process, derived from interviews with major investment funds, their professional advisers and other stakeholder representatives, including environmental consultants, valuers, solicitors, lenders and the insurance industry. The paper explores the challenges to investment decision making and property valuation, given continuing uncertainties associated with flood risk predictions.

The case is made for further research to establish the extent of UK investment property potentially at risk from flooding, the degree of risk to which it is exposed and to inform the way in which the risk is translated into valuation. Property represents about 4% of total investment assets under management in the UK (and 2.8% in

the institutional market), but is significant in absolute terms given a market value estimated by IMA at Â£4.4trn. About 20% by value is in central London, known to be one of the most at risk cities globally for flooding "" but there is otherwise no clear picture of where and how much commercial investment property could be at risk. This paper makes the case for finding out.

Paper Number: 167

Changes in the White-Black house value distribution gap from 1997 to 2005

Eric Fesselmeyer, Le Kien, and Seah Kiat Ying, *National University of Singapore, and Qatar University*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F7

This paper examines the white-black house value gap in the United States. Instead of using standard conditional mean analysis and decomposition methods (via OLS regression), we estimate and decompose the changes in the white-black house value gap from 1997 to 2005 using quantile regression. We find that studying the entire distribution of house values is important. Our results show that racial differences in house values are mostly explained by differences in the characteristics of white-owned and black-owned houses but that the variation in the racial differences across the house value distribution are explained by racial differences in the marginal pricecs of housing characteristics. Moreover, between 1997 and 2005, we find that black-owned houses increased in value faster than white-owned houses in the lower value percentiles while the opposite was true for high-valued houses. In this case, we conclude that these changese were not caused by racial differences in house characteristics but by differences in the appreciation rate of the marginal prices of housing characteristics.

Paper Number: 168

Dynamics in real estate development: on the relationship between residential and commercial real estate markets

Dennis Schoenmaker and Arno Van der Vlist, *University of Groningen*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G1

This paper considers the dynamics in real estate development over time. We extend earlier literature by considering the relationship between the various markets of housing, retail, offices and industrial real estate. Does residential real estate development complement or substitute for commercial real estate development? Does residential real estate development lead or lag those in commercial real estate? How do shocks propagate through the various real estate markets? These questions are central in this paper. We present an empirical model of real estate development that includes the short and long-run relationship between real estate markets. For this we use Dutch time series of monthly data over 1995-2009. We investigate the time series properties of the data by testing for unit root and co-integration of the series. Empirical tests suggest a vector autoregressive model framework for real estate development series.

Paper Number: 169

Efficiency effect of partnership models in the procurement of corporate real estate

Andreas Pfnür and Kevin Meyer, *TU Darmstadt*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G9

The influence of immovable resources on the achievement of corporate goals, is increasingly recognized by corporates. As a result, improving the efficiency of real estate management is becoming more and more important. Due to the major leverage regarding costs and benefits, in particular the procurement of new real estate is very important. For this purpose are two variants available. Firstly the corporates are solely responsible for the investment or secondly buy the investment performance on the market via an investor model. In addition to these two variants, the PPP concept has been succesfully established in recent years. However, this partnership model has not been transferred to the procurement of corporate real estate till yet.

This paper analyzes on the one hand the structural and procedural characteristics of the three procurement variants. On the other hand, are those criteria presented which are relevant from the perspective of the corporates to increase efficiency in the procurement of real estate.
In the empirical part of the paper are three case studies of the procurement variants in terms of meeting the efficiency criteria compared. This comparison is based on data which were generated in the scientific monitoring of a pilot project. In this pilot project the PPP concept is transferred to private real estate users for the first time. The determination of the efficiency differences is carried out by using the TOPSIS technique. This technique makes it possible to measure the relative efficiency of the different variants among themselves, without having a fixed standard of comparison.
To increase the efficiency of the transmission the PPP concept to corporate real estate, concrete recommendations are developed from the findings of the efficiency analysis.

Paper Number: 170
The value of property management: An empirical investigation
Piet Eichholtz, Erkan Yonder and Rogier Holtermans, *Maastricht University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A8
This paper is one of the first empirical studies to investigate the impact of property management on the market value of a building. The outsourcing institute estimates that the real estate service industry has a total value of more than 340 billion dolalr. Within this industry property management plays an important role, especially in the case of commercial real estate. Therefore it is vital to investigate whether the investment in such a service pays off in the sense that some of the cost are recuperated at the time of transaction.
A comprehensive dataset containing U.S. commercial real estate transaction data from 1986 until 2013 offers the unique possibility to analyze the intrinsic value of a service, such as property management. Hedonic pricing models, and propensity score weighted models in combination with a geographical information system are used to analyze the relationship between property management and transaction price.
Evidence is found that property management indeed has a positive impact on the selling price of a property. The observed premium related to the presence of a property manager is more than 6 percent in case of the most conservative estimation. Subsamples by sub periods illustrate that the impact of property management varies strongly under differing conditions. Propensity score matching verifies the robustness of the presented results; the effect of property management remains highly significant.

Paper Number: 172
The emergence of lean management in property markets
Tuuli Jylhä, Seppo Junnila, and Edward Finch, *Aalto University, and University of Salford*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I9
Purpose
This paper seeks to describe how the lean management approach challenges the traditional way of thinking and pushes organisations to develop their operating practices in partnership within property markets.
Method
This exploratory study examines one in-depth case study regarding the partnership of two organisations, a real estate owner and its property manager. A theoretical lean property management approach was constructed in order to understand the prevailing partnership. Data was collected through 26 interviews, partnership documents, and workshop activities. Based on the empirical evidence, lean principles to develop the partnership were formed and later discussed in a subsequent workshop. Finally, three closing interviews were conducted in order to understand what new insight lean offered to the case organisations.
Findings
To make it possible to develop operating practices in the partnership, lean suggests making the current practices more transparent through process mapping. A key insight was gained through this process: although the organisations had the same contracts and other documents, a major difference was found regarding the agreed practices adopted in the respective organisations. The organisations had the same goals but the

perceptions drove them along different routes to achieve their aims. Thus, a lot of conflicts and turbulence was generated in the daily working. From a lean perspective, a flow was absent; "the boat ran into each shoal along the way" and, thus, the end-customers, (i.e., the office users), did not get the value that would have satisfied them.

Implications

Through lean management the organisations found a much-needed new approach to develop their partnership, which was sought in order to increase the satisfaction of their end-customers. Although many of the ideas from lean can be implemented and used without being lean conscious, the principles of lean made the problem clearer and enabled the organisations to start dealing with the challenges.

Paper Number: 173

Determining indicators of quality of life differences in European cities

Wolfgang Breuer and Dominique Schaeling, *Aachen University*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I9

The comparison of cities by indicators covering several topics of urban life is crucial for policy decisions such as funding allocation for urban development. Simply adding up a high number of indicators to one single index evokes reasonable criticism due to opacity and very limited interpretation possibilities. Nevertheless, the same arguments can be made against using large sets of disaggregated indicators for city comparison. This paper helps to steer a middle course by identifying of a small number of relevant indicators to determine quality of life differences. The basis of this analysis is the Urban Audit Key Indicator Set which is provided by the Eurostat database and consists of 46 indicators covering different aspects of urban life. Principal Component Analysis reveals a small number of indicators which have a high impact on the overall differences between the selected cities of each of the ten countries and five time frames that were analysed. This study extends the general application of Principal Component Analysis for regional clustering by the combination of 244 partial analyses to identify determining indicators of urban differences. The results show that a small set of indicators, which are often among the most relevant determinants, can be identified. Those selected indicators are spread over the initial groups representing environmental, human, manufactured and social urban capital as well as demographic aspects. They cover current political debates on environmental, infrastructural and migration difficulties in cities, safety and especially security impairment due to anonymity and poverty in densely populated areas as well as population changes leading to space shortage in larger cities but also abandonment in small cities. Applying this method to wider data sets seems promising as it might lead to important insights which could impact policy measures on urban development and its funding allocation processes.

Paper Number: 174

Can housing liquidity help forecast subsequent house price appreciation: Evidence from the US and the Netherlands

Paul Ernesto Carrillo, Erik Robert de Wit, and William Larson, *George Washington University, and University of Amsterdam and QuantVille Finance*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E6

This paper studies whether liquidity information is helpful to forecast future prices in the housing market. First, we construct a panel of indicators that measure housing conditions in the Netherlands and in one large suburban area of the Washington DC area. Besides average home prices, the indicators include (quality adjusted) mean and median time on the market, mean difference between list prices and transaction prices, share of transactions below the transaction price, among others. These statistics will be used to construct an index that measures seller's bargaining power and several indicators about housing liquidity. To estimate indicators that measure housing liquidity and seller's bargaining power we will follow the methods proposed by Carrillo and Pope (2012) and Carrillo (forthcoming). Second, we test if the bargaining power index and the other measures of housing market conditions have any predictive power to forecast home appreciation rates. Conventional time-series models are used to explore the link between housing liquidity, seller's bargaining power and the rate of change in home prices.

This research has important implications for both the real estate industry and policy makers. Given the importance of the housing market and the availability of MLS data, the construction of such indicators on regular basis for all areas in the US, the Netherlands and other developed countries should be a relative straightforward task that could inform economic agents about market conditions. Improved forecasts and understanding of current market conditions should be of interest to home buyers and sellers (and their agents) who generally like to be informed about market conditions when setting their optimal marketing strategies and, of course lenders, the PMI industry, and even participants in the derivatives market. Information about seller's bargaining power and housing liquidity could also be relevant to investors and regulators because, it provides information about market risk and, more importantly, it could be a valuable input to predict future home prices.

Paper Number: 175

Valuing terra nullis: Dealing with the impact of pipeline and infrastructure projects in the Arctic

Richard Grover, Natalia Yakovleva, Mikhail Soloviev, and Vasilisa Platonova, *Oxford Brookes University, University of Winchester, National Research University, and Far East Federal University*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C5

Until the twentieth century the northern regions of Russia and North America had little by way of infrastructure and urban development. This changed as the extent of the mineral wealth in these regions came to be appreciated and exploited. During the Second World War and the Cold War the regions came to be of strategic importance, resulting in the building of major military bases, such as the Thule Air Base, and infrastructure, such as the Alaskan Highway. The mineral wealth of the region, particularly hydrocarbons, is located long distances from consumers, requiring major infrastructure projects across challenging terrain and environmentally sensitive areas. The beneficiaries of such projects, who gain access to more secure and cheaper energy sources, often reside a long way from where the impact of the projects is felt. By contrast, the local population may have to bear the environmental and social consequences and any adverse impact upon traditional livelihoods, such as hunting, fishing, and nomadic agriculture. These raise questions about how and whether the local populations can share in the benefits from development and the extent to which the environmental and livelihood consequences can be mitigated whilst achieving the understandable desire of central governments to improve living standards and security of energy supplies for their populations as a whole.

In the early days of development in the region, there was a tendency on the part of governments to view the region as terra nullis, wilderness land belonging to no-one. In lands without settled agriculture, surely those displaced from one piece of tundra, taiga, or icecap to another could be relocated on an apparently interchangeable land? This was done without regard for the extent to which the landscapes were managed, the impact of relocation and development on hunting and other activities or the ties of indigenous populations with the land. More recent developments have provided from greater participation of the local population in the planning process and a sharing of the benefits from development. The paper compares and contrasts the approaches adopted in North America, particularly Canada, and the Russian Federation.

Paper Number: 176

Measuring the impact of operational energy ratings on office leases in the UK

Jorn Van De Wetering, Franz Fuerst, and Peter Wyatt, *University of Reading and University of Cambridge*

Date Friday 15th June

Time 1530 – 1700

Parallel Session G4

The aim of this research is to investigate whether operationally energy efficient offices in the United Kingdom command a price premium when compared to operationally energy inefficient offices that possess otherwise similar characteristics.

Since October 2008 the operational energy consumption of commercial office space in the United Kingdom has been assessed with Display Energy Certificates (DECs). A DEC shows an operational rating which conveys actual energy used by the building on a scale that ranges from A to G, with A representing operational energy efficiency and G representing operational energy inefficiency.

DEC ratings are mandatory for public authorities and institutions in the UK that provide public services to a large number of people, when they occupy buildings where the total useful floor area of the building exceeds 1,000 m2 and when these buildings are frequently visited by the public. DEC ratings must be renewed on a yearly basis so that the year-on-year energy consumption can be monitored and they also have to be put on display in the building so that they can be seen by members of the public.
This paper investigates the effect of an operational energy consumption label on observed contract rents in the UK and as such provides a potentially stronger empirical test of the hypothesis than previous appraisal-based studies. Firstly, we investigate a panel dataset that combines information on a sample of DEC ratings for commercial office buildings that were awarded from 2006 to 2010 with a dataset containing commercial office lease transactions and a set of building control variables. As a robustness check, we also investigate the relationship between data on DEC ratings, data on building control variables and data from the Valuation Office Agency on the rateable value of buildings, which represents the open market annual rental value of the sample.

Paper Number: 177
An analysis of low carbon design and its effects on the value of a property including valuation approaches
Samriti Sharma and Malawi Ngwira, *Glasgow Caledonian University*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E5
Purpose: It is now generally accepted that sustainable features add value to a property. Therefore organisations such as the RICS are encouraging its members to reflect this in valuations. Valuers also have to be responsive to the growing trends by organisations in embracing socially responsible investment. While it is appreciated that the determination of market value of an investment has to be firmly based on market evidence, the calculation of worth on the other hand can be quite subjective. The purpose of this paper is to evaluate the appropriateness of current valuation approaches and practice in integrating the non financial sustainable benefits of low carbon design (LCD) properties into calculation of worth.
Methodology/Approach: Traditionally, the calculation of worth has been mostly based on economic analyses using financially based techniques and therefore only focused on the potential future financial return of a property. These techniques do not integrate the likely intangible benefits of LCD properties, such as social and environmental advantages. A questionnaire based survey emailed to over three hundred property practitioners, tenants and owners of commercial properties and in-depth interviews with a select number of participants were used to confirm current practices.
Results/Conclusions/Recommendations: The results of the study show that there is widespread recognition and appreciation that LCD properties add value and this is reflected in practitioners' methods to calculate worth, where the majority include sustainability issues. In terms of the valuation practice, the majority of practitioners do reflect sustainability issues in valuations to calculate worth. However, the inappropriate approaches are used in that intangible benefits are reflected by making adjustments to financial based methods. Methods such as analytic hierarchy process (AHP), which quantitatively evaluate, in a systematic and logical manner, subjective value laden attributes, are hardly recognised let alone used.

Paper Number: 178
Three pillars of urban regeneration
Bugra Kagan Esen, *Ankara University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A9
This research analyzes urban regeneration phenomenon in Turkey, which has a relatively low record of success, according to the structure of its stakeholders or pillars. It is observed that the three pillars presented in this study are supposed to be in balance for a flawless project.
The first pillar is proposed to be the human beings, that is, the shareholders of the project area. The author at this point suggests that they appear with their "homo-economicus" identity. In the paper, this idea is further argued against the claims of gentrification.

The second pillar of urban regeneration is the public authority. Although the municipalities are authorized to perform urban regeneration projects, new regulations also enable the Ministry of Urbanism to take control. In any case, state institutions are perceived to be dependable when peoples' property rights are under consideration.
The third pillar of urban regeneration is regarded as the private sector, namely the developer. A Developer's inclusion is the assurance of the quality of a project. Nevertheless, it is not always necessary to contain a profit driven developer in such projects. Some urban regeneration intentions might be financially unfeasible but politically and socially feasible. In such cases, certain governmental institutions subsidize projects.
In order to demonstrate the critical relation amongst the abovementioned pillars, several urban regeneration projects from Istanbul are comparatively elaborated in the paper.
This research aims to contribute to urban sciences in two ways. The first is to frame the urban regeneration phenomenon with its tangible and intangible boundaries in a conceptual way and help policy makers comprehend the partners' (pillars') interests. Second, it helps implement a dynamic project management strategy where the three pillars meet at a positive bargaining zone.

Paper Number: 179
How does BREEAM impact on the pricing levels of commercial offices in the UK?
Jorn Van De Wetering, Franz Fuerst, and Pete Wyatt, *University of Reading, and University of Cambridge*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D5
The aim of this research is to investigate whether offices in the United Kingdom with an environmental label command a price premium when compared to non-labelled offices that possess otherwise similar characteristics.
The de facto standard for sustainability in buildings in the UK is the Building Research Establishment Environmental Assessment Method (BREEAM). BREEAM is a building quality indicator that investigates a range of environmental criteria, awards credits based on the degree to which these criteria are represented in a building and then awards a rating based on the total number of credits that have been achieved.
For organisations, BREEAM can be used to demonstrate a commitment to Corporate Responsibility principles and to the overall green agenda. We postulate that companies are willing to pay a premium for better environmental performance and efficiency of buildings because of the reputational benefits that they provide, as well as reductions in operational costs that might be achieved in them.
This paper investigates the effect of environmental certification (BREEAM) on observed contract rents in the UK and as such provides a potentially stronger empirical test of the hypothesis than previous appraisal-based studies. We investigate the impact of a BREEAM rating using a control sample of non-BREEAM rated office buildings throughout the UK. To achieve this, we use a panel dataset that contains building characteristics and more than 20,000 commercial office lease transactions that were completed from 2006 to 2010. Early results indicate that a premium exists for BREEAM certified buildings.

Paper Number: 180
Modelling uncertain operational cash flows of real estate investments using simulations of stochastic processes
Andreas Pfnür and Stefan Armonat, *TU Darmstadt*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D2
In this paper we apply a numerical simulation of stochastic processes to the problem of real estate investment valuation. In contrast to usually on the income side focussed models in the literature here a focus is put on the uncertain dynamics in real estate operating costs as a key return factor. Those uncertain operating cost will be integrated into an enhanced dy-namic simulation. To model the dynamics in the uncertainty of the cost schedule we use a selection of different types of stochastic processes. Therefore we subdivide the operating costs by costs drivers and determine an appropriate stochastic process for each of the de-rived cost clusters.
The application of our model to real world investment situations shows that linear and de-terministic modelling underestimates the risk generating effect of uncertain operating ex-penses, which often can lead to inefficient

investment decisions. In a further application of our model we demonstrate the relevant impact of uncertain operating costs to the optimal capital structure of real estate investments. To optimize the capital structure in our applica-tion we use heuristic optimization with genetic algorithms.

Paper Number: 181

Effects of rental legislation on the office market: a game theoretic analysis

Sigrid Katzler, Hans Lind, and Olof Netzell, *Royal Institute of Technology (KTH), Stockholm*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D1

When the rental market in Sweden is described in general terms it is said that in 1972 the commercial rental market was deregulated while the residential rental market continued to be regulated. This is however not the whole truth, because even though the landlord is free to set the rent in an empty office, there are rules concerning the rent that the landlord can demand when a lease is to be renewed and also rather detailed procedural rules. As the rental contract in Sweden is rather short, typically 3 years for office buildings, the rules concerning renewal of contracts are important for the working of the market.

The hypothesis to be developed in the article is that the rental legislation increases the risk for the landlord and makes it rational for the landlord to accept a rent below the rent that would prevail if the parties had contractual freedom regarding renewal of leases. This hypothesis is visualized in a game theoretical model.

The hypothesis is confirmed by preliminary studies from the rental markets in the Nordic countries. Differences between rent levels in renewed leases and newly signed leases are significantly lower in the other Nordic countries (Norway, Finland and Denmark) compared to Sweden. This may be explained by the relative contractual freedom between the landlord and tenant in the other Nordic countries compared to Sweden. In the end of the article the authors discus alternative procedural rules in Sweden, and what the authors consider to be a reasonable balance between the interest of landlords and tenants in renewal of leases.

Paper Number: 182

Compatible or competing: The rationale for including unlisted real estste within a European multi-asset investment portfolio

Martin Haran, Peader Davis, and Michael McCord, *University of Ulster*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C2

As storm clouds continue to embroil the EU economy sentiment across the real estate investment community within Europe remains subdued. Merkel and Sarkozy may have the unenviable task of unravelling Europe's financial debacle, however for real estate investment professionals assuming the mantra of generating returns based performance the task over the next 12 monhts is no less onerous.

Post-financial crisis real estate investment markets across Europe witnessed a flight to prime a symptom manifest in both the direct and unlisted real estate markets. Investment activity has predominantly centred on core markets and on prime stock with the appetite for risk aversion exceeded the desire for returns based performance at least in the short term. Paradoxically, the nexus of activity on core' investment product has caused safe markets to become over heated' culminating in the capacity to capture value being eroded. Forecasts suggest that whilst core markets will continue to deliver strong income based returns over the course of this calendar year, it is envisaged that 2012 will also witness increased levels of investment activity higher up the risk spectrum for investors with access to proficient asset management skills there is significant capacity to capture value through secondary/value added opportunities.

Investment opportunities are nonetheless set against a backdrop of continued illiquidity within the banking sector (the withdrawal of Eurohypo and Société Générale from the market serving to further highlight the lack of appetite for real estate lending). Indeed, the de-leveraging strategies being initiated by debt providers which have been a feature of the real estate market in Europe over the last few years are likely to continue for the foreseeable future. The funding gap created is likely to be filled to some extent by equity investors. Nonetheless, the overall volumes of investment being committed to the real estate asset class post-financial crisis remain subdued; as a consequence competition for investor capital is likely to remain intense over the next 12 months. The 2012 INREV investor intentions survey cites a downward trajectory in funding allocations

likely to be committed to the unlisted real estate sector over the next 12 months relative to the same period last year. Pertinently, the same investor cohort envisages a continued increase in allocation to direct real estate consistent with an appetite for growth.

Paper Number: 183
The value of investment of YIMBY & NIMBY facilities on housing market
Chung Hsien Yang, *National Pingtung Instute of Commerce, Taiwan*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I7
Because of the positive utility of YIMBY facilities, there is higher housing price which house close to YIMBY facilities. On the contrary, there is lower housing price which house close to NIMBY facilities. By the view of investment, when the housing price increasing, is there higher growth rate of housing price which house close to YIMBY & NIMBY facilities or not? Is there lead-lag relationship both the growth rates of housing price? The study will test the change of marginal price rate both YIMBY & NIMBY by time, it will find the value of investment of YIMBY & NIMBY facilities on housing market.

Paper Number: 184
The use of loan covenants in the European real estate sector
Victoria E Ormond, *University of Cambridge*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D4
This paper reviews the use of loan covenants employed within private credit agreements in the commercial real estate sector. As well as reviewing the most commonly covenanted financial ratios; loan to value and interest coverage, an overview of other financial, general, property and informational covenants is provided.
The paper is uniquely based on a panel of data drawn directly from a sample of European commercial credit agreements. These agreements are sourced from a cross-section of listed and unlisted borrowers. A sub-sample of renegotiated credit agreements are also analysed to provide a comparison of loans pre and post renegotiation. Additionally, data from supporting loan documentation, also provided by the borrowers, offers further details regarding actual financial ratio levels over the term of the loans.
This research is generously sponsored by the Investment Property Forum Educational Trust.

Paper Number: 187
Measuring the elasticity of local housing markets with changing macroeconomic conditions using a varying parameter model
Elaine Worzala and Thomas Springer, *Clemson University*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E6

The number of closed housing transactions is a direct indicator of local housing market conditions. Transaction volume is affected by many external factors. This study uses a unique database to examine local economic data from 27 markets in the US from 1990 to the third quarter of 2011 in order to examine the impact of changing macroeconomic conditions on single-family housing transaction volume, an indicator of market conditions for a specific area. Our model produces an elasticity or sensitivity coefficient that measures how much transaction volume changes for a given change in national economic conditions, as measured by the year over year percentage change in the real US Gross Domestic Product (GDP). We use summary metropolitan-level data on single family homes that was generously provided by the National Association of Realtors and Capital Analytics. Local measures of housing market conditions include the number of regular (nondistressed) sales recorded taken from metropolitan and county-level tax assessor records. Other variables included in the analysis include average selling price per square foot, time-on-the-market, change in employment, foreclosures as a percentage of sales, and the differential between the 3-month LIBOR and the 3-month US Treasury rate to

proxy for international risk. It is envisioned the real estate market participants could use the model to examine how the number of market transactions in each of these markets have responded to a change in the GDP. This model will also allow us to compare housing markets and we hope to eventually extend the analysis to forecast future market conditions. In addition, we will be able to examine how transaction levels have shifted over time. This proposed model and its output will be useful in raising the understanding of how a housing market will respond to changing stimuli, which in turn will be useful to real estate brokers in planning future activities, to lenders in deciding where to allocate their capital and to public planners making fiscal policy.

Paper Number: 188

Brokers and markets: an analysis of transaction data for London and New York

David Scofield and Steven Devaney, *University of Aberdeen*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F1

As is well established, commercial real estate is a highly specific asset: heterogeneous, indivisible and with less information transparency than most other commonly held investment assets. These attributes negatively affect the liquidity of the asset and encourage the use of intermediaries during acquisition and disposal. The cost of intermediation, or brokerage, is the single largest non-tax charge to the investor when acquiring assets. Despite this, there is comparatively little work dedicated to this aspect of the commercial real estate investment market in the extant literature. Furthermore, there are few attempts to explain the use of different brokerage models in different markets.

Therefore, to better understand the factors that affect broker representation, this study offers the results of a detailed analysis of 12,932 commercial real estate transactions in London and New York City from 2001 to the end of 2011. This data is provided by Real Capital Analytics and covers more than $500 billion worth of investments in this period. The study seeks to compare brokerage trends as observed in these two leading investment destinations. The research tests whether the decision to invest with broker representation varies by location, market, investor and asset characteristics. The results show that broker representation varies by and within locations, with purchasers in London far more likely to be represented by brokers as compared to those in New York.

Paper Number: 191

Winning in the long run - driving sustainable financial performance on real estate

Juerg R. Bernet, Sarah Sayce, Rupert C. Ledl, Maarten Vermeulen, and Fiona Quinn, *EURO Institute of Real Estate Management, Kingston University, Danube University Krems, and Composition Capital Partners*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B5

Real estate investment decisions in Europe are lacking hard facts on the financial viability of a sustainable asset management. In the United States, Great Britain and Australia, recent research had observed financial premiums for certified green buildings. But no corresponding research had yet been performed into commercial real estate in Europe. Therefore this empirical study aimed at the search for a rational link between sustainable management and financial performance of retail and office properties in Europe.

The study was focused on existing buildings and their performance at asset level. The first step profiled the attribution of the sustainability performance for properties from standing real estate portfolios. The second step defined an analytical approach to the pricing of sustainability externalities in European property markets. And the third step measured the contribution of the sustainability management to sustainable investment performance, the so-called 'green alpha' impact.

The data was provided by the pan-European research platform Sustainable Investment in Real Estate s-i-r-e, an independent network of institutional investment and management companies in real estate, headed by the EURO Institute of Real Estate Management. The performance indicators were adopted from the Global Reporting Initiative GRI and its Construction and Real Estate Sector Supplement CRESS. The statistical analysis followed conventional practice of single linear and multiple logistic regression models.

As a result of this study the first sustainability report according to the new industry standard GRI CRESS was established on the GRI application levels C and B. The 'green alpha' methodology for the pricing of externalities

was robustly defined and tested with a large real world portfolio, taking into account econonic fundamentals, property characteristics, and financial, environmental and social performance. First market evidence for 'green alphas' of sustainable asset management was successfully identified in selected office and retail markets, although the need for more consistent data became clearly apparent.
The project was directed by Danube University Krems, Department of Building and Environment, in co-direction with Kingston University London, School of Planning and Surveying. It was awarded grants by the Royal Institution of Chartered Surveyors RICS Education Trust and the Austrian Chamber of Commerce, Federation of Real Estate Professionals.

Paper Number: 192
Municipal real estate management in Polish city of Gdansk compared with selected European cities
Anna Wojewnik-Filipkowska and Malgorzata Rymarzak, *University of Gdansk*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C4
The units of local governments in Poland own one of the largest stock of real estate. Their property is very differentiated. These are property occupier for water-supply and sewerage networks, as well as sewage treatment plants, dumping grounds, cemeteries, fields assigned for investments of public purposes, or investment fields assigned for residential and commercial building, schools, habitable apartment-houses, as well as service real estate. Each particular category of the differentiated property requires individual management. It is obliged that it corresponds with the policy and individual tasks of local governments, as well as with holistic policy of development of territorial unit. The real estate management influences the economic condition of local government, companies and citizens in direct and indirect manner. Irrational management led to increase of functioning cost, lowers budgetary incomes, makes economic activity difficult, disorganizes real estate market. The rational real estate management can be an important instrument of steering processes of local sustainable development, a tool for creating active revenues, a factor of forming potential opportunities for development.
The general aim of the study is present the portfolio, system, finance, organization and real management strategy of real estate in Gdansk. Particularly, we will present classification of municipal property on the base of bylaw and specify the type of real estate management. In the course of carried research, we will perform a election of European cities and we will perform comparison between them in the context of municipal real estate management as forming potential opportunities for development.
For the purpose of the article, we will study the literature of real estate management, real estate markets and public management. The research will include studies of proper regulation and municipal documentation. Research methods will consist of logical concluding, induction and comparison.
Developing the answers to the above stated problem can contribute to the competitiveness and greater efficiency of the public sector in making real estate decisions that determine municipal investment and development. The contribution of the project to a new knowledge area is, therefore, not only of theoretical nature, but has scientific and applicability values in the first place. The results of the study can be useful for public real estate managers.

Paper Number: 194
Is there a demand for green offices in Central and Eastern Europe? A comparison of Austria, Poland, Slovakia and Ukraine
Gunther Maier, Michal Gluszak, Andrej Adamuscin, and Kateryna Kurylchyk, *Vienna University of Economics and Business, Slovak University of Technology, and Cracow University of Economics*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B5
Despite of the recent dynamics in green building movement in Central and Eastern Europe (CEE), there is little scientific evidence of the actual demand for green office space and market value of green building certificates. Contrary to the US and UK, where there is enough market data for hedonic studies that demonstrated the positive effect of Green Building certificates on rents, occupancy level and transaction prices (for comprehensive review see: Falkenbach et al., 2010), the green office stock in CEE is still too small for revealed

preference analysis. Therefore, the current study uses a stated preference data and confronts office tenants with hypothetical choices in order to assess demand for sustainable office space.
The paper presents empirical results from web-based choice-based conjoint experiment in four CEE countries: Austria, Poland, Slovakia, and Ukraine. In the experiment we confront office tenants (decision makers in companies) from Krakow, Warsaw, Wien, Bratislava, and Kiev with hypothetical options for office alternatives. One of the characteristics taken into consideration is the availability of a Green Building certificate. As the result we estimate willingness-to-pay (WTP) for green building certificate in each of CEE countries in the study. We also address the question of differences in WTP between countries in the study.

Paper Number: 195
Principles of public private partnership financing: A Polish experience
Anna Wojewnik-Filipkowska and Dariusz Trojanowski, *University of Gdansk*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G2
Public private partnership investment projects are growing in size globally as governments cannot afford to finance all essential investment. In the conditions of limited public budget, the government restricts itself to supervisory role and concentrates on creating new opportunities and profitable conditions for private investors. Among others, it is well prepared PPP law, that is advantageous to better structured deals and may contribute to a more reliable, transparent and efficient investment process.
Public-private partnership is based on contracts strongly influenced by different historical legal traditions. In Polish circumstances, the public private cooperation may merely be based on Municipal Management Act, which allows cooperation along with another basic regulations. There is also a comprehensive legislation for public-private partnership in Poland. The relatively new legal framework include Public-Private Partnership Law and Concession Law. These new two regulations shows a number of advantages for cooperation of public and private entities. The most important is the broader possibility of involving a private partner, the transfer of part of the risk to the private partner, flexibility in private partner selection, explicitly stated possibility of public assets ownership rights and taxation preferences.
The aim of the study is to compare these relatively new two legal dimensions of PPP law in Poland and analyze its practical consequences. Hence, its results should be useful for both public real estate managers searching for partners and private investors looking for opportunities. The research includes studies of appropriate regulation and projects documentation. Research methods consisted of logical concluding, induction and comparison. This research will be conducted as qualitative research with interviews, with a review of selected case studies.

Paper Number: 196
The value of water: pricing of waterfront amenities during a real estate bubble in the US
David Wyman, Norman Hutchison, and Piyush Tiwari, *Clemson University, University of Aberdeen, and University of Melbourne*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A7
The period of study, from 2000 to 2010, was a decade of turbulence in the American residential real estate market. The time period witnessed a sharp increase in property prices from 2000 to 2006 followed by a sharp decline after the 2007 sub-prime crisis in most markets in the US. The objective of this study is to estimate the value attributed to waterfront and golf course view amenities as they are revealed in the market through transactions over this time period. A related question that is examined is how the value of these amenities have shifted (implying buyers and sellers preferences) during different phases of the real estate cycle. A spatial hedonic price model estimates prices for 589 vacant lots that were sold in a lakefront community of Lake Keowee, South Carolina. In addition, a geographic information system (GIS) is used to construct a number of spatial variables for the model. Results indicate that some economic relationships break down in the post-bubble frame suggesting that buyers become more discriminating in a post-bubble market. Specifically, two key measures break down: out of state buyers no longer pay a higher premium than in-state buyers and prices (and sales) for non-premium properties are negatively affected to a proportionately greater extent. This study

illustrates the need for both spatial and temporal granularity in hedonic modeling, particularly if the study includes periods of speculative booms or crashes.

Paper Number: 197

Capital structure and European property companies

Andrew Baum, Colin Lizieri, and Jamie Alcock, *University of Cambridge*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D2

The broad aim of this research is to develop a better understanding of the capital structure practices and processes of European real estate companies. The emphasis is on internal processes and the firms' rationale for particular decision making behaviour.

By capital structure processes and practices, we mean the ways by which firms obtain capital for projects and activities. Broadly, this includes decisions about debt versus equity, use of internally generated capital, decisions about debt maturity profile and seasoned equity issuance. In turn, such decisions affect the required returns for stakeholders: the required cost of equity, the marginal cost of debt, tax impacts, dividend policy; and, again in turn, these feed into required returns discount rates, target rates of return, hurdle rates - for project appraisal. There are, thus, interactions between capital structure decisions and capital budgeting decisions.

The primary motivation for the research relates to apparent discontinuities between the capital structure decisions expected from the models of financial theory; observed market practice on capital structure; and the reported decision-making processes and views of market participants. The research is intended to explore any differences in expected, observed and reported practices and to seek to reconcile or explain those differences.

A secondary motivation is to explore the extent that market practices and manager attitudes change over the cycle: are property company managers simply reactive or are there defined and consistent strategies that give rise to changes conditional on the market environment?

Paper Number: 198

Places and their distinctive personalities: A multi-stakeholder approach

Deborah S. Levy, Christina K.C. Lee, and Crystal Yap, *University of Auckland, Monash University, and AUT University*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H3

Branding is an important aspect in marketing because consumers are attracted to brands with values which are congruent to their own values. It is the "unique added values" of a place brand that give places their distinctive personalities. These values are derived from all aspects of the environment, and will function as a brand regardless of whether or not it is managed as a brand. Place brand meaning also gives residents a sense of identity within society. Skinner and Kubacki (2007) suggests that "there is a growing body of research which identifies the need to investigate brand from a multi-stakeholder perspective". In this study, we examine the elements which communicate a place brand from the perspective of residents and estate agents located in two affluent residential areas located close to Auckland's CBD. A telephone survey of 561 residents from these two suburbs in addition to a content analysis of 2968 E-advertisements and interviews with estate agents provide the data to examine the residents' and estate agents perception of the personality of their suburb.

Paper Number: 200

Unlisted fund performance

Andrew Baum and Nick Colley, *University of Cambridge, and Property Funds Research*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A4

Since the mid 1990s, in a generally strongly performing property market, there has been a significant growth in the number of unlisted real estate funds. These funds have provided fund managers with the opportunity to

charge performance fees, without the manager being able to provide clear evidence of historic out-performance against market benchmarks. typically been described in terns of their differing styles core, core plus, value-added, opportunity with different return targets, different levels of leverage and different fee and incentive structures. These factors all suggest different risk levels.

With the events of the period 2008-2011, investor confidence in the unlisted real estate fund investment structure has been significantly dented, with some investors demanding a new level of transparency. An area where this is particularly important is in the charging of performance fees by fund managers.

Opportunity funds (as defined by INREV) have generally taken higher risks, including more leverage, relative to core funds (again defined by INREV). It is questionable both whether high risk strategies such as those employed by opportunity funds have delivered the necessary higher returns, and also whether fund performance fees adequately distinguish between risk taking and genuine outperformance. Taking acceptable/agreed risks with investors' capital should earn higher returns, but the returns from pure risk-taking should not be rewarded.

Hence three questions arise.

How has the performance of core funds and opportunity funds compared over periods of market strength and market weakness?

To what extent can the relative performance be explained by leverage?

Have the performance fees paid to managers been fairly earned?

Paper Number: 202

The right to buy: A pitfall in Dutch housing policy

Ella Stoop, Marieke Leussink, and Jos Smeets, *Eindhoven University of Technology*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G7

By introducing the "Right to Buy" in housing policy the Dutch government follows, though decades later, the footsteps of the British government. The Right to Buy gives tenants in social housing the legal right to buy their home. There is, however a big difference: in Britain the Right-to-Buy-dwellings are owned by local councils, while in The Netherlands the social rented dwellings are owned by private organizations, casu quo housing associations. A successful implementation of this policy will require their assistance. However, the plan receives barely their support.

This potential conflict can be explained by the great expectation of the effect of this program by the government. It is assumed that the right-to-buy-scheme will cope with the preference of a group of tenants who want to buy their home: will fix the distorted relation between the rents of dwellings and the income of households; will fill the gap between the rental and owner occupied sector and so on. In short, the right-to-buy- scheme seems to be the Panacea for all problems on the housing market.

Based on empirical evidence in Eindhoven and elsewhere we will show that this scheme is more a pitfall in housing policy, than a solution for the problems in the housing market. After discussing the assumptions and ideas behind this policy (partly based on the British experience) and exploring the possible impact for the social sector, we will analyze to what extent all tenants are inclined to buy their own house. It will be shown that the amount of potential buyers is much smaller than presumed. Also, the price that they are willing and able to pay is much lower than assumed. Moreover, the research gives insight in the degree in which a specific groups of tenants, so-called "scheefwoners" (middle income households in relatively cheap dwellings), are inclined to buy their house and consequently fill the gap between the rental and owner occupied sector. Next, we will go into the impact of the sell out on the portfolio policy of the housing associations involved. At the end, we will propose an alternative approach for the right-to-by-scheme that fits better with the needs of the potential buyers and supports a sustainable portfolio policy more adequately.

Paper Number: 203

The impacts of building life on the implementation of urban renewal business

Hsiu-yin Ding, *National Chengchi University*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H9

One significant criterion for approving urban renewal business is more than half old buildings in a renewal unit, which refers to any division within the renewal area implemented as an individual urban renewal business. However, the physical building life of reinforced concrete buildings is announced 60 or 50 years by public authorities. Local governments normally give incentives for enhancing the implementation of urban renewal business and lead to buildings are untimely demolition especially in the renewal units which are applied by landowners and out of designated urban renewal areas. In order to review the urban renewal business are implemented to rehabilitate the worn-out or obsolescent parts of a town, an aim of this paper is to clarify the impacts of premature building demolition on the implementation of urban renewal business. The approval renewal unit applications and the data of the construction and demolition permits are employed for the analysis.

Paper Number: 204

Tracking real estate cycles

Shreyas Phadnis, *IPF, SinoGulf Investments*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H1

Property markets move in cycles, and tracking them is critical for an investor. The proposed framework, called Betanalytics, uses statistical tools to anticipate changes in property trends. It generates lead signals giving time buffers to re-configure a portfolio for a downturn or an upswing.

Coverage:

Back testing results, currently focusing on UK and European Office sector, show a success rate of 80% plus consistently across 21 cities.

Nine variables across each city complete the framework. These include: Sales Prices, Rental Rates, Yields, Spreads between Government Bonds and Property yields, GDP, Production, Unemployment, Inflation, Interest Rates.

What does it do?

For London office market alone, from Q2-1984 to Q3-2011 an investor would have captured 87-96% of the rallies and avoided 69-95% of the downtime. Sales price chart alone generates a hit rate of 86%. Combining signals with other variables improves this.

Note: London is probably the trickiest market to analyse because it attracts foreign capital.

Limitations:

The computer program is only an enabler, not the product. Interpretation is key.

The framework does not forecast in a conventional sense (using regression); it primarily helps understand the risk-reward ratio within market cycles.

It does not guarantee success, but it signals high probability set-ups based on a back-tested model.

Key findings:

- *Rentals lag Sales: Sales are speculative and Rentals are need-based.*
- *Rentals are less volatile than Sales: Sales are transaction-based, hence momentary. Rentals are contractual, hence sticky.*
- *Macro factors: GDP, Inflation, Interest Rates and Production hold limited correlation with property cycles. They are useful for general overview.*
- *Unemployment: Employment actually tends to be counter-cyclical to Property. High unemployment: distressed sellers, attractive yields time to buy. Low unemployment: high inflation, compressed yields “” time to sell (or hedge).*
- *Bonds and Property Yields: the correlation exists, but not consistent across 21 cities.*

Paper Number: 206

Inflation illusion and institutional ownership in REITs

Kiat Ying Seah, *National University of Singapore*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G2

This paper attempts to uncover institutional rationality (or irrationality) in the US public REITs market by exploring portfolio implications of the Modiglian and Cohn (1979) inflation-illusion hypothesis. Modigliani and Cohn (1979) hypothesize that stock market investors may suffer from inflation illusion by mistakenly using nominal interest rates to discount real earnings. As a result, stocks will generally be undervalued in times of high inflation and thus are poor hedges against inflation. Consequently, bad hedges are underpriced in times of high inflation and overpriced when inflation is low. Rational investors, facing a market of inflation-illusioned investors, would then liquidate their positions in good hedges and tilt their portfolios toward bad hedges when inflation is high and away from the bad hedges from inflation is low. I test the above rational portfolio-tilting hypothesis using data on institutional ownership in the public REITs market. Specifically, I use cross-sectional data on institutional ownership and use the Fama-Schwert (1977) methodology to identify whether or not a particular REIT stock is a good inflation hedge. I then examine whether institutional investors' preferences change with the level of expected and unexpected inflation. I find that institutions do in fact tilt their portfolios away from REITs that are superior inflation hedges and tilt toward REITs that are bad hedges in periods of high expected inflation , holding constant other reasons that may influence institutional ownership (e.g. size, liquidity, and momentum). Furthermore, these assets are less likely to be mispriced because institutional ownership decreases with the amount of mispricing in these securities.

Paper Number: 207

The implementation of sustainability standards in Japanese real estate market: Analysis from the financial and valuation aspects

Yuko Tomizuka, *WIB Real Estate Finance*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E5

This paper demonstrates the actual implementation of sustainability standards in the real estate finance field in Japan via comparison those of Europe and US, then analyzes the financial impacts of the sustainability standards on the property values via case studies, and identifies issues to be solved for advanced implementation of standards.

Paper Number: 208

Housing market spillover: Evidence from an equilibrium search model

Ranoua Bouchouicha and Modibo Sidibe, *University of Lyon*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G8

We develop and estimate an equilibrium search model of the housing market with aggregate shocks. Our purpose is to quantify the spillover effects between housing market and the wider economy. We investigate two potential mechanisms. First, we aim to understand to what extent individual shocks, acting as the main determinant of mobility, can drive the business cycle. Second, we establish under which conditions aggregate shocks can cause downturn on the housing market.

Our model incorporates a realistic housing market (homeowners/renters) and heterogeneous agents (age, family size) who make residential choices in the presence of idiosyncratic and aggregate shocks.

We take this model into estimation using a panel of French census data.

Paper Number: 209

Do auctions induce a winner's curse? New evidence from real estate auctions

Clare Branigan, Cal Muckley, and Paul Ryan, *University College Dublin*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C6

In this clinical study, we examine the winner's curse hypothesis that rational agents, in an auction setting, will impute an inverse relation between bids and price uncertainty and between bids and the level of competition.

To accomplish same, we avail of a unique data set of 548 successful real estate common value auctions with incomplete information during the period October 2004 to November 2005.
A failure to incorporate conditional information price uncertainty and competition into bidding may invite a winner's curse. This follows as the range of estimated prices (and the winning bid) tends to grow, relative to the mean estimate of value, with price uncertainty and competition. Winner's curse arises when the winning bid exceeds the value of the auctioned asset or if the value of the auctioned asset is less than that which is anticipated on the part of the winning bidder. As a result, rational bidders will compensate for prices accordingly by adjusting bids downwards below their ex-ante estimate of the value of the asset so-called bid shading. If we infer a positive association between bids and price uncertainty and bids and the level of competition, these findings are indicative of the presence of de facto winner's curse in our auction data.
We adopt a novel methodology to quantify price uncertainty per unit area of residential real estate by constructing portfolios of properties with similar characterising traits, as indicated by hedonic asset pricing models. A property's price uncertainty is estimated as the coefficient of variation of the replicating portfolio of which it is a constituent. Our calibration of the level of competition involves count data regarding the number of bids and the number of bidders. Initial findings do indicate a positive relation between bids and the level of competition, in line with the presence of winner's curse in the observations.
Our findings are robust to an extensive set of control variables and model specifications which include a variety of measurements of winning bid price relatives: to the opening bid; the reserve price and the expected auction revenues. Our set of control variables relates to the property's location, size, condition and type, whether there was an editorial announcement as well as the gender and experience of the winning bidder with respect to the auctioned property.

Paper Number: 210
High housing production under less regulated market conditions in Turkey
Ali Turel, *Middle East Technical University*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F6
Annual housing starts have been between 500-600 thousand dwelling units in most years during the last two decades in Turkey, and went up as high as 823 thousand in the year 2011. These figures are likely to be greater than the need. High levels of housing production occur without noticeable policies addressed to demand or supply sides of the housing market. This implies that housing markets in Turkey operate under highly competitive conditions without much regulation by central and local governments. However, one of the outcomes of the less regulated housing markets is the great variation of housing starts among provinces of Turkey. Much less than needed number of dwelling units in accordance to the newly formed households are produced in certain provinces, whereas authorized housing production comfortably meets the need in many other provinces. Holiday homes production, particularly along the coastal areas contribute to high housing output in those provinces. It appears that housebuilders produce more housing in the regions where they can sell easily and at relatively higher price, with respect to less affluent regions. Housebuilders have developed peculiar ways of production and marketing housing in settlements where they have difficulties of selling dwellings that they produce.
In this paper, after discussing the level of regulation of housing markets in Turkey, the relationship between housing price levels and the amount of housing starts per newly formed household in the eight sampled cities is studied. This is followed by the investigation of the ways in which housebuilders produce and sell housing in those cities in order to identify the factors that affect housebuilders' bussiness strategies and behaviour.

Paper Number: 211
Private sector-led urban development projects: Collaborative and managerial lessons from the Netherlands and the UK
E.W.T.M. Heurkens, *Delft University of Technology*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C9

Several Western urban development practices witness an increasing role of property developers in initiating, financing, and leading urban development projects. Moreover, local authorities have taken on an entrepreneurial facilitating attitude towards spatial planning. This situation is driven and strengthened by global neoliberalism and subsequent government retrenchments (Hackworth, 2002). Market-oriented planning (Adams & Tiesdell, 2010) and a focus on development projects have become commonly used planning policy implementation strategies in several countries. These forces, amongst others, resulted in the coming into being of private sector-led urban development projects, a concept introduced by Heurkens (2010). This development approach has occurred in the Netherlands since the 2000s, partly based on Anglo-Saxon development traditions in the United Kingdom [UK]. As a result, the relationship between, and roles of, public and private actors are shifting fundamentally. Hence, such new relations have resulted in public-private partnership challenges in the historically public-led Dutch development practice.

Despite the vast amount of literature on the governance of Western planning practices (e.g. DiGaetano & Strom, 2003), remarkable little knowledge exists about what the shifted relationship means for the actual day-to-day management by public and private actors of urban development projects. Hence, it is such direct steering that brings about the most significant change to the built environment (Klijn, 2008). Moreover, limited knowledge is available about the project effects (e.g. collaboration effectiveness, process efficiency, product quality) of these partnership arrangements. This paper generates an understanding of the collaborative and managerial mechanisms, and development effects of private sector-led urban development projects. It does so by comparing the Dutch and UK institutional development practices, and by drawing empirical lessons from cross-case study research in both countries. In addition, it provides recommendations for a new perspective for local authorities to safeguard public interests, and for property developers to alternatively finance projects, aligning with the current social-economic context (Parkinson et al., 2009).

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Paper Number: 213

Housing and realty: Policies and dynamics of urban economics in Indian capital cities

Surjit Singh and Kanwar Navdeep Singh Guleria, *Institute for Spatial Planning and Environment Research*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I8

Growing urban population and government policies are compelling factors for making real estate development an engine of economic growth in India. Major government initiatives for creating opportunities for real estate investments are: development of capital cities for reorganized states, new agriculture marketing centres, large industrial parks, promoting Information Technology and its enabled services hubs. Each of these initiatives has attracted real estate investments including housing sector. However, the most potent factor among these, consequent to political aspirations, is development of new towns as capital cities at different intervals after independence.

India reorganized its States after unification of princely states and their respective capital cities were re-designated as capitals attracting large working population in diverse sectors. Huge finances were made available to city administration for developing social and physical infrastructure including land for housing to meet housing demand. To promote investments in housing sector policies were framed from time to time. The National Urban Housing and Habitat Policy (2007) emphasizes on providing affordable housing and recognizes role of public and private sector to wipe out a housing shortage of 23 million units requiring invest of over US $ 834 Million by 2017. In realty, a conjoint role of four actors- land owner, investor-land purchaser and developer; facilitator-the Government and buyer of serviced land require appreciation for hedging investment risk in housing sector.

During buoyancy all the four actors are comfortable. But during recession investor suffers losses and craves safe-guards. Player of limited holding capacity is the worst hit. Even large corporate houses are not immune to risks. Providing serviced land is the most challenging urban function for meeting housing aspirations in the changing urban economic scenario on one side and securing investment on the other side of the same strand. This phenomenon seeks policy flexibility tagged with urban economics to protect real estate investments in housing for all.

This paper will examine the new investment centres-the capital cities vis-à-vis the policy provisions of each state. Furthermore, this paper provides insight into the required safe-guards for investments made during adverse economic times.

Paper Number: 215

An analysis of the financial and investment capacity of business improvement districts

Lesley Hemphill, Jim Berry, and Stanley McGreal, *University of Ulster*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G2

In current times of economic austerity, the retail sector in many towns and cities are suffering significantly from funding cuts to public services and a lack of investment. With many retail businesses feeling the effects of reduced consumer spending innovation in business-led initiatives are becoming increasingly important in realising the potential of town/city centres to bring key stakeholders together and to develop solutions that facilitate economic growth. Research, such as the Portas Review on the Future of the High Street, points to the critical role that Business Improvement Districts (BIDs) can play in revitalising the high street and co-ordinating concerted change. In this regard BIDs have become firmly established in the urban landscape as the preferred model for cost effective and innovative local service delivery and area improvement. This paper, based on research findings from a comprehensive survey of 91 formal BIDs across the UK and Ireland, analyses the income and investment capacity of BIDs with evidence suggesting a strong multiplier effect which increases with BID maturity. The paper also demonstrates the viability of the UK BID model in leveraging diverse sources of additional revenue and the increasing influence of commercialisation activities in supporting the BID additionality principle. Specific analysis focuses on the performance of renewed and London-based BIDs in leading the value added contribution which the business-led model is delivering in towns and cities.

Paper Number: 216

Benchmarking of pan-European real estate funds: Challenges and achievements

Vincent Noorman and Peter Hobbs, *IPD*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A4

Benchmarking has become a well-established process for improving the quality of decision-making within fund management houses and increasing transparency in relationships with investors. The insights have, to date, focused most on national markets by comparing similar types (or "peer groups") of portfolios in those markets. As the momentum behind pan-European investing has grown, there has been increasing demand for benchmarking across European markets, but there remain a series of significant challenges in developing such benchmarks. These challenges include differences in appraisal regimes, definitions across markets, and in the frequency of reporting.

It is in this context that this paper analyses the process behind the creation of meaningful benchmarks across European markets. The behavioural analysis focuses on the recently launched pan-European pooled fund index.

This is the process by which a discrete group of fund managers club together to pool their data to create meaningful benchmarks. To a large extent these managers compete with each other in raising capital and in securing investment opportunities. Despite this competition, there are significant mutual benefits in sharing knowledge that can increase transparency and investor confidence in their investment strategies.

The paper explores steps that can be taken to encourage such mutual collaboration in developing a meaningful peer group of benchmarks across European markets.

The paper also focuses on the technical considerations associated with building a meaningful benchmark including the criteria for including or excluding relevant funds, and the process for reconciling asset and fund level performance.
Together, the analysis provides important insights into the process of building benchmarks and developing important insights across national markets.

Paper Number: 217
Apartment market analysis considering environmental noise levels in Poland
Kinga Szopińska, Małgorzata Krajewska, and Mirosław Bełej, *Nicolaus Copernicus University, University of Technology and Life Sciences, Bydgoszcz, and University of Warmia and Mazury*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E7
Acoustic climate of a urbanized area ought to be a factor of considerable significance in investment processes in an urbanized area, especially in a residential real estate market, due to its extensive influence on the living standards of its inhabitants. In the present article it has been stated that participants of local real estate market take into account environmental noise level affecting the neighborhood while making investment decisions such as purchasing an apartment. Verification of this notion will be carried out considering a preselected region of Poland, based on a spatial analysis of transaction prices of housing units in relation to an existing environmental noise level. With this end in view an entirely new source of information, has been used in the research an acoustic map which has been defined and applied to produce the outcome of the analysis. It allowed for the recognition of whether or not the environmental noise level influences decisions made by investors existing in a local residential real estate market.

Paper Number: 221
Quality of sustainable office buildings: The impact of sustainable buildings on the comfort, well-being and productivity of building users
Annika Feige, Holger Wallbaum, Lukas Windlinger, and Marcel Janser, *Swiss Federal Institute of Technology, and Zurich University of Applied Sciences*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D5
"How do office buildings impact the comfort, well-being and productivity level of workplace users?" is an important question for many companies.
Worldwide a growing number of employees are working in the service sector, the majority in offices. The salaries of office workers exceed building energy and maintenance costs by a factor of approximately 100 (Wargocki, 2009), and with 65% cost of labor, represents the biggest share of total costs in service companies (M. Holz and P. Da-Cruz, 2007). This means that cost cutting measures for labor cost would have the biggest influence on the total share of cost, and therefore be of special interest for service companies.
Following the aspect of social sustainability, sustainable construction should enhance the comfort and well-being, and therefore, the productivity of building users. Hence, building related aspects of sustainable buildings would positively influence the labor costs of service companies. Solely considering the aspect of air quality, previous studies have already shown that a ten percent reduction in the percentage dissatisfied with air quality corresponds to about a one percent increase in the performance of office work. That would already justify the expenditures required to enhance air quality (Wargocki, 2000). Considering the whole range of sustainability aspects, even better results are expected.
In a study of about 40 office buildings in Switzerland, the relation between sustainable construction, comfort, well-being and productivity are analyzed using questionnaires for building occupants, physical measurements and building evaluations. This study provides insight as to how effective sustainable buildings, which place special importance on the social aspect, positively influence the aspect of productivity. Within this conference paper first results of this important research project will be presented.
The social aspect of sustainability is often not considered sufficiently during the planning process of office buildings, and fades to the background in comparison to direct economical or ecological aspects. By considering

this aspect in an early planning stage, smart and healthy workplace could be created and thus the productivity of building users could be enhanced resulting in lowered costs of labor for service companies.

Paper Number: 222

The effect of energy performance certificates on the value of buildings

Marcelo Cajias and Daniel Piazolo, *IREBS University of Regensburg, and IPD*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G5

In a global sense, the concept of sustainability plays nowadays an important role in governments, society and especially in the real estate sector, which is responsible for 40% of final energy consumption in the European Union. This reflects not only the enormous potential of buildings in contributing to global changes, but also calls for actions and initiatives in order to reduce the ecological impact. The EU introduced the Energy Performance Certificates (EPC) in 2003 in order to enhance the environmental awareness in the real estate industry. EPCs are a mandatory instrument to assess the energetic performance of new but particularly of existing buildings. Since the EPCs clearly pursue the reduction of the footprint of buildings, investors and occupiers should be sensitized in energetic aspects in order to improve the demand for a green stock market. Energy potentials may pay off whenever the financial benefits are higher than the lost investment opportunities. Thus, the willingness to pay for energy savings may be transferred to diminished operational costs affecting the property value positively. However, the lack of empirical evidence across European countries could reduce future green investments and, thus, lessen energetic improvements. Following this research stream, the study expands the drivers of a demand for energy performance within the EU, in order to analyse empirically if energy savings lead to a price differentiation. For a large sample of buildings in Germany, the investigation provides a status quo of the energy performance of buildings for future regional policies and/or incentive programmes. The empirical results show the energy-saving-benefit over 2007 to 2010 and primarily provide the first evidence of the dynamics between green awareness and real estate value in Germany.

Paper Number: 223

Consequences of corporate relocation: A literature review

Matti Christersson, Peggie Rothe, and Anna-Liisa Sarasoja, *Aalto University*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G9

Relocation can have a notable influence on the relocating organization and its employees. Not only will the workforce come across a change in location, they will also encounter new premises and changes in their workspace, and they might also have to adapt to new ways of working. Additionally, relocation can have significant impacts on the relocating organisation's financial performance, and it may also alter their environmental footprint.

This paper focuses on the consequences that corporate relocations have on the relocating organization itself. The aim is to identify the financial, social, and environmental impacts of relocation. The study is carried out through a literature review. Based on the review, the impacts are discussed, a conceptual framework for modeling these relocation consequences is formulated and the gaps in the literature are identified.

The review of the literature indicates that previous research on financial consequences has mainly focused on market reactions to relocations, e.g. changes in the stock prices of publicly listed corporations, on the impacts of changing lease conditions, such as flexibility, or on mismatch between anticipated and real lease requirements of the occupier. Social impacts have largely been approached from the perspective of organizational change and such consequences in general, but not specifically related to the relocation process. Research on environmental consequences has mostly dealt with the sustainability and energy efficiency of the new premises or changes in means of commuting. The topics which, however, have been examined in conjunction to relocations include for example employee health issues, absenteeism, productivity, profitability, psychological issues and changing organizational dynamics.

It is concluded that there is a need for more empirical research on the consequences of relocation. The framework introduced in the article will be tested with experiences of relocated Finnish case companies in the near future and it will be developed further on.

Paper Number: 224

CREM and activities at the modern workplace: A study of the variables influencing the use of workplaces in an activity based office design

Marleen Kleijn, Rianne Appel-Meulenbroek, Astrid Kemperman, and Hendriks Els, *Twynstra Gudde, Eindhoven University of Technology, and Wicely*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G9

Purpose

Service oriented organizations have difficulties finding evidence based office design suited for new ways of working. This study provides CRE managers with information on factors that influence the activities at workplaces in an activity based office environment, and can be used for further development of office design.

Design/methodology/approach

Based on literature research a conceptual model is developed that shows the relations between the workplace characteristics, physical environment, organization characteristics, user characteristics, and the use of activity based workplaces. Hypotheses are proposed based on the model.

Data is collected in 3 office environments in Belgium and the Netherlands, providing 90.890 observations. Specifically, a Bayesian belief network (BN) was used to derive and represent the causal relationships between all variables included. A major advantage of a BN is that the network structure takes direct and indirect relationships between the variables into account. The first network addresses the relationships between use of workplaces and CRE/organizational characteristics, without looking at user characteristics. The second network contains only data of occupied workplaces to study the influence of user characteristics. Both networks were used to test the hypothesis and predict the use of workplaces under (future) conditions.

Findings

According to the activity based philosophy, an employee performs an activity on the workplace that has the most suitable functional characteristics. Both networks, however, show more complex relations between the variables and expose relationships between environmental characteristics, workplace functionality and activity. The second network confirms that user characteristics influence use of the workplace as well. It can be concluded that a CRE manager should develop at least two types of workspace to support all activities in a service oriented organization.

Paper Number: 225

Purchasing clinics in public procurement and urban development

Matti Kuronen and Pekka Vaara, *RAKLI and Aalto University*

Date: Thursday 14th June
Time: 1330-1500
Parallel Session B9

The aim of this paper is to present a concept of "purchasing clinics", which have been used in complex property-related purchasing processes and in urban development processes in Finland. Clinics are a systematized form of market dialogue under Finnish Act of public purchasing, which again derives from EU Procurement directive.

The data used has been acquired from a database maintained by RAKLI (The Finnish Association of Building Owners and Construction Clients) and consisting of almost twenty cases, and by the authors' participation in various clinics.

As a major finding, the paper presents a successful way of improving purchasing and urban development processes and ways of implementing a clinic.

The study has been conducted in Finland only, which poses some limitations when applying the findings elsewhere. However, in EU countries the public procurement processes follow the aforementioned directive and should be rather similar.

Practical implications of the study consist of improving purchasing and urban development processes. The improvements are better private sector participation in procurement, shorter procurement processes and changes in formatting the procurements.

Originality of the paper lies in systematic way of organising market dialogue.

Paper Number: 226

Is social housing in the wrong hands? Comparing the value of property characteristics to households in controlled and uncontrolled rental housing

Arno Van der Vlist, *Rijksuniversiteit Groningen*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G7

Abstract. This paper aims to compare controlled and uncontrolled rental housing markets. More specifically, we ask ourselves how households' value of housing characteristics differs in both social rental and private rental housing markets. Further, we ask to what extent households' marginal value equals the marginal rent in controlled and uncontrolled rental housing. For this, we model the elapsed duration in a Proportional Hazard Model with piece-wise flexible baseline hazard for Stock data of The Netherlands. We relate the associated willingness to pay for characteristic k between controlled to the marginal supply price in uncontrolled rental markets to see if social housing is in the wrong hands.

Paper Number: 229

Determinants of innovation diffusion in the real estate sector: A case of monitoring building commissioning for existing buildings

Ari Laitala and Kauko Viitanen, *Aalto University*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E9

Building commissioning (abbr. as Cx) is a technical application and a procedure where the functioning of a building is investigated and enhanced in the areas of energy efficiency and indoor climate. Monitoring based commissioning (MBCx) for existing buildings is a sophisticated version of commissioning which uses smart metering and internet technologies to confirm that building automation is functioning properly. The procedure is relatively well known in the US, where approx. 15 % of energy savings are achieved after the implementation of MBCx projects. On the other hand, the payback times of the projects have been only around one year. However, this innovation hasn´t pervaded e.g. to Europe on a larger scale which raises the question of innovation diffusion.

In this study, conducted in Finland, the determinants of innovation diffusion related to building commissioning are researched. In the study the Delphi method was employed. The results of the first two rounds show that most of the criteria of a successful innovation are fulfilled, like relative advantage, compatibility, low complexity and risk reduction. There are anyway further criteria for the innovation to be adopted. An innovation has to be successful in the areas of communication, social system and timing as well. According to the Delphi panel, there is still lot of missing awareness and lack of knowledge even among building automation experts. There are also uncertain views of what could be the appropriate business models. Should MBCx be sold and bought more like a product or a service and should there be some kind of reorganization between the relationships of building owners and tenants.

In the conclusion, the preconditions of the innovation diffusion process are summarized and MBCx is compared against the formed framework. Finally there seems to be a reason to ask a question: (retelling Mills, E.) are we losing a golden opportunity for reducing energy costs and greenhouse gas emissions.

Paper Number: 230

The influence of intuition on decision making in property development

Dominique Loesch and Carsten Lausberg, *Ericsson and Nuertingen-Geislingen University*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G1

Over the last 40 years countless studies have tried to bridge the gap between the neoclassical paradigm of rational behavior and the reality of human decision-making. As we know today heuristics, emotions, and many other factors are involved. Most of the studies are not related to real estate, but behavioral research in this field is catching up quickly. We extend the literature by (1) introducing the factor intuition into the discussion

and (2) providing a unique approach to identify the importance of personal preferences on decision-making. We deliberately chose the area of project development because according to the literature de-velopers need intuition, creativity, instinct and the like to be successful.
The paper has two main parts. The first part is a literature survey which combines the findings on the role of intuition from both the managerial decision theory and the psychological decision theory. The second part covers our empirical survey that consists of the personality inventory. Preference for intuition and deliberation (PID) by Betsch (2004) and a question-naire. The questions refer to two case studies in which a developer has to decide between two alternatives (to buy vs. not to buy a piece of land; to stop vs. not to stop a development). With the help of a contingency analysis we conclude that the personal preference of a project developer regarding intuition and deliberation partially determines his decision behavior. Alt-hough the sample (35 property developers and a control group of 21 students) is too small for any generalizations, the study helps to understand how important intuition is for decision-making in real estate.

Paper Number: 231
The incorporation of small retailers by shopping mall owners: a comparison between a mature (Dutch) and an emerging (South African) market
Ingrid Janssen, Jan Martijn Buruma, Jos Smeets, and Francois Viruly, *Eindhoven University of Technology*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B1
In both mature and emerging markets the share of retail chains in shopping malls is increasing, while the number of small independent retailers is decreasing. Nonetheless, there is general consensus that small retailers play an important role in making the shopping environment more attractive and stimulates local economic activity. In this study we examine the role of shopping mall owners in a mature market (The Netherlands) and an emerging market (South Africa). In the Netherlands, a small retailer is defined as a retailer with 10 or less employees. In contrast, although formal retailers exist in South African townships, most retail activities are often of an informal nature. These retailers are unregistered and, consequently, do not pay taxes. The similarity between small retailers in both markets is that they are focused on and operate within local communities, rather than operating at regional, national or global scales. Therefore, the decreasing share of small retailers could negatively affect the development of local economies and the welfare of these local communities. Hence, various studies have been or are being done from which initiatives and interventions are being developed in order to stimulate small businesses. These studies, and policy initiatives mainly focus on the business skills of small retailers on the one hand, or/and government policy on the other hand. However, little is known about the role that shopping mall owners play in this sphere of economic activity. Although the importance of incorporating small retailers in shopping malls is rarely disputed, significant impediments often exist which make it difficult to promote small retailers in shopping malls. But, according to a Dutch shopping mall owner, Dutch shopping mall owners are willing to encourage smaller retailers, but the institutional framework reduces such opportunities. The relationship between shopping mall owners and small retailers is affected by market as well as institutional conditions. This stands in the way of mall owners incorporate more small retailers in malls. By analyzing the relationship between shopping mall owners and small retailers/retail chains through a literature review, and the analysis of the impact of market and institutional framework conditions on this relationship, through interviewing three South African and three Dutch shopping mall owners, this research tries to identify the causes of the decreasing share of small retailers in Dutch and South African township shopping malls. Furthermore, by comparing the market and institutional frameworks conditions that affect the willingness and capability of South African township and Dutch shopping mall owners to incorporate more small retailers, the general determinants of small retailers' accessibility to shopping malls is determined .

Paper Number: 232
Are REITs real estate? Evidence from international sector level data
Martin Hoesli and Elias Oikarinen, *University of Geneva and University of Turku*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H2

The aim of this study is to examine whether securitized real estate returns reflect direct real estate returns or general stock market returns. In contrast to previous research, which has generally relied on overall real estate market indices and neglected the potential long-term dynamics, our econometric evaluation is based on sector level data for the U.S, U.K and Australia, and aims to cater for both the short-term and long-term dynamics of the assets. The use of sector level data is likely to yield more accurate results regarding the linkages between direct and securitized real estate. In addition to the real estate and stock market indices, the analysis includes a number of fundamental variables that are expected to influence real estate and stock returns significantly. We estimate vector error-correction models and investigate the forecast error variance decompositions and impulse responses of the assets.

Paper Number: 233

New regulations for German open ended funds: an end to the troubles

Tim Clamor and Michael Voigtländer, *Cologne Institute for Economic Research*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B4

Since the beginning of the financial crises in 2008 the ongoing liquidity problems of German Open Ended Funds (GOEFs) peaked as more and more institutional investors withdrew their capital. This capital movement forced a variety of funds to stop redemptions and currently about one third of the capital invested in GOEFs cannot be withdrawn by their investors. In addition some funds had to close for good and the fund managers have to liquidate the assets. As a consequence the German government enacted the "Anlegerschutz- und Funktionsverbesserungsgesetz" (AnsFuG) to stabilize the GOEFs as an investment product. The act incorporates two main key changes: first from 2012 on a "lock-up period" of 24 months and a cancelation period of 12 month will be introduced and second the leverage ratio is capped to 30 per cent. These new regulations will have a significant impact on the basic conditions of the GOEF sector as well as for institutional investors. On the one hand the implemented holding periods have a positive effect that the funds can reduce their collaterals in liquid assets. On the other hand there are severe restrictions for the portfolio management of institutional investors and they will increase their investment in "Spezialfonds", because the new rules do not apply to them. Another concern is about the decrease of the leverage ratio. Thereby the scope for mortgages in foreign countries in order to reduce currency risks is mitigated. Therefore the allocation of GOEF invested capital in Euroland will change.

The paper investigates the current reform with a qualitative research approach. Based on interviews with fund managers and institutional investors the paper develops scenarios for the future investment behavior of institutional investors and the response of the funds managements on that.

Paper Number: 235

Measuring real estate risk with scoring models: theoretical background, empirical evidence and requirements for future use

Felix Kroell and Carsten Lausberg, *Nuertingen-Geislingen University*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D2

Many real estate academics and practitioners agree that measuring real estate risks requires both quantitative and qualitative instruments. Qualitative part scoring models are often used in the industry. Theoretically these are well suited as they condense complex information into one measure, for instance regarding location quality. On closer scrutiny, however, the scoring models in our study lack validity and reliability. As we show in our paper this is largely due to deficiencies in the construction of the models which can be reduced when certain re-quirements are met.

The paper begins with an extensive literature overview of the theoretical background, the various applications and the different construction methods of scorings. It becomes clear that the topic is under-researched and that there is a great divide between the academic literature and the practical application of real estate risk scorings. In the second part of the paper we present the results of our (unrepresentative) empirical survey. We analyze the scoring models of four large and broadly diversified commercial real estate investors with a total market value of more than 10 billion Euro. One important finding is that the scores do not show any significant

correlation with other risk measures and are thus not ideal for capturing the quali-tative aspects of real estate risk. However, we also find evidence that scoring models can produce meaningful results if empirical-statistical methods are used in addition to expert opinions; thorough validation and calibration are further prerequisites for successfully meas-uring real estate risk with scoring models.

Paper Number: 236

Did ownership characteristics bias portfolio appraisals during the late 2000s downturn? A natural experiment from the UK commercial real estate market

Neil Crosby, Colin Lizieri, Pat McAllister, and Yarim Shamsan, *University of Reading, and IPD*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B3

This paper extends the debate on the effects of client influence on external valuations. We augment prior research based on interview or experimental evidence by analysing the UK real estate downturn starting in 2007. This period forms a natural experiment of valuation influence in that different groups of investors had divergent interests in the outcome of portfolio valuations. In particular, open ended funds redeeming at NAV had an incentive to drive valuations downwards, while, by contrast, closed end funds with high leverage had an incentive to boost valuations. If such divergent pressures did affect supposedly independent valuations, this might be observable in biases in the valuation performance of real estate held by different fund types. Prior research (Crosby et al., 2010) addressed this issue using aggregated data for fund types from IPD. However, the level of aggregation in that paper opens the possibility that the biases observed result from composition effects. In contrast, this paper focuses on individual asset level data from IPD. Hedonic analyses of the behaviour of individual properties are conducted with ownership type variables augmenting property characteristic and time variables. We test whether there are significant differences in the behaviour of assets held by different types of investors. The findings shed light on the cyclical dynamics of commercial real estate markets in cyclical downturns and the information content of appraisal based indices.

Paper Number: 237

Price-making of greenfield land: Determining institutional factors

Alexander Woestenburg, Erwin Van der Krabben, and Tejo Spit, *Council for the Environment and Infrastructure (Rli), Radboud University Nijmegen, and Utrecht University*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G4

Land price models have failed to explain and predict land prices in a satisfying way (Kauko, 2004). This article reaches an explanation for this inherent deviation between model and reality by focusing on the uniqueness of each transaction, including both the uniqueness of what is subject to transaction as well as the transaction process.

Land transactions are coordinated by price, rules and trust in respectively markets, hierarchies and networks (Needham & De Kam, 2004). The formal and informal institutional contexts differ for each transaction due to these variety of coordinating mechanisms. For example arrangements made within networks are affected significantly by the degree of trust between actors (Adams, Leishman & Watkins, 2011). Furthermore, the uniqueness of land transactions is increased by the fact that not only land is subject to transaction. Most often transactions include partial rights and additional arrangements which might influence the transaction price.

This article presents the statistical analysis of the available land transactions (450) in the period from 1998 to 2005 within three Dutch city regions. This article sheds light on land price influencing factors. Per transaction data is gathered about "˜standard' determining factors like location, size and fertility but also about institutional factors like coordination mechanism, additional contract arrangements, the exchange of partial rights, the exchange of land and real estate and transactions of several plots within one price.

Conclusions will be drawn regarding two main questions. First, to what extent do specific institutional factors matter in the land price-making process? Second, to what extent can we speak of plain land prices considering that institutional factors make almost every land transaction unique?

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Paper Number: 239
Office real estate investment in the world city network: the effects of financial crisis
Colin Lizieri, Kathryn Pain, and Sandra Vinciguerra, *University of Cambridge and University of Reading*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C1
In the globalization of finance, commercial office real estate investment has come to have an increasing role in the transnational circulation of capital (Knox and Pain 2010). Global city offices used by clustered advanced producer services firms have become key points through which finance flows within and between cities in several ways (Lizieri, 2009). Financial services are corporate real estate occupiers, deeply embedded in global city quarters. They create and manage the investment vehicles that turn physical office infrastructures into liquid assets and through their world-wide city-based office networks, they help to articulate the international flows of finance produced. Thus there are deep and complex interrelations between the physical fabric of global cities, its financial users and city inflows and outflows of capital. City governments have increasingly tried to exploit the opportunities for inward investment that these capital flows present (Brenner and Theodore 2005) but until now there has been a lack of empirical evidence on the dynamics of such flows and how they map onto the "World City Network" of financial services (Taylor 2001, 2004). This paper will present new data and analyses from a two-year European Union study mapping the geographies of these city networks and investment flows for the first time, bringing together two complementary theoretical and empirical approaches to the study of financial globalization and helping to inform current questions about the effects of global financial crisis.

Paper Number: 243
Socio-economic aspects of municipal housing policy in Poland
Ewa Kucharska-Stasiak and Konrad Zelazowski, *University of Lodz*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I7
Since the beginning of economic transition responsibility for satisfying housing needs of low income households was transferred to polish municipalities. However new obligations weren't supported by adequate financial instruments. To fulfill their duties municipalities have to consider and balance social and financial aspects of their housing policies.
The article aims to present findings of a study on current housing situation in polish municipalities. Effectiveness of local government housing policies as well as causes and consequences of existing problems are presented.

Paper Number: 245
A risk-based pricing systems model of the UK residential mortgage market
Allison Orr and Gwilym Pryce, *University of Glasgow*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G6
The UK residential mortgage market has developed into a sophisticated market with a complex pricing structure, an array of products designed to cater for subsets of perceived borrower needs and aggressive pricing. Studies on the pricing structure of mortgages in the mid-2000s confirmed suspicions that lenders were using existing standard variable rate mortgage holders to cross subsidise new borrowers. This allowed lenders to drop their mortgage rates to levels too low to enable them to earn a return sufficiently high enough to compensate them for the risks carried on these loans [Miles, 2004]. The preferential treatment of newer

customers raises the issue of fairness in the UK mortgage market as does traditional credit rationing methods used to differentiate and exclude high risk borrowers. Arguably, home loans should be accessible to all households and pricing, as specified by the efficient pricing hypothesis, should be based on the risks and costs attached to the loans, not simply determined by borrowers being new or existing customers [White, 2004].

The principle underpinning risk-based pricing is that the rate charged on a mortgage should reflect the probability of default and expected loss in the event of default. Under such a pricing structure lenders should legitimately be charging different mortgage rates depending on the risk characteristics of the borrower. Yet, mixed, and often confusing and contradictory, evidence exists relating to the use of risk-pricing of mortgages in the UK and the potential implications for lenders. In this paper we seek to address this gap in our knowledge and contribute to the debate over the behaviour of lenders and the operation of the residential mortgage market. This will be undertaken by developing a risk-pricing systems model to enable the estimation of the relationship between interest rates charged by UK lending institutions on individual loans using UK mortgage survey data.

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Paper Number: 246

The German way of valuing property: Investigating the difference between discounted cash flow and the German income approach

Jan Reinert, *University of Regensburg*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A3

The German property market differs from most of its international counterparts in its comparatively low but remarkably stable performance over the past decades. One of the possible reasons for this anomaly could be the German appraisal method referred to as the German Income Approach (Ertragswertverfahren) which is often said to result in an even smoother pattern than the internationally applied Discounted Cash Flow technique.

Due to an increasing number of German investors using DCF it was possible to assemble a dataset of almost 3,000 individual German office & retail properties from 2005 to 2010 with a sufficiently large proportion of DCF valuations to allow for a meaningful comparison within the same market.

In order to establish whether and to what extent GIA valuations differ from DCF valuations two separate hedonic indices are derived.

A novelty of the paper is the integration of valuation and transaction data. Market data is used to derive transaction prices for every property over the time period under investigation. This theoretical transaction price is used to approximate the average margin of error for each appraisal technique. The Heckman two-step procedure (Heckman, 1979) is employed in order to correct for possible sample selection bias.

The objective of this paper is to offer more insight into the question which appraisal method more accurately predicts transaction prices on the German property market.

A preliminary analysis indicates that there are significant differences between valuations following DCF and GIA.

Paper Number: 247

Towards a fairplace award: the evolution of a scheme to reward property management which respect people, planet and community

Sarah Sayce and Anna Hirschfeld, *Kingston University and Ethical Property Foundation*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D5

In 2009 a team from Kingston University led by Sayce was commissioned by the Ethical Property Foundation (EPF) to scope the possibility for developing a 'mark' which would recognise that non-domestic properties, even though not necessarily of a specification which would allow them to gain a building certification such as BREEAM or LEED, could make a significant contribution to driving more sustainable behaviour in respect of how buildings are managed. The driver behind this was an increased realisation that building use is as important as building design and quality in achieving a range of environmental and social benefits. The results of that unpublished scoping study (Sayce et al.), combined with the views expressed in focused invited workshops, encouraged the EPF to further develop the notion. This paper will report on the initial, but more importantly, follow-up research work including interviews with a range of key industry stakeholders. The results have reinforced the need for a 'mark' or 'award' that emphasises the social aspects of sustainability equally to the environmental. A Working Group of both EPF and industry and academic advisors, including the author has now developed a framework for an award. A further workshop to be held in March 2012 will help the Group to refine the criteria and prepare the scheme for a meaningful building mark which will neither replicate existing schemes such as BREEAM in Use (which relates to reduction of operational costs and environmental performance) nor require those seeking to achieve it to develop new streams of data. The paper will report on all steps of the research to date and moves towards the launch which is intended to take place no later than early 2013.

Paper Number: 252

Turkish REICs or REDCs: Analysis of the effect of asset allocation on Return

Dilek Pekdemir and Firuz Soyuer, *DTZ*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H2

Turkish REICs became publicly listed in Istanbul Stock Exchange (ISE) since 1997. As end of 2011Q3, twenty-three REICs are listed in ISE with a total market capitalization USD 6.9 billion and the total net asset value stands at USD 10.1 billion. The sector's aggregate discount to its NAV stands at approximately 30%, higher than the sector's 5-year average discount of 25%. Turkish REICs return have been volatile, partly due to extreme inflation, economic crisis over the past years. On the other hand, Turkish REICs have a distinctive asset allocation compared to other REITs in the world. The current asset structure of Turkish REICs emphasis development of their own assets, instead of having investment grade products. Currently, lands and development stage projects especially residential developments- constitute approximately half of the total Turkish REICs portfolio, while investment grade properties represent only 35% of total portfolio. Hence, Turkish companies can called "Real Estate Development Companies - REDCs instead of "Real Estate Investment Companies –REICs".

This study examines correlation between annual return and their asset allocation of Turkish REICs, based on the assumption of "majority of land and development stage projects in REDCs portfolio causes high risk premium due to uncertainty in potential income". A number of fundamental variables that are expected to affect return are incorporated to the analysis. In addition, REICs performance are compared with REIC index (XGMYO) and Istanbul Stock Exchange index (XU100) from 1997 through 2011.

Paper Number: 253

The impact of energy performance certificates on the market value of commercial buildings

Magnus Bonde, *Royal Institute of Technology (KTH), Stockholm*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F5

In accordance to the EU directive 2002/91/ES on the Energy performance of Buildings, Swedish commercial real estate owners are obliged to undergo an energy performance certification (EPC) of their building stock. But does a good EPC rating have an impact on the commercial buildings' market value?

In this article we are using a unique Swedish panel data set, in which Swedish commercial buildings economic performance (such as vacancy rates, rents, location etc.) have been linked together with the public EPC:s. As such, we have been able to investigated the EPC:s impact on the buildings assessed market value.

Paper Number: 254

Building age as a factor affecting spatial autocorrelation in housing prices

Daniel Yet Fhang Lo, *University of Hong Kong*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G8

Real estate economists and practitioners have long been aware of the problems arising from spatial autocorrelation in housing prices in undertaking housing appraisal. To tackle them, various estimation methods and techniques such as spatial lag model and spatial error model are devised and tested empirically in order to enhance appraisal accuracy and consistency. Interestingly, the underlying factors affecting the formation of spatial autocorrelation have so far received little scholarly attention

In this paper, we put forward a novel hypothesis that spatial autocorrelation in housing prices is a result of the price information search process undertaken by house traders: Spatial autocorrelation emerges when they infer prices of one housing unit from another; Moreover, we conjecture that building age, which is an indicator of the building's re-development potential, serves as a factor attenuating spatial autocorrelation since traders rely less on price information of aged housing units, which are prone to be rebuilt, to establish current market values of other units. In other words, it is believed, and hypothesized, that spatial autocorrelation decreases as building age increases.

We test the above hypothesis using geo-coded open market transaction data of Hong Kong. The results not only confirm the role building age played in the price discovery process in real estate, but also in the formation of spatial autocorrelation of housing prices.

Paper Number: 255

Modelling office market dynamics: panel estimation and comparison of US metropolitan areas

Steven Devaney, Patric Hendershott, and Bryan MacGregor, *University of Aberdeen*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C1

A considerable body of research exists on how office rents and vacancy rates adjust in response to changes in demand and supply. In particular, recent research has settled upon an Error Correction Model (ECM) approach for investigating how adjustment occurs. Some recent studies have applied an ECM approach to panel data, but there remains only limited investigation of the cross sectional variation in such data and what factors drive differences in behaviour between different markets. For this reason, the present paper uses panel data for US office markets and analyses differences in the parameters found for different locations. The data consist of quarterly observations for rents, vacancy rates, employment, stock and completions for office markets in around 60 US MSAs. From this data, two samples are isolated: a set of 18 markets for which all variables are available from 1980 to 2011 and a set of 58 markets where they are available from 1988. Panel estimations are performed and these estimations are followed by further analyses that seek to explain the cross-sectional variation in results using variables that depict the characteristics of locations in terms of their economies and real estate markets.

Paper Number: 256

The role of sustainable real estate within a multi-asset portfolio: protagonist or antagonist?

Peter Geiger, Marcelo Cajias, and Franz Fuerst, *University of Regensburg and University of Cambridge*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I2

Socially Responsible Investments (SRI) or, referring to real estate, Responsible Property Investment (RPI) are used by competing firms to create a differentiating attribute by integrating sustainability principles into their business strategy. Recent research on sustainability concentrates mainly on property-level profitability of green buildings along with the development and implementation of sustainable certifications. A second strand of emerging literature focuses on the company level by investigating the financial implications of corporate social responsibility agendas. The purpose of this paper is twofold. Firstly, it attempts to bridge the existing gap in

the real estate literature between sustainability principles and investment analysis. Secondly, it seeks to analyse the effect of responsible investments within a multi-asset portfolio optimisation model. To this aim, listed real estate companies with an active ESG-Agenda will be identified and serve as the sustainable real estate asset class in our analysis. Using a number of optimisation techniques, it will be established empirically whether diversification benefits can be achieved by investing in high-ESG' companies. The results of the study highlight the potential role listed real estate companies with high ESG ratings can play in a multi-asset framework.
ESG = Environmental, Social and Governance

Paper Number: 257
Best practice, best fit, best model? Strategic configurations of corporate real estate management in Europe
Annette Kämpf-Dern and Andreas Pfnür, *TU Darmstadt*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E9
Corporates increasingly realize the impact of real estate management on reaching their company targets. Yet, they face the challenge to set up ("institutionalize") their CREM activities effectively and efficiently. Help has been given by several studies that researched on issues such as "Which targets are most relevant for CREM?", "Which role should CREM play?", "Which ownership rate is optimal?", or "Which outsourcing degree should be pursued?" that try to identify and communicate relevant best practices. But isolated best practices neglect that institutionalization should address the relevant set-up parameters holistically.
A new study accomplished by the TU Darmstadt Real Estate Business Department in cooperation with Corpus Sireo Asset Management Commercial shows that there are some strategic trends in the institutionalization of CREM that can be seen as best practices. But more importantly it turns out that searching for a single "best model" would be futile. Instead, parameters like regional and industry context, size, internationality, company strategy and control systems, hierarchical integration of CREM, etc. are identified that need to be configured in a way that ensures "best fit". Unfortunately, the sheer number of theoretically possible configuration alternatives points out that comprehensive "best fit" models of CREM institutionalization will be company specific. On the other hand, some parameter constellations feature a better fit than others, thus giving first hints for strategically viable configurations of CREM.
Summarized, the study identifies the relevant parameters to institutionalize CREM and organizes them in a "CREM map". It results in hypotheses about the interaction between those parameters and their impact on corporate target achievement. Configuration theory (Miller/Friesen 1984) lays the base of the considerations. Empirically, in-depth interviews with large European corporates are analyzed with the methodology of qualitative data analysis (QDA).

Paper Number: 260
Planning, density, and fuel use: A review
Alan W. Evans, *University of Reading*
Date: Friday 15th June
Time: 1100-1230
Parallel Session E7
Following the Rogers Report of 1999 and PPG3 of 2000, the density of new development in English cities was substantially increased. The overt motive for his was that fuel use was to be reduced. The main evidence for the view that density increase would reduce fuel use per head was a graph published by Newman and Kenworthy which showed that fuel use per head appeared to be higher in lower density cities.
A review of the literature published over the last twelve years casts considerable doubt on this conclusion. Firstly, the evidence on which Newman & Kenworthy based their graph is severely criticised. It is argued that the price of fuel is far more important than residential density in determining fuel use, that even substantial increases in density would reduce fuel use very little, and that , most importantly, density can be changed only very slowly, whilst many would argue that reductions in fuel use and CO2 emissions are urgent.
Seceondly, there is evidence to show that at very high densities fuel use is higher rather than lower as people seek to travel out of the city in order to get away to less dense environments. This is compatible with the large body of evidence that people prefer lower densities to higher densities.

Thirdly, there is a conflict with a policy of containment such as exists in Britain. If high density housing is built separate from other destinations for work or pleasure then people will travel across the intervening space to get to those destinations however high the residential density may be at the origin or the destination. Given British green belt policy with its high level of commuting across the greenbelts, mainly by car, it is evident that the policy of containment increases fuel use and CO2 emissions.
Any policy which took seriously the need for reductions in fuel use would allow for urban expansion on the edge of existing cities. It can be argued that the fact that such expansion is not promoted demonstrates that the need to reduce fuel use is simply being used as a justification for existing policies, not to design new ones.

Paper Number: 262
Servicability of urban areas: Definition and key elements
Renita Niemi and Suvi Nenonen, *Aalto University*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I8
In recent years the field of urban area is researched from societal, economical, ecological and cultural perspectives. However the layer of services and serviceability of the urban areas as are not so much discussed and investigated. Such research could provide new insights for the development of urban areas as well as provide feed forward for new design initiatives. The goal of this paper is to define the serviceability of urban areas and to identify the key elements that create a service-based competitiveness.
The empirical data is collected from areal serviceability case studies. The case studies focused on users of the services (demand) and the service provides (supply) at the certain area. The first case concentrated on comparison of the housing services in different cities. The second case was more about areal user experience and the third case brought together relevant industry actors for providing the new services by creating new interdisciplinary service products and networks.
The case projected investigated city as an interface and a service platform. The data is gathered by carrying out a retrospective analysis. The results include the similarities and differences between mature and developing urban areas as well as comparable mixed areal structures and maturity level indictors. The insights to responsive city provide new approach for the serviceability of the urban area. Additionally the local service business requirements are analyzed and the drivers and obstacles of the development are identified together with the local success factors.
The outcomes offer a potential input for discussions on the objectives of urban economics and planning. The results support increased awareness and understanding (learnability) of the serviceability of the urban areas. The proposed framework for areal serviceability is utilized in designing new Greenfield areas and furthermore in responding to changes in existing areas.

Paper Number: 263
Analysing the value of industrial estates
Jasper Beekmans and Pascal Beckers, *Radboud University Nijmegen and Netherlands Environmental Assessment Agency*
Date: Saturday 16th June
Time: 1100-1230
Parallel Session I1
Hedonic price modelling is widely used as a technique for the assessment of property value, estimating demand for specific attributes of housing and neighbourhoods, analysing price indexes for different types of property, etc. Although there are many studies that try to explain the value of individual property, to the best of our knowledge, hedonic price modelling has not been used to analyse the value of complete areas within the city. However, there is a widely accepted need for price indexes at a higher level of scale (see e.g. Spinney et al, 2009). In this paper, we will apply hedonic price modelling to analyse property values of a specific area within the city: the industrial estate.
For each industrial estate an average property value per hectare is calculated for every year in the period 1997-2008. To find possible explanatory variables, literature on the valuation of individual (industrial) property was used, e.g. the work by Ambrose (1990), Black et al. (1997) and Fehribach et al. (1993). Based on these and other studies, two main types of explanatory variables are distinguished between: physical characteristics of

industrial estates and (regional) economic characteristics. A simple OLS regression is used to test a range of hypotheses concerning these explanatory variables. We conclude that most hypotheses concerning our explanatory variables are confirmed and that performing an analysis at the level of an urban area provides similar results as analyses of individual property.

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Paper Number: 264

Explanations for the private investment decision in the industrial land market

Bart Pasmans, Erwin Van der Krabben, and Rob Van der Heijden, *Radboud University Nijmegen*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B2

Though industrial land is not a public good in the strict sense of the words a small part of the industrial estates has been developed by the private sector municipalities have nevertheless often treated the provision of industrial land more or less similar to the provision of other public utilities like energy and water provision or infrastructure development.

Notwithstanding, that the industrial property market is suffering from a number of imperfections it is our conviction that in order to be able to effectively liberalize the market for industrial land development, more knowledge is needed about the present private involvement in the market for industrial land. This paper aims to analyse the differences between public and private investments in the industrial land and property market in the Netherlands.

Based on previous work, a number of hypotheses about assumed intervention variables, are formulated and tested. These variables, including location attributes as well as market characteristics, are assumed to be decisive for the private investment decision.

The statistical method to test this model is logistical regression analysis. The explanatory analysis is executed by making two subsets based on our own database; one of public developed sites and one of private developed sites. Our findings will indicate the strength between the dichotomous variables, the categories of public and private investment, and the aforementioned independent variables. So, this paper tries to explain the current private sector involvement in industrial land development in the Netherlands, aiming to derive potential implications for policies aimed at the liberalization of the industrial land market.

In a broader perspective, our study can be considered a case study of the liberalization of land and property markets and the conditions that must be met to match the rationales of private sector investment decisions in industrial land development.

Paper Number: 265

From CAMA to EPC: an ABC of automated energy efficiency appraisal

Peader Davis, William McCluskey, Michael McCord, David McIlhatton, Martin Haran, Erin Montgomery, and Jamie Russell, *University of Ulster, and Appalachian State University*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F3

Automated appraisal approaches incorporating hedonic and spatial analysis have become an established feature of Computer Assisted Mass Appraisal (CAMA) of residential property for taxation purposes. Large datasets of property attribute data are routinely gathered, verified and analysed to enable this, with scrutiny of both transacted data and the larger unsold population. This is justified given the established relationship

between property attributes, sale prices and the value of similar properties in the general population. More recently, residential property has been seen as not only a durable, valuable commodity but also as a persistent and considerable polluter, due its carbon footprint both in production and use. The very durability that contributes to value, in this context, locks in inefficiency for considerable time periods, particularly in locations such as the UK where housing may be used for in excess of 100 years, with largely cosmetic upgrade and alteration. Many jurisdictions have introduced energy rating schemes which typically are compulsory at the point of transaction, with the aim of highlighting the energy efficiency of current and new stock and highlighting where improvement can be made. Given the low turnover of stock and the relatively low weighting of such issues in the house buying decision process, the impact of such schemes in affecting market behaviour is necessarily limited. Many jurisdictions have also endeavoured to improve knowledge of their housing stock, to facilitate upgrade and renewal activities and better target awareness campaigns and funding. Many of the key attributes which affect value can be seen to be significant contributors to energy efficiency, such as total floor area, property type and era of construction. The aim of this project is to apply CAMA techniques to several large property related data sets, in order to model energy performance. It is expected that the work will allow a better understanding of the likely nature, scale and dispersal of the perceived problem of inefficient housing. This can have benefits both in terms of the climate change agenda and also the issue of fuel poverty. This has the potential to provide a valuable insight for policy framing and programme targeting at a local, regional and national level, such as targeted awareness campaigns and grant provision for issues such as upgrading of properties, transfer to greener fuels and "greening" of the tax system. Given the capacity of modern property tax authorities to gather high quality data whilst carrying out their core business, a powerful GIS based assessment tool could be established to better manage housing stock and the urban environment. The research builds upon earlier work by introducing official Energy Performance Certificate data to the modelling process.

Paper Number: 266

Negative externalities of structurally vacant offices: the story continues

Philip Koppels and Hilde Remøy, *Delft University of Technology*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C1

Numerous office locations in the Netherlands are confronted with high structural vacancy rates. These spatial concentrations of vacant office buildings might cause an urban area to degenerate and as a consequence might result in depreciation of real estate values. While the relationship between vacancy rates and rent indexes developments has been extensively analysed, the influence of the proximity of structurally vacant buildings on the performance of surrounding buildings has received less attention. The assumed negative externalities of structurally vacant office buildings are different than the normally assumed vacancy rent relationship (rental adjustment equation) based on the fact that the effect is assumed "local" and that the vacancy must be "visible" and "long lasting". This study attempts to isolate the negative externalities of structural vacancy from effects related to changing (local) market conditions.

In this paper, the influence of the proximity of structurally vacant office buildings on tenants' willingness to pay for offices is investigated by means of a hedonic pricing approach. For this purpose, a dataset that contains location and building features generally assumed to influence the rent level, has been collected. The supposed negative externalities are measured by a spatially weighted (lagged) structural vacancy variable. The specification of this variable is based on a series of assumptions: an office building is considered structurally vacant if the building was at least 50% vacant for a period of three or more consecutive years. In addition, the impact of structural vacancy is assumed to depend on the building size (m2 GFA). Moreover, the specifications used differ in type of distance-relationship (constant or linear), and the maximum distance of the effect (250, 500, 750m). By specifying the spatially lagged structural vacancy variable in different ways, this paper attempts to understand the negative externalities associated with structural vacancies and the underlying spatial process.

Paper Number: 268

Tax increment finance (TIF) and alternative financing instruments for urban regeneration in the United Kingdom and the Netherlands

Graham Squires and Erwin Heurkens, *University of the West of England, and Delft University of Technology*

Date: Friday 15th June
Time: 0900-1030
Parallel Session D4

It is widely acknowledged that, in many contexts around the globe, urban policy has changed radically as a result of the international credit crisis and the economic downturn (Parkinson et al, 2009). The straitened economic circumstances that typify both the United Kingdom (UK) and the Netherlands (NL) in "˜the age austerity' have resulted in a prominent transition of urban policy in recent years. A deep cut in public expenditure by the state has in turn scaled back direct investment for urban regeneration activity. This financial restraint is coupled with a property development industry that is increasingly vocal on economic viability concerns when being asked for developer contributions to provide public goods and services (ULI Europe, 2011). For the UK and the NL, this has led to an exploration and appropriation of new financial instruments such as Tax Increment Financing (TIF) - a method of finance that has been used since the 1960s in the US (United States) (Weber, 2003). As an example, TIF is being piloted in the UK (e.g. Edinburgh) (SFT, 2011) whilst in the NL there are similar future financial instruments being considered. It is examined in the paper that TIF (or similar) policy transfer takes different forms due to the differing planning and real estate development governance arrangements at the national and local level. For instance, in the NL, alternatives for active public land development policies are confronted by different contextual framework characteristics such as a legal system based on common law, and one that has a limited local tax base (Van der Krabben, 2011). The paper draws on these contextual differences in using TIF (or similar) to bring out what common characteristics enable future long-term gains for urban development.

Paper Number: 269

Evaluating regeneration policies for rundown industrial sites in the Netherlands

Huub Ploegmakers and Pascal Beckers, *Radboud University Nijmegen, and Netherlands Environmental Assessment Agency*

Date: Saturday 16th June
Time: 1100-1230
Parallel Session I8

To date, systematic evaluations of regeneration policies and programs for deprived and run-down urban areas which examine whether policy objectives are actually achieved and to what extent this was due to the implementation of that policy or program have been scarce. The dearth of conformance-based evaluations has also been noticed in the wider planning literature. In response to this evaluation gap in planning this paper presents a conformance-based evaluation of regeneration policies for run-down industrial sites in the Netherlands. Regeneration policies and programs for these sites usually involve public provision of infrastructure, public spaces and serviced building land by local authorities. The main objectives of these policies are to promote economic development and to stimulate private investments in buildings.

One of the alleged causes of the observed lack of planning evaluations is the absence of an accepted (quantitative) methodology which enables one to attribute observed outcomes to planning activities. This issue has, however, received more attention in the literature on the impact of local economic development policies, which sometimes explicitly incorporate urban regeneration initiatives as they involve targeting incentives at small distressed areas. Although calls have been made for more rigorous evaluations in this research field as well, evaluation methods are more established.

A variety of statistical techniques is proposed that could be used to assess whether observed economic outcomes can be attributed to the implementation of the policy (in the case of nonrandomized observational studies). This is normally done by comparing the outcomes in areas (or firms) that are subject to a certain policy or program (the "treatment" group) with comparison groups of areas that are not targeted by this policy (the "comparison" group). This paper takes up this suggestion and compares the economic outcomes on industrial sites that have been subject to regeneration policies with sites where no regeneration policies have been put into place but which are as similar as possible. This matching is based on the assumption that the probability of regeneration is conditional given certain characteristics of the industrial site. The following indicators have been established to measure the economic outcomes: employment growth, property values and the level of private investments in buildings.

Paper Number: 270

Risk assessment of the future climate impact on real estate in Germany

Jens Hirsch, Thomas Braun, and Sven Bienert, *IREBS, University of Regensburg*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G5

Every year natural hazards cause damages to the building stock amounting to millions or even billions of Euros in Germany. The accelerating climate change involves an increasing number of extreme weather events with adherent additional issues. These extreme weather events lead to restrictions of usability and ascending running costs as a result of adjusted insurance costs. Therefore an efficient risk management system requires profound knowledge on potential natural risks under present and future climate conditions. The actors of the housing and property industry suffer by a lack of solid information on identification, analysis and assessment of climatic risks. Taking this additional information into account is of immense importance not only for their investment decisions but also for the insurance companies and regional planning authorities.

This paper presents an approach of a climate impact risk assessment for the property market. The research comprehends an intensive evaluation of existing tools on risk assessment, insurance data and projections from climate models. The majority of existing risk assessment tools is accounting potential losses of a single climate impact and on a spatially highly aggregated level. By contrast, this paper contributes a multi-hazard risk approach on the property level. The analysis of potential risks combines separate methodologies for estimating the local hazard and building vulnerability (building-specific damage functions) in order to identify the monetary damage for each climate impact.

Paper Number: 271

Where to live in 2100? An exploration of long term future housing preferences by looking at the preferences of today's millionaires

Frans Sijtsma, *University of Groningen*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G8

Any type of urban and housing policy faces the challenge of predicting qualitative aspects of long term future housing demand, while these are notoriously hard to predict. In this paper we explore a new way of grasping with housing preferences that may shape future demand. We take inspiration from two sources. First Maslow's notions of human development, which state that the more lower needs (a.o. mere economic needs) are satisfied the more important the love of higher values becomes. Since from a long term perspective society grows richer and richer it seems that we will increasingly strive to fulfill higher needs. Therefore in this paper we analyze the housing preferences of people of who can be assumed that they are currently satisfied in their basic economic needs: millionaires. Second, to support our approach, we take inspiration from the recent interest in natural field experiments in economics (Harrison and List, 2004) . We interpret the real world choices of housing locations of Dutch millionaires as a natural experiment. Where do people prefer to live when money is hardly an issue?

This paper analyses the housing locations of the rich in the Netherlands. It analyses a set of 600 houses with an asking price of over Euro 1 million as to their volume, gardens, distance to urban centers and distance to public nature areas.

The housing location preferences of millionaires show two extremes: a modest amount in highly urban areas and a large amount in highly green/rural areas. Urban and peri-urban areas are unpopular. However, nearly all green/rural locations assessed are located within a range of 30 kilometers from a highly urban city. The millionaires' properties are often very close to public nature areas; areas often highly valued by the general public and often of high nature quality. The average volume of the millionaires' property is 4 times that of the average Dutch property, while its garden space is 61 times the average.

Interpretation of these result for future oriented housing and urban planning suggest that major shifts in housing preferences may occur with rising wealth. Furthermore tensions between the private and public enjoyment of attractive or high quality nature areas rank high; especially of areas that are within the 30km range of urban centers. In these areas the development of new housing concepts that combine the private enjoyment of the view upon green with public accessibility of these same green areas may be useful.

Paper Number: 274

Housing characteristics and the effects on domestic energy expenditure

Neil Dunse and Sotirios Thanos, *Heriot-Watt University*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E7

Investment in energy efficiency is an important policy target area, with the domestic sector being a major contributor to the total UK energy consumption, but also having potential for significant reductions. This research estimates econometric models for the domestic energy expenditure in the UK. These models include a number of relevant household socioeconomics characteristics along with income levels. Exploiting the gaps in the literature, we specifically focus on the effects of dwelling attributes on energy spending, aiming to produce policy relevant results. This study employs the latest data from the English Housing Conditioning Survey (EHCS) of 30,926 observations collected from April 2006 to March 2010. The results of the econometric model will provide monetary estimates for the effects on energy expenditure by a number of dwelling attributes which can be useful for example to local authorities in informing their housing policy objectives or developers and housing market participant who have energy efficiency targets.

Paper Number: 275

The implications of a change in the mode of study for a postgraduate real estate programme in South Africa

Graeme Jay, *University of the Witwatersrand*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E8

The MSc degree in Building offered by the School of Construction Economics (CEM) at the University of the Witwatersrand (WITS) is currently offered on a part-time basis only. Many postgraduate academic programmes globally and indeed in South Africa are now offered on a block release basis. Block release programmes provide flexibility and advantages for the student which a part time programme is not able to, but it introduces new challenges. Most of the postgraduate students studying in CEM at Wits are employed on a full time basis and therefore a change in the mode of study may have a significant impact on these students as well as the future intake of new students.

First and second year postgraduate students were surveyed to assess their views regarding their preferred mode of study as well as the advantages and disadvantages of continuing with the current mode of study versus changing to block release. A comparison was also made with other universities in South Africa regarding the mode of study employed on their postgraduate real estate programme.

The purpose of this paper is to:

Consider the relevant literature and highlight the international experience in delivering postgraduate programmes;

- *Share the results of research conducted with the postgraduate MSc (Building) students in CEM at WITS;*
- *Suggest the impact that a change in the mode of study could have for the student as well as CEM;*
- *Suggest how a change in the mode of study will improve the accessibility of the CEM postgraduate programme to students across the African continent;*
- *Suggest what implications a change in the mode of study will have on the delivery of the programme as well as the learning experience for the student; and*
- *Suggest how a change in the mode of study will more closely align the programme offered by CEM at Wits with other real estate programmes in South Africa and around the world.*

Paper Number: 276

Estimating the impact of sustainability criteria on Swiss residential real estate returns

Markus Gaebel and Annika Feige, *University of Zurich and Swiss Federal Institute of Technology*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G3

This paper investigates the impact of sustainability aspects on total returns and cap rates for residential real estate assets. We use a cross-section of data from institutional investors of approximately 200 Swiss multi-family properties, including sustainability ratings. Our multiple regression analysis indicates that not only traditional building characteristics but also sustainability aspects offer explanatory power. The results suggest that building age, health and comfort features as well as flexibility criteria have statistically significant impacts on valuation-based real estate returns in 2009. Also this study provides sustainability benchmarks for better informed real estate portfolio management decisions. Practical applications illustrate how the findings can be integrated into sustainability considerations of institutional real estate investors.

Paper Number: 277

Green diffusion: Determining the diffusion process of green buildings in the US

Thomas Braun, Marcelo Cajias, and Ralf Hohenstatt, *University of Regensburg*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F5

As the building and real estate sector is responsible for about 40% of the economy's end energy consumption, its potential to contribute to a sustainable development is accordingly high. In terms of mitigation of climate change, the response of the property sector is expressed by the diffusion of Green Buildings with systematic spatial and temporal dispersion patterns. Considering Green Buildings as a new innovation in the real estate market, it is necessary to analyse the adoption steps in order to identify the drivers of this green development. The question is what leads the actors of the real estate industry to adopt the green innovation in their investment decisions in terms of constructing, renting or investing in Green Buildings. This paper provides evidence of the factors determining the diffusion of Green Buildings in the US market by gathering building specific, economic and behavioural data. In other words, if the chosen model and its assumptions fit positively, the determinants may contribute to identify temporal and spatial effects across several real estate submarkets. The expected drivers are manifold: on the one hand governmental policies and on the other hand latent private interest due to a possible direct pay-off or an increased willingness to pay. Our contribution to research literature is to provide evidence of the market response to previous green policy incentives and delivers a basis for future decisions by policy-makers and investors.

Paper Number: 278

Using clustering methods for a practicable real estate portfolio allocation process

Kristin Wellner, *Technical University of Berlin*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A2

By moving asset allocation models from the scientific theory to the investment reality, institutional real estate investors are confronted with a number of practical problems.

Starting with a diversified international real estate portfolio by using the portfolio theory, this research paper shows a pragmatic approach to transform the calculated results into a real allocation process for finding a practical target portfolio for direct investments.

However, the literature of the last 20 years shows a high level of diversification effects by using the portfolio theory also for real estate portfolios. But there is still a dilemma to transform these results into a daily allocation process.

The new transformation process "as a result of this paper" is using clustering methods and different return calculations, offering more possibilities for choosing the suitable components for an existing real estate portfolio. With a top down to bottom up procedure according to a counter-current principle, it is possible to find properties which are suitable in practice.

The paper gives an outlook on the practicable application of the results using the Markowitz theory in consideration of the uncertain and imperfect real estate markets. In practical consideration, there are still problems regarding the properties of direct real estate investments and their markets, for example the characteristics of properties, real estate market situations and sizes. On the basis of empirical statistical tests based on real estate total return indices, this paper aims to find a solution to overcome these difficulties.

Paper Number: 279

Housing policy changes, market performance and future challenges in China

Ya Ping Wang, *Heriot-Watt University, Edinburgh*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I7

Urban housing development was an important factor for the sustained economic growth in China over the last three decades. The poor urban living environment and landscape formed from the 1950s to the 1970s were gradually replaced by modern, high-rise and well designed and managed housing estates. The socialist welfare housing provision has been reformed and publicly owned houses privatised. In the last fifteen years, housing market was established in all cities and commercially built properties became the main source of housing for most young people. The new housing market in large cities however performed very violently in response to the global, national and local economic situations. Government policies were changed frequently. This resulted in a series of short wave of booms and slowdowns. While the early housing reform policies were reported widely, recent housing market performance and policy changes were not examined systematically. This paper updates our understanding of the recent development of urban housing market and policies in China. After a brief review of the public housing system and the reform, the paper focuses on the last fifteen years with discussion of the social, demographic and economic changes in cities, the performance of the housing market, the recent housing policy changes and the re-introduction of the social housing ideas, and finally the problems and challenges for the future. Information and data mainly came from secondary sources. Analysis and discussion benefited from many fieldworks in China during the last several years.

Paper Number: 280

(Italian) REIT managers' compensation structure. The effects on investment performance

Maisin Massimo, Giacomini Emanuela, and Anna Grazia Quaranta, *University of Milan and University of Florida*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I2

(Italian) REIT managers' compensation structure typically provides a payment based alternatively on (i) "gross asset value" [GAV] or (ii) "net asset value" [NAV]. In addition, managers also gain a performance fee when REIT total return exceeds some minimum level.

In this respect, the paper analyses how the two alternative compensation schemes influence REITs' investment decisions and capital structure and, consequently, REITs' share performance at the investor level. The final issue addressed is whether one compensation scheme is superior to the other, i.e. if REITs having a fee-structure based on net asset values outperform REITs with a compensation indexed on gross asset value.

Due to the severe market price discount on net asset values and the inability to issue new shares, both fee structures incentive managers to leverage even in a tax-free environment in order to maximize the calculation basis of management fees. However, it will be shown that leverage motivation is stronger for GAV-based REITs than for NAV-based REITs, which are also expected to be more selective in investment decisions because only positive net present value investment projects increase their compensation basis. Overall, considering initial fee percentage, GAV-based REITs are expected to pay higher management fees than NAV-based REITs due to the leverage effect. Moreover, debt recourse produces different effects on share value if measured upon market price or net asset value due to the different implicit valuation methodologies.

The empirical analysis supports the theoretical expectations. GAV-based REITs have higher debt trends and levels than NAV-based REITs. At the same time, GAV-REITs generally experience lower real estate asset returns net of management fees for both current and growth yields. Differences in net real estate returns seem to lead to permanent higher performance over total return indexes of NAV-based REITs compared to GAV-based REITs. While the focus of the paper is largely on Italian REITs compensation, the issue addressed seems to be of broader interest due to the fact that similar compensation structures are also typical of other European REITs.

Paper Number: 282

The interactions between direct and securitized infrastructure and its relationship to real estate

Benedikt Fleischmann and Konrad Finkenzeller, *International Real Estate Business School - University of Regensberg*
Date: Friday 15th June
Time: 1330-1500
Parallel Session F2
The importance of infrastructure as an alternative asset has emerged significantly in recent years. Based on a novel dataset, this paper investigates the long-run relationships and short-run dynamics between direct and securitized infrastructure returns and the relationsship to the relevant real estate indices. Based on a cointegration analysis, we are able to detect the existence of a long-run relationship between direct and securitized infrastructure driven by a common underlying infrastructure business factor. This result implies that investors are not able to realize long-term portfolio diversification benefits by allocating funds to both direct and securitized infrastructure, since they are substitutable over the long run. However, in the short run indirect infrastructure is driven by the general stock market and follows the direct infrastructure market - a status (similar in particular to the "pre-Reit era"), which might reflect the lack of segmentation and focus of listed infrastructure companies. Furthermore, we are unable to investigate the relationship between direct infrastructure and direct real estate returns, either in the short run or long run - a result which contradicts to the assumption of infrastructure as being a subset of or substitute for real estate.

Paper Number: 283
Estimating the value of green infrastructure: A contingent valuation approach
Berna Keskin, Ian Mell, Sigrid Hehl-Lange, Simone Allin, and John Henneberry, *University of Sheffield, and Nottingham Trent University*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D5
This paper assesses the economic value of green infrastructure using a contingent valuation questionnaire to establish willingness to pay for specific urban greening investments. The paper presents analysis of 510 face-to-face interviews with residents, commuters, employees and other users in the Wicker Riverside area of Sheffield, UK. The willingness to pay question was framed as a regular monthly increase in rent or mortgage for a two-bedroom apartment. 3D visualizations showing seven alternative green infrastructure investment scenarios were developed for two sites within the study area. Analysis of the socio-economic profile and behavioural preferences of respondents suggests that we can model economic evaluation of green investments willingness to pay and increase our understanding of how the urban landscape can promote a better quality of place.

Paper Number: 285
Polish real estate market as an area of investment for insurance companies. Differences and similarities in relaion to selected foreign markets
Rafal Wolski and Magdalena Zaleczna, *University of Lodz*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H3
Traditionally, insurance companies invest in real estate, trying to take advantage of real estate as an investment asset. Global economic and cultural changes created the need for new offers of insurance companies and, consequently, a new investment policy. The authors outline trends of real estate investment activity of insurance companies in the UK, Germany and Poland. Having these frameworks, they attempt to analyze real estate investment of selected insurance companies on different European markets. The choice of individual companies was directed by the idea of comparison of companies belonging to the same capital groups and operating in different countries (Ergo in Poland and Germany, Aviva in Poland and UK). The study aimed at demonstrating the specificity and limitations of the Polish real estate market as an investment area.

Paper Number: 286
Social media in real estate
Verena Rock and Christian Foche, *University of Applied Sciences, Aschaffenburg*

Date: Friday 15th June
Time: 1530-1700
Parallel Session G3

Social Networks have long begun to heavily impact personal interaction and the private life of a significant portion of the population in general. They are now more and more gaining influence on business processes, especially on the consumer-oriented processes of businesses.

This paper investigates the current state and assesses the future potential of the use of social networks and applications based on these technologies in the field of residential real estate from both a user and a business perspective.

In a first section, currently available social media services are described with respect to potential applications in the real estate world.

Secondly the paper describes the results of an empirical study in which participants of the residential real estate market in the Rhine-Main region, Germany were interviewed about their current and intended future use of social media applications.

This paper concludes that social media applications are currently not consequently used by most market participants. While, a growing importance can be expected for the future, the key to success for the business side will be the ability to use social media in a sensible way to enhance a solid non-digital business proposition.

Paper Number: 287

Towards a framework to assist commercial landlords and tenants in England achieve a sustainable relationship

Selma Carson and Chris Fortune, *University of Salford*

Date: Thursday 14th June
Time: 1530-1700
Parallel Session C3

The majority of commercial (office and retail) property in the UK is leased as opposed to being owner-occupied (Investment Property Forum, 2005). The landlord and tenant relationship is frequently perceived as adversarial rather than one of partnership. This relationship operates within a legal framework and is driven by conflicting commercial objectives. However it is suggested that, through improved understanding of each other's position and a positive customer-focussed approach to managing the relationship, the overall outcome from both perspectives may be enhanced.

This paper reviews the literature on the landlord and tenant relationship and customer relationship management in the wider business world. It seeks to identify the key issues for both corporate occupiers and investment landlords in this area, using literature and analysis of property industry survey data. The lead author reflects on her extensive industry experience and uses this to outline the next proposed stages in the research project.

The overall aim of the research is to determine current practice and issues in landlord and tenant relationship management and develop a framework of factors affecting successful relationship management. The key point is that the research will recognise both perspectives and it is hoped that evidence of outcomes from positive relationships may encourage other landlords and tenants to adopt a partnership approach.

Paper Number: 288

The institutional environment of housing developer clients protection in Poland

Magdalena Zaleczna and Agata Antczak, *University of Lodz*

Date: Friday 15th June
Time: 0900-1030
Parallel Session D9

Poland is a country where economic transformation contributed significantly to the structure and activity level of the housing market. One of the examples of adjustment to the market rules in the housing provision was the appearance of new actors developers. They became responsible for the creation of a significant part of new supply of housing stock. The financing of housing projects realized by developers is based partly on pre-payment of buyers. The special circumstances of transforming post-socialist economy - mainly in the form of lack of fair play among entrepreneurs - developers and ignorance of the rules governing the economy and housing market by their clients, created a clear opportunity to shift a substantial part of the risk to the clients.

This situation creates enormous problems in the case of insolvency of the developer. The legal protection of developer clients in Poland has been expanded recently by the new act (in force: April 2012). The authors attempt to assess the potential impact of new legislation from the point of view of institutional environment of housing market in Poland having the outline of developer clients' protection in selected Western countries.

Paper Number: 289

Regeneration in rural Transylvania

Ion Anghel and Muler Onofrei, *Bucharest University of Economics, and Soravia Management SRL*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B9

This paper argues that efforts in rural conservation of the Saxons villages of Transyvania should be reinforced through long term rural regeneration policies that would benefit the present local population.

While much welcomed, the attention that the conservation of Saxon villages in Transylvania brought to the region did not benefit the local population. Organizations such as Mihai Eminescu Trust and others put an invaluable effort into preserving the former rural apearance of the Saxon villages, however, the long term solution to the viability of the area needs more than an outdoor museum picture perfect solution.

So far the conservationists focused on reproducing the appearance of the former Saxon viilages, with notable success in some cases. We argue that the next step in insuring the preservation and continuation of this success stands in a mix of socio-economic policies and specific property market mechanisms that would bring life to this special area of the Carpathian region.

In order to preserve the social fabric of this idylic way of life, the solutions should not be limited to the proceeds obtained from eco-tourism, self limited in nature.

The solutions that we see is a combination of economic policy and property market development that would see the present population benefiting directly from the investment in history.

Paper Number: 290

The effects of eco-certification on office properties: a cap rates-based analysis

Karen McGrath, *University of Coventry*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H3

Based upon a dataset of LEED and Energy Star labeled commercial office properties and their non-certified counterparts, this paper investigates the effects of eco-certification on the capitalization rates of commercial office properties. Hedonic regression analysis is used to determine whether premiums in rent and sales price associated with eco-certified properties translate into lower capitalization rates versus their non-certified counterparts. The results suggest that overall, eco-certified properties have capitalization rates that are 650 basis points lower than their non-certified counterparts. Additionally, those properties with only a LEED or Energy Star label also exhibit lower average capitalization rates. Surprisingly, however, those properties that possess both the LEED and Energy Star labels are evidenced to have higher capitalization rates than non-certified properties.

Paper Number: 293

Nonlinear interference and synchronization in housing, credit, and real activity cycles

Bing Zhu, *University of Regensburg*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F6

Motivated by the coincidence of unexpected property price inflation, credit expansion and low interest rate in the U.S. market prior to the 2007 crisis, this paper investigates the interactions among the boom-bust cycles in the sector of housing, credit and real activities using a non-linear coupled oscillating system mode & mode locking model. Sometimes the linkages may not be strong enough for one cycle to drive another, but can be still

strong enough to affect cycle's accelerator and cause a slight timing shift in the fluctuations in other sectors and bring about synchronization in a nonlinear way. The phenomenon behind this is called 'mode-locking'.
Using GDP, credit flow and housing price in U.S. market from 1976Q1 to 2011Q1, I first investigate the linear relationship among the three cycles using linear time series model vector autoregressive model. The results suggest that not all of the links are strong enough to result in causality relationship. In the next step, mode-locking model is employed based on Markov Chain Monte Carlo methods. The empirical results show that the three cycles nonlinearly interfere each other. Besides, due to the interactions, cycles' amplitude is amplified, cycles' phase is altered and in the end the three cycles synchronize. Moreover, monetary policy, such as interest rate, is also found to significantly nonlinear affect the three cycles.
Given the significant interference, uniform monetary policy should be challenged. Monetary policy makers should be more aggressive in those markets with larger increase in the credit debt to avoid coincident large fluctuation in housing price, credit flow and GDP.

Paper Number: 294
Impacts of commuter rail transit on property values - The Montreal North Shore case
Jean Dubé, François Des Rosiers, and Marius Thériault, *University of Quebec, and Laval University*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C9
This paper looks at the impact of the commuter rail transit (CRT) system that serves the Montreal North Shore area, Quebec, Canada, on the market value of single-family houses located nearby four stations along the Montreal/Saint-Jérôme route. The research rests upon a combination of hedonic modelling and spatial analysis methods used to compute a series of spatio-temporal accessibility indices by access mode to CRT (car, bus and on foot). Real estate data come from the Greater Montreal Real Estate Board (GMREB) and include 63,784 properties sold over the study area between 1992 and 2009. The data contain detailed information on sale price, asking price, date and context of sale, dwelling type, property age, building and land attributes, outbuilding attributes as well as on any renovation to the house. Information relative to location, neighbourhood and environmental characteristics of the property is also available. As for information relative to the CRT, it was provided by the Montreal Transit Agency (MTA) and deals with station location, user volumes and trip structure based on 2005 and 2008 on-board surveys.
Findings suggest that the implementation of a CRT service on the Montreal North Shore area has a positive, and significant, impact on residential property values which decreases with distance to the nearest station. Thus, on-foot proximity to stations results in an average market premium of 1.5%, 1.3% and 1% for houses located within 500 m, between 500 m and 1 km and between 1 and 1.5 km from a station, respectively. Car accessibility also translates into a significant premium averaging 3.6% of property value, with a maximum of 4.7% for properties that are 9.2 minutes distant from a station. Finally, once spatial autocorrelation effects are accounted for, multi-modal bus trips tend to result, in most cases, in a significant rise in house values estimated at roughly 1% and 1.3% for the regular and slow services, respectively, and for houses located within 10 km from stations. For houses located within 10 and 20 km from a station, the market premium derives from the express bus service and is estimated at 3.8% of value.
Such findings suggest that positive externalities from an improved accessibility to the CRT service prevail over negative externalities due to nuisance effects, in spite of the strong motorization that characterizes the Montreal North Shore households.

Paper Number: 295
Characteristics of the Housing Market in a Developing Country: the case of Brazil
Emilio Haddad, *School of Architecture and Planning University of Sao Paulo*
Parallel Session I8
Date: Saturday 16th June
Time: 11:00 – 12:30
Parallel Session I8
With 8,500,000 square kilometers, Brazil is the fifth largest country in the world, and the largest nation in Latin American. According to the 2010 Census, Brazilian population in 2010 is estimated as 190,700 million

inhabitants, constituting 67.550 million households, 84 percent living in urban areas. With a GDP of over US$2 trillion, Brazil is the world's eighth biggest economy. Per capita income is US$11,000; however, this average might be misleading as Brazil has been well known for the unevenness of its income distribution. According to the U.S. Central Intelligence Agency's World Factbook (CIA), amongst 134 countries Brazil ranks the tenth in the Gini index of family income distribution, meaning that only nine among all countries have more skewed distribution. Yet, in 2007, the highest 10 percent of Brazilian households received 43 percent of the national income, while the lowest 10 percent received only 1.1 percent. Only 1.7 percent of the families had a monthly income that was equal to more than 10 minimum wages in 2007 (US$1,974 in 2007).The quality of the housing stock is probably the most conspicuous evidence of the distribution of income in any society. Yet, family income distribution is at the core of Brazilian housing conditions, with an historic accumulated deficit, estimated in 7.9 million dwellings in 2005, mostly for families with monthly incomes below US$200, the condition of 78.5 percent of Brazilian families. Families that live in inadequate dwellings (slums, tenements, improvised dwellings, excess density dwelling, lack of infrastructure, inadequate titling, lack of exclusive bathrooms, or high-depreciate building) represent 45 percent of this deficit. The other 55 percent is composed of families sharing the same dwelling with one or more other families, a housing arrangement that is characteristic of countries in development. From the demographics point of view, there has been strong pressure over housing demand. The country doesn't have a younger profile population anymore; now, it has a predominance of adults. The estimated population aged between 25 and 64 years, where the housing demand is concentrated, is expected to grow from 43.4 million (36.6 percent) in 1980 to 112.6 million (54 percent) in 2020. This means that, if in the 1980s, 920 thousand households were formed each year, it is expected that more than 1.2 million new households per year will be formed in the decade of 2010.Present Brazilian demand for mortgages and formal housing production is concentrated in 5 to 10 minimum wages monthly family income bracket, which means 8.4 percent of the total families. A major purpose of the presentation is to identify, whenever possible, major differences with Europe.

Paper Number: 296

Valuation standards around the world

Ion Anghel and Costin Ciora, *Bucharest University of Economics*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C3

In the actual context (with issues like as viability of the global markets, cross-border transactions, transparency in financial reporting etc.) it is a common interest for professional valuers, investors, universities, researchers etc. to consider a convergent set of global professional valuation standards. It is also in their best interest to work towards enhancement and refinement of valuation methodologies and applications to be prepared to address valuation issues that are bound to arise in the future.

On the other hand the globalization has been requiring a uniform measure for fair value of enterprises'assets, which drove the implementation of International Financial Reporting Standards (IFRSs) in many countries. And at the same time, the presence of the International Valuation Standards (IVS) has been increasing as a uniform measure of assets' value.

This paper presents a survey results and shows some consideration and necessary challenges for different countries.

Paper Number: 297

The role of German open-ended funds in the city of London office market

Gheorghe Multescu and Martin Lake, *London South Bank University*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I2

German funds increased their ownership levels in The City of London Office market from 0.7% of the sector to 18% between 1985 - 2006. This period of concentrated growth of ownership coincided with several peak-to-trough cycles in The City of London Office market.

The paper aims is to assess the impact of the GOEFs in the passage of that cycle and determine what role, if any, they play in the movement of cyclic patterns in the UK's most prominent and diverse office market. Key theory points are assessed as part of a literature review focusing on the GOEF's sector's vulnerability to liquidity crises and legislation changes.
The findings of a combined quantitative and qualitative survey suggest that GOEF liquidity has a positive correlation with the development cycle, capital value and rental value of The City of London
Office market, with liquidity of the funds partly explained by movements in City Office cycle indicators. The paper argues however that liquidity alone does not play a central factor in the investment and divestment decisions of the GOEFs in The City of London.

Paper Number: 299
Improving open plan offices - balancing technical and use-based solutions
Heidi Rasila, Peggie Rothe, and Suvi Nenonen, *Aalto University*
Date: Friday 15th June
Time: 0900-1030
Parallel Session D9
Work environments are complex and interrelated systems of people, processes and places, where there are no "one size fits all" -solutions. In office context the workplace and facilities managers face this complexity when they try to optimize the environments to meet the needs of the organization, employees and the work processes. Technical modifications in the physical environment are one option when developing the open plan office. However, these technical solutions can be expensive and they still do not guarantee a better user experience. A psychosocial approach to open plan offices provides development by focusing on the use of the environment. The aim of this paper is to approach open plan office improvements from a psychosocial perspective and to identify what kind of solutions can be offered by changing the way the environment is used.
The research is conducted as a case study in one organization that had gone through an extensive workplace change project two years earlier when the organization moved from a space with private rooms to an open plan office solution. The new work environment was, however, perceived as problematic by the employees. In order to understand the user experiences and to find solutions to the problems, data was collected through both objective technical measurements and a walkthrough audit that was carried out together with users of the open-plan office.
The research revealed that the problems could be tackled not only by expensive technical renovations but also by making some spatial modifications and changing the way the environment was used. This indicates that, when aiming for satisfied users, it is important to balance technical solutions and the ways the space is used. The workplace change process is not finished when the new office has been accommodated; adaptation of new ways to use the office is essential and both the physical and psychosocial work environments have to be taken care of. This paper is provides a framework, which incorporates both technical aspects and the use of the space, for understanding the end-user experience in the work environment.

Paper Number: 301
Culture, identify and property markets. Redevelopment of post-industrial Zablocie in Krakow
Malgorzata Zieba, *Krakow University of Economics*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C9
The paper focuses on factors prompting redevelopment, with particular attention given to cultural, infrastructural and property market investments, their role and interrelations between them, in regeneration of post-industrial, historic and housing district of Zablocie.
Post-industrial district Zablocie has been indicated strategic area of urban development in central Krakow. The aims of the urban regeneration plan for Zablocie were designed to correspond with strategic goals of Krakow metropoly development and to preserve the identity of the industrial district, while developing new urban functions, provide attractive investment opportunities for commercial and residential developments and adequate living conditions for the local society and new residents.
Economic, spatial, social, and ecological situation of the district prior to regeneration process is analyzed with emphasis on structural development barriers. Historic heritage and identity-building features of Zablocie are

particularly enhanced. Then, the process of regeneration and redevelopment is presented, including institutional framework and development incentives, public infrastructural investments, commercial property investments and, last but not least, cultural investments.
Paper refers to the theoretical debate over role of culture and local identity building in urban regeneration and to assumption that culture may play crucial role in regenerating urban areas and supports integration of new and old residents in renewed creative environment with its own particular history and identity. Investigated case of regeneration suggests though, that culture is essential for creating and strengthening local identity but the success of regeneration requires more comprehensive approach, with property investments and infrastructural improvements. The qualitative analysis (eg.opinion surveys among various stakeholders) is supported with economic and demographic data for the area. Particular attention is given to data reflecting changes in the space use and property market performance over last ten years and relations between them.

Paper Number: 302
The effect of foreclosure in a downward spiraling housing market
Craig Depken, Harris Hollans, and Steve Swidler, *University of North Carolina, and Auburn University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A6
With significant declines in home prices since 2007, many U.S. households have found the balance of their mortgage exceeding the value of their property. These underwater homes leave owners with the dilemma of continuing to pay on their note or relinquishing their property either through foreclosure or a short sale. A number of studies have looked at discounts on foreclosed property. Discounts range from a low of 4 to 6 percent in Springer (1996) to a high of 24 percent in Shilling, et al (1990). More recently, Claretie and Daneshvary (2011) examine three forms of distressed sales in Las Vegas and estimate that, in 2008, the average discount from an arm's-length transaction was 5.6 percent for a short sale, 10.3 percent for a home in default and 13.5 percent for an REO.
Whereas Claretie and Daneshvary use multiple listing service (MLS) data, our study analyzes tax records from the Las Vegas metropolitan area over the period 2007 through the second quarter of 2011. By using tax record data and extending the period of analysis, we are able to investigate housing prices in a downward spiraling market. While the county utilizes a multi-category coding system to identify various types of property sales, three primary transactions are of interest in this analysis: a) an "R" transaction, where the price reflects an arms-length sale between a willing buyer and seller, b) a "T" designation refers to a price bid on the property at foreclosure during a trustee sale and c) , an "F" transaction denotes the selling price of a property after foreclosure. For a given property, historical sequencing of transaction type designations allows us to infer the circumstances of the most recent sale.
As home prices continue to fall and more homeowners find themselves underwater, distressed sales will make up a larger proportion of sales. Nevertheless, many of these transactions in the form of either a short sale or a home in default may be recorded by the county as an arm's-length (R) transaction thereby changing its meaning over time. This has important implications for house price indexes and tax assessments as both utilize arm's-length transaction prices. Given that arm's length transactions could include distressed sales, the analysis will apply a form of propensity score matching to adjust the circumstances of the final sale. In this manner, it will be possible to measure the "pure effect" of foreclosure and how this changes over time.

Paper Number: 304
Optimal portfolio allocation using transaction-based data
Tommaso Gabrieli and Davide Manstretta, *University of Reading and IPD*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A2
In this paper we study optimal portfolio allocation of real estate assets using IPD transaction-based data. Currently, appraisal-based indices represent a standard tool for the analysis of property returns in portfolio decisions. However, appraisal-based indices present a number of shortcomings:
they may understate volatility, lag turning points and be affected by client influence. In contrast, transaction-based indices should be a more authentic measure of market returns. Therefore we tackle the natural question

of exploring portfolio choices on the basis of such market-based indexes. In particular, we perform a number of quantitative exercises:
(1) We investigate the value of a de-smoothing parameter that could re-align appraisal-based to transaction-based indices
(2) We compare optimal portfolio allocations based on both indices and the relative performance
(3) We investigate whether portfolio allocations based on transaction based indices can improve the efficiency of the real estate market and the implications for market returns

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Paper Number: 305
About real estate company's firm size and the production of energy-efficient housing services - Evidence from Germany's redisential buy-to-let market
Claus Michelsen, Sebastian Rosenschon, and Christian Schulz, *Halle Institute for Economic Research*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H7
This paper investigates the effect of housing companies' firm size on the outcome of energetic refurbishment. We argue that economies of scale, economies of scope and effects of learning should have an impact on the production of energy efficient housing services. To test our hypothesis, we use a unique dataset derived from energy consumption bills. The data contains information on the exact energy requirement of a dwelling, its size, age and the level of refurbishment. In particular, we rely on information on roughly 100,000 multifamily houses. Besides owner characteristics and refurbishment effort, we introduce several control variables to capture vintage, size and spatial effects.
We find strong evidence for the presence of firm-specific, in particular size effects on the energetic outcome of refurbishment. We find that professional housing companies (a company owning more than 1000 flats in their portfolio) reduce the energy requirement by about 37.1% when major parts (roof, facade, windows, basement ceiling and heating system) of the dwelling were refurbished within the last 15 years. In contrast, single unit owner (owning up to 20 flats) reduce energy requirements only by 12.3 %, even when for dwelling attributes like size, age and spatial location is controlled for. Moreover, differences between firm types increase with refurbishment effort.
This inquiry contributes to the literature on housing service supply as well as to the ongoing political debate on the reduction of CO2 emissions. For example, the introduction of Germanys' federal governmental concept for climate protection in autumn 2010 let to a fierce controversy on the feasibility of the introduced targets on energy efficiency improvements in the existing housing stock in particular because of the plans to introduce redevelopment obligations for all landlords. After intense protests, this strategy was withdrawn, predominantly because the law did not distinguish between real estate characteristics. The present paper adds the aspect of firm size to the discussion.

Paper Number: 306
The Cluster Approach to the real estate education: the Lessons from Belarus and Lithuania
Nikolai Siniak, Oleg Dormeshkin, and Aliaksandr Dalhikh, *Belarussian State Technological University*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H8
Analysis of the condition of Belarusian and European real estate education practices shows that cardinal problems in this sphere are: the absence of unity in understanding of general and special features of the real estate specialists training in different areas, the differences in understanding of the necessary level of training, the absence of unity in the content of the training programme in different areas of the professional activity in the real estate market. This problem can be solved by the way of creating International Educational Clusters. In clusters the best experience of different countries and universities can be integrated.
In Belarusian State Technological Univestity and Vilnius Technical Gediminas University has being working out the educational distance learning programme for Real Estate Management specialization. Cluster approach was realized in the process of realization of the programme. It was integrated not only international experience of the best professors of the universities but the best practitioners of the countries were involved in the programme. Belarusian University works in cooperation with Republican Unitary Enterprise "Institute of Real

Estate and Appraisal"□, National Cadastral Agency, Scientific Unitary Enterprise "Belniczem"□ within the framework of educational scientific industrial centre created at the university, acquire the knowledge in the sphere of economics, administration, finances, investment, land and forest cadastre, real estate market analysis, individual and mass appraisal, leasing, management in operational and investment property, appraisal and business administration. In August 2010 International summer school "Economics of real estate and valuation"□ was organized in English in BSTU at the expense of Central European Initiative (CEI), the purpose of which was the professional development of the department teachers and the employees of Republican Unitary Enterprise "Institute of Real Estate and Appraisal". The Belarusian-Lithuanian experience shows the main advantages of international integration and cooperation with practitioners within cluster and network of universities.

Paper Number: 307

Ethics in real estate practice: Education matters

Gethin Edwards and Gaye Pottinger, *University of Reading, and RETRI Group*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E8

The economic downturn has exposed pressure on real estate practices to cut corners and brought an increased focus on standards of competence and regulation. Today's real estate graduates emerge into a highly competitive and difficult jobs market. Their first job can be all important, not only to the continuing development of their professional competence, but also to reinforcing their ethical stance and outlook that can determine success throughout the rest of their career. This is a main finding of research undertaken by the authors while working at the College of Estate Management, Reading (CEM).

This paper argues that the incorporation of ethical training into pre-qualification education and on-going life-long learning is all important. It draws on a series of three UK based projects in 2007-1010 that investigate the way in which surveyors understand and manage ethics, according to the stage of their career and the size of firm that they work for. The research includes analysis of an online ethics debate involving CEM master's degree students who have property industry experience; interviews with property professionals from nine of the top 25 UK property services firms; a questionnaire survey of RICS Commercial Property Professional Group members; and a focus group involving chartered surveyors from firms ranging in size.

Fundamentally, the research found that young surveyors express more concern about ethics than their senior colleagues and, at the same time, are strongly influenced by their actions. The findings presented in the paper are relevant to understanding how good ethics are learned, managed and perpetuated in surveying firms and to informing the role that professional regulation and education need to play.

Paper Number: 310

Real estate appraisal development during the II independency, the past, the present and the future

Kaarel Sahk, *Estonian University of Life Sciences*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F3

Real estate appraisal as a separate procedure had started after the declaration of the second independence. Preliminary all power was dedicated to the ownership reform and this approach makes appraisal procedure as a part of the reform. As a fact the procedure was not started from the valuation of properties so as three whales of reform, restitution, housing privatization and state property dispose as a goal of appraisal, collected all the activities. Beside the reform, a rising financial market started requires the valuation based on the other foundation than three whales. In this case the contemporary movement started while the IVS were published in Estonian in 1997. The second impulse arises from the initiated by Estonian Society of Real Estate Appraisers a procedure of professional certification. Simultaneously the changes in area based curricula and started membership in EU have played a significant role also. As a no isolated system, Estonian environment of real estate valuation bear the influences of international crisis. Last but not least impulse arise form the association with the Euro market that is representing the last approaches of the real estate appraisal as a procedure market dynamic. This short description gives a possibility to compare the local procedure with international one.

Paper Number: 311

The real size of the global real estate market

Peter Hobbs, Christian Berthold, and Mark Clacy-Jones, *IPD and University of Stuttgart*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A1

As real estate has matured as an asset class it has become increasingly "global", with fund management platforms and investment mandates being developed across global markets. Despite this globalisation of the asset class, there remain significant differences in the estimates of the size of the global market, ranging from $3 to $30 trillion. These differences have important potential implications for real estate. On the one hand, they raise questions over appropriate allocations to the asset class, particularly if these allocations are based on the size of the market relative to equities, bonds and other alternatives. On the other, different estimates of individual market sizes can influence strategic allocations across those markets.

It is within this context that this paper investigates different methodologies for estimating market size, comparing definitions and results for the different approaches. Given the variations in data quality, the paper distinguishes between "mature" and "developing" real estate markets, explaining the methodologies for each. The paper takes forward the analysis carried out in a paper presented at ERES in 2011 focused on the Dutch market (Teuben, B and Courtens, R. (2011) The real size of the Dutch real estate investment market; Working paper ERES Conference Eindhoven). It is likely that the paper will represent an important step towards more authoritative estimates of global market size.

Paper Number: 312

Mutual recognition of valuers' qualifications

Kaarel Sahk, *Estonian University of Life Sciences*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D3

Real estate appraisal, basically its results are strongly linked with qualification of appraisers involved in of the valuation procedure. Through a description of the valuers qualification foundation based on the academically curriculum, on the professional experience and ongoing educational development, we arrive to the professional approval. Solving the question asked a decade ago by Barry Gilbertson: Is a real estate appraisal an art or a science?, we are returning to the other founding question: What are the items, in modern approach a staff that helps to valuers to pass the recognition. In this case are existing two firstly different ways of recognition procedure, the national and international one. The nature of valuer's qualification and its more sophisticated and detailed analyze bring us to conclusion that over the border as a recognition will move only a science, while qualification and its applications are country based arts. Finally it is evidential that the changes of qualification processes must take into account the both directions, the art and the science, and follow in this case the both mainstreams national and international that are linked with EU development, which turn the different dynamic into one, overall mutual process.

Paper Number: 313

Relocation process: What services do tenants need?

Miikka Putto and Peggie Rothe, *Aalto University*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C8

Relocation is a major organizational change but the process has not been widely re-searched. Existing research mainly approaches organizational relocation by explaining and predicting the optimal location. Organizations that are considering to relocate their businesses does not necessary recognize the importance of relocation and they do not necessarily have enough knowledge and resources to take care of the process themselves. A relocation process consists of numerous details and several strategic and tactical level decisions that the organization has to make.

This study focuses on office occupiers' relocation process from the landlord perspective. The aim is to identify underlying challenges that tenants face when relocating and to recognize potential relocation related services that landlords could offer.
This study is conducted as a multiple case study. Empirical data is collected through interviews with both landlord representatives and decision makers of office occupiers that have recently relocated. In order to create an understanding of the present state of practice, the paper formulates a generalized process description about the leasing process.
Further, the study identifies the difficulties and challenges in the case organizations' relocation processes. In addition, it will be showed what type of relocation related services landlords could offer to potential client companies that are considering or has already decided to relocate.

Paper Number: 314
Challenges in establishing sustainable mortgage markets in African countries: Lessons from Tanzania
Moses Mpolgole Kusiluka, *Ardhi University*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H8
For the past three decades many African countries have been implementing institutional reforms. The extent and impact of the reforms differ from one country to another and from one sector to the other. Property market is one of the sectors that have benefited from the reforms. Reforms have attracted the attention of institutional investors in the respective countries. Foreign investors are also gradually getting attracted into the sector. In the real property sector, upscale commercial and residential sub-sectors have benefited the most from the reforms. On the other hand, affordable housing sub-sector has received marginal attention from both investors and financiers, despite various initiatives to ensure that the reforms attract investors and financiers into the sub-sector.
This study, which was carried out in Tanzania, looks into the challenges in establishing sustainable mortgage markets in African countries. Along with assessing the adequacy of the existing institutional framework in sustaining the market, the study evaluates the previous and current mortgage market promotion initiatives. The study entailed a survey of senior officials from commercial banks, pension funds, developers, and financial markets regulators. The aim of the survey was to capture key stakeholders' views on the prospects for mortgage market in Tanzania.
Findings of the study show that the main challenges in establishing a sustainable mortgage market in Tanzania revolve around coming up with an institutional framework that blends imported institutions into the local institutions which shape the behaviour and culture of the local people. These findings suggest an incomplete process of reforming some key legal, economic and social institutions. The study contributes to the literature on mortgage financing in infant markets, which is useful in devising tailor-made mortgage products suitable for infant market settings.

Paper Number: 317
The effect of zip-code image and renovation on the prices of apartments in old residential multi-dwelling buildings
Mikael Postila and Ari Laitala, *Orava Funds, and Aalto University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A7
In a recent research paper it has been claimed, that the plans nor the completion of major renovations won't affect fully the sales prices on the market in Finland. Our goal in this study is twofold. Firstly, our intention is to check whether the discrepancy between renovation costs and apartment prices really exists. Secondly, we try to quantify the renovation potential for various sub-markets.
As the models are planned to be used also for real life decision making, multivariate regression model is chosen for the tool of choice. Even though it isn't as efficient as some spatial econometric tools, it is understandable for most practitioners, who often have doubts on models they don't understand and see as 'black boxes' from their point of view. The dataset used for the study is comprised from Oikotie.fi multiple listing service and Statistics Finland data.

During the first phase of the study we have constructed a multivariate hedonic regression models using same variables and similar functional form for 40 urban regions in Finland. One of the explanatory variables is quality, which is represented by using 3 dummy variables. The elasticity varies between cities, larger and more expensive cities having smaller elasticity. Since the renovation costs are somewhat similar across the country this indicates that the monetary difference between the classes of different building and apartment quality levels would be roughly the same.
In the second stage of the study we're trying to verify the results by replicating the 1st stage research on zip-code level and for individual residential buildings. At the same time we are testing the explanatory power of various zip-code, or sub-zip-code specific socio-economic and demographic variables as well as image (e.g. security, service level perception) factors.

Paper Number: 318
From energy guzzler to passive house: Analysing efficiency trends in the residential sector
David Steixner, Wolfgang Brunauer, and David Koch, *IVG Austria, ERES.NET, and Immobilien Rating*
Date: Friday 15th June
Time: 1530-1700
Parallel Session G5
There has been a continuous improvement of the thermal quality of buildings during the past decades: While in the 1970s annual energy consumptions of more than 100kWh/sqm were common, today's state of the art buildings usually feature energy demands below 10kWh/sqm. Based on a comprehensive dataset of more than 5.000 energy certifications for buildings constructed from 1994 to 2011, this paper establishes a cutting edge generalized additive modelling framework in order to explain the temporal development and spatial heterogeneity of thermal quality in the state of Salzburg, Austria.
For this purpose, we have explanatory variables such as energy costs, national and regional economic factors as well as locational attributes influencing energy consumption at our disposal. Thus, our approach allows us to investigate the impact and efficiency of past adjustments of the legal framework and subsidies for energy efficient house building. The results can be used to improve legislature for energy efficient building construction and according national and regional subsidy programs.

Paper Number: 321
External benefits of urban real estate developments
Michael Nadler and Stephan Thiel, *TU University Dortmund*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A9
The matter of external effects is already well analysed and discussed in various disciplines: welfare, environmental or regional economics analyse the (un)desired externalities in different contexts. However, a suitable comprehensive approach to measure positive external effects induced by concrete urban development projects is still missing.
The main focus of the paper thus concentrates on positive external effects of real estate developments from the point of view of public authorities. Real estate developments are defined as brownfield redevelopment projects in integrated urban areas, taking the whole life cycle from site clean-up to infrastructure and building construction and maintenance as a basis. A crucial aspect of this kind of capital intensive projects is obviously financing. Public money is often involved in these projects because of long-term welfare aspects, especially in terms of social stability and economic development in the private and in the public sector.
One of the main interests in the process of decision-making is the justification to grant public subsidies. This aspect becomes more and more challenging against the background of the massive limitation of public or rather municipal budgets. A resilient support for decision-making demands a sophisticated analysis of external effects that aim at a strict quantification of the significant aspects. In the first place, this leads to a systematic categorisation of the topical fields of effects considering the person or groups concerned as well as the manifestation in terms of spatial and temporal range.
The approach of the paper is to improve the available methods for quantifying positive external effects of real estate development. Therefore, a pattern will be presented that build the basis for the quantitative coverage

and prognosis of these effects in the context or urban and regional development. The prospective target is the integration of this methodology in urban and regional planning processes.

Paper Number: 322

Real estate education in Poland: Report of survey

Bartlomiej Marona and Michal Gluszak, *Krakow University of Economics*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E8

The working paper demonstrates the system of real education in Poland. Additionally the paper shows the results of research which was carried out in six Polish biggest universities in the period between October and December 2011. The questionnaire containing 13 questions was submitted both real estate and not real estate students.

The main objective of this research was to analyze main reasons why students choose (or not) real estate education, their expectations about education process and they intentions after graduation.

Paper Number: 323

High voltage overhead power lines in Queensland and their externalities: Perceived risks to homeownership and impacts on property value

Peter Elliott, *University of Queensland*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I8

There is little published research into public reactions to the provision of High Voltage Overhead Power Lines (HVOTL) in Australia. HVOTL infrastructure can create externalities and perceived threats to the immediate environment and adjoining residents. Their intensity will vary according to individual and community attitudes and expectations. Intertwined with these reactions is the fear of the homeowner's wealth and financial security being impacted with possible reductions in the value of their real estate.

This paper outlines some of the findings of recent research undertaken in Queensland about the homeowner's perceptions towards the provision of HVOTL as well as the effect of HVOTL on adjacent property value. Results of a telephone survey and focus groups with respect to the homeowner's attitude towards HVOTL are outlined. Perceived impacts on property value are reported and the findings of some initial GIS studies discussed.

Findings of the research suggest the role of place has an important influence on the homeowner's perceptions with respect to externalities and that perceived and actual impacts on property value will also be affected.

Paper Number: 328

Rationality of actors and impulsive action in the property market

Anna Radzewicz, Radosław Wiśniewski, Justyna Brzezicka, Oksana Kurji-Wysocka, and Marek Walacik, *University of Warmia and Mazury*

Date: Saturday 16th June

Time: 1100-1230

Parallel Session I1

When analyzing the real estate market we should pay an attention to its actors. They are causative bodies, responsible for creating of the real estate system, who want to maximize their advantage or to satisfy their basic needs.

In such an approach, real estate's agents, decide to participate in the real estate market taking under consideration their own needs, opportunities, expectations for market development and economic expertise - law. The decisions and actions they made are the outcome of rational premises. However, not all behaviors and processes can be classified as reasonable (and predictable).

Market operators often active by an exclusion of participants awareness , in isolation from the economy, despite society expectations (needs). Such actions are called impulsive and they fit the behavioral trend of behavior taking place in the space of the real estate market.

The article presents issues related to the rationality of the behavior of entities in the real estate market and their impulsive actions. Aim of this article is to show the duality of the behavior among real estate market participants. The practical part describes the behavior of participants in the property market by examining the "certainty effect", which is an integral part of prospect theory.

Paper Number: 329

Evaluation of operational property asset management processes in Scottish Local Authorities

Malawi Ngwira, David Manase, and Ali Parsa, *Glasgow Caledonian University, and University of Salford*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D9

It has now become increasingly noticeable that there has been an increasing trend towards the adoption of asset management by public bodies including local authorities. Since 2003 Scottish councils have been legally obliged to adopt asset management as the strategic framework for managing their property assets. The increased trend has come as a result of evidence of inefficiencies associated with the manner in which local authorities managed their property assets and the realisation of potential benefits that are likely to arise if asset management approach is followed. The purpose of this paper is to assess the extent to which Scottish councils have effectively implemented aspects of the processes associated with asset management practice. There are about five commonly identified asset management processes including: property information management system, capacity building, strategic planning processes, corporate property management arrangements, and effective management of capital programme. The focus of this research is on the latter three.

The paper is a research based on a survey investigation of all thirty two Scottish councils. A questionnaire based survey and interview of a select number of key stakeholders was carried out. The research findings suggest that where there is an element of compulsion, councils have been successful. For instance, councils have been very successful in implementing strategic planning processes especially in the adoption of asset management strategies and publishing prepared asset management plans. However, councils have had limited success in securing leadership support in corporate asset management arrangements and in considering property as a corporate resource. Regarding management of capital programmes, local authorities have had limited success in utilising option appraisal to aid decision making about capital projects, maintenance management or planned works. However, councils have been very successful in adopting a corporate approach when making decisions about capital project prioritisation.

Paper Number: 332

Estimating the effect of financial crisis on expected returns and the attractiveness of real estate

Jim Berry, Lay Cheng Lim, Tony McGough, Ben Burston, and Fergus Hicks, *University of Ulster, and DTZ*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H1

The last year has seen financial crisis, and the threat of further more dramatic financial events across Europe dominate much of the global economic news. This is having an increasing impact on the commercial real estate market. Many participants are wondering about how this will feed through to real estate performance both directly within Europe and also the global transmission mechanism.

In this paper from a base case view of Europe muddling through the current sovereign debt crisis we will look at the impact and implications of a Euro zone break up on real estate markets around the world. Most importantly from both a country and market position we will look at the transmission mechanism of a financial crisis through global economic markets.

The paper then considers the consequences of these economic and financial convulsions on real estate markets. It will look at both the relative magnitude and the sensitivity of real estate markets to financial crisis and the implied effect on overall performance. Looking at the retail and office market, it will then consider the impact of subdued real estate returns in a financially volatile market, and thus the relative attractiveness of real estate as an investment vehicle. This paper concludes by providing insight into the magnitude of the impacts and the characteristics investors should look for when considering different market characteristics in differing economic scenarios.

Paper Number: 334

The changing nature of liquidity and transactions activity in UK commercial property: Cyclical and trend effects

Neil Dunse, Colin Jones, and Nicola Livingstone, *Heriot-Watt University, Edinburgh*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B2

This paper examines the evolution of the commercial property investment market over the last thirty years. The empirical core of this paper will quantify the changing nature of liquidity and transactions activity in the commercial property investment market in the UK since 1981 based on the IPD database. It will disaggregate these time series by property type and region. The basic empirical analysis will provide a base for a twofold appraisal of property investment and its pricing. First, there will be a discussion of what the changing nature of liquidity and transactions activity means for the role of property as an investment class over this period. Second, the implications of variations in transaction activity for valuation will be assessed, in particular during cyclical downturns. Finally some general conclusions will be drawn.

Paper Number: 337

Chronotope and real estate

Kaarel Sahk, *Estonian University of Life Sciences*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G4

While in early years of XX-s century famous Russian researcher Bakhtin started description of the chronotope then there do not exist any suggestion or reference that chronotope as a tool will appear on in the real estate environment and in this way will help us to draw down the value based life the property. The essential parts of the property on the one hand built up the real nature of the chronotope and on the other hand chronotope explain their dislocation and time based dynamic. Actually the time based dynamic of the different essential parts of property make us to link with the basic terms coding, overcoding, etc. founded by Umberto Eco, but their usage and clarification in spite the terms semiotics based foundation must wear also some characteristics of real estate, its nature and space. During the layout of chronotope the landscape and the artefact are both important so as on them lays rest of dynamic of markers that are illustrating the development of value.

Paper Number: 338

Barriers and drivers for sustainable property investment in Poland

Stanislaw Belniak, Michal Gluszak, and Malgorzata Zieba, *Krakow University of Economics*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F5

Compared to huge empirical evidence gathered in US and UK, concerning green buildings performance, little has been done to understand the process of adaptation of green perspective towards property investments in less developed countries. On the other hand, as attitudes towards sustainable property of both end users and investors are linked to their environmental awareness itself, institutional support (as USGBC), as well as country specific legislation, it seems rationale to expect that adaptation rates will vary across the world.

Stylized facts provide prove that CEE countries lag behind when sustainable

property stock is concerned. However the growth rate is acceptable.

In the first part of the paper we identify major barriers that slow down the development of strong sustainable property market in Poland. Later, we use qualitative data (gathered from in-depth interviews) to analyze different drivers and barriers for undertaking some sustainable property related projects. Then we explore the results of conjoint experiment, to assess realistically willingness to pay (WTP) for green building certificate.

Paper Number: 339

Toward a sustainable housing stock: How to optimize between costs of energy and housing costs
Marieke Leussink, Jos Smeets, and Roel Tijssens, *Eindhoven University of Technology*
Date: Saturday 16th June
Time: 0900-1030
Parallel Session H3

The living costs of households are not only set by the price of rent or mortgage but also by dwelling-related costs like energy and water. Especially the energy costs show an upward trend. The accumulation of housing costs and costs of energy occurs especially in the less insulated part of the housing stock, mostly the older dwellings. Often these dwellings are occupied by lower income households. If the situation remains unchanged, in the future some of them can hardly afford their housing costs.
For those landlords that are responsible for the accommodation of lower income groups the steering on living costs (rent plus dwelling related costs) becomes more and more an issue.
But also for the heavily mortgaged households in the owner occupied sector the accumulation of these costs can become problematic.
This paper will explore which types of households in the rental as well as owner occupied sector will have affordability problems in the future as a consequence of the increase of dwelling related costs. The research is based on an extensive survey in the region of Eindhoven, in which the housing costs of several types of households are investigated in relation with the energy performance of different dwelling types. To look more closely to the housing costs of several households a lot of cost-items are listed (rent or mortgage, energy costs, cost for water, insurance, taxes, etc.). Another part of the questionnaire is used to get insight in the energy performance of their dwellings. This research gives not only understanding of the current housing costs of households. Moreover, it forms a good base to formulate some prognoses for the coming years.
The main parameters in these prognoses are:
- development of the energy costs;
- energy-saving policy
- development of the household incomes.
By combining these prognoses with possible cost developments of energy, three types of scenarios are being formulated; a best case, basic case and worst case scenario. The paper ends with the way these prognoses and scenarios lay the foundations for a pro-active policy by the stakeholders involved.

Paper Number: 344
Real property appraisal - essential part based similarities and differences
Kaarel Sahk, *Estonian University of Life Sciences*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C3
While we think about real estate, it is quite common to limit with land or buildings. Other way, while we are speaking about real property early, then beside the land and buildings we commonly imagine not only finance or the bundle of rights but also the essential parts like forest, structures, and landscape are eligible. The lastly named diversification points us attention that we can draw down a nomenclature of different things that should be valued or their value, metric or non metric as a component will influence the estimated value. The last approach explains that some components, things, are non metric and they are described under some different circumstances like emotional, natural, social, etc. types of values that are not the common characteristics enclosed into the real estate value. The named situation, linked with the other contemporary situation of valuation which must account sustainability as a generic name, or energy efficiency, green etc, as its extensions, supply us with the huge multiplicity of resolutions that includes the both, similarities and differences.

Paper Number: 345
Financing urban regeneration in Iran
Yasser Zanjiri, Ali Parsa, and Stanley McGreal, *University of Ulster, and University of Salford*
Date: Thursday 14th June
Time: 1330-1500

Parallel Session B9

The advancement in institutional financing in Iran has affected both the funding and investment environment in almost all businesses including urban development and real estate in recent years. This has provided private sector owned businesses with new vehicles for capital raising while offering innovative investable products to institutional and retail investors compared with other forms of investment notably the saving accounts and share trading. In a broader context, however, this has enabled businesses to utilise private sector capital in a larger scale. Reviewing recent activities in the capital market particularly the funds, provides a better understanding of both the market size and its contribution to real estate and urban development sector.

Through analysis of the capital market in Iran, this paper examines a variety of mechanisms utilised for delivery of urban regeneration projects in Iran employing different forms of public private partnerships and private sector finance via establishment of Special Purpose Vehicles (SPVs). This is done through utilising live case study projects in which sources of finance, fund structure and operation models are investigated. This paper undertakes an in-depth analysis of the financing mechanisms based upon the evidence drawn from case study projects, identifies three different types of SPVs focusing on main sources of finance and assesses the characteristics and effectiveness of these schemes.

Paper Number: 348

Price, risk and volatility in European real estate markets

Jim Berry, Lay Cheng Lim, Tony McGough, Ben Burston, and Fergus Hicks, *University of Ulster and DTZ*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B2

Abstract:

In the light of continued financial and economic turmoil, there has been a marked increase in the volatility in real estate markets. This is impacting on the pricing of property assets, partly through market sentiment, particularly concerning risk. In a downturn, the perception of investment risk becomes increasingly important relative to overall total returns, and thus impacts on yields and performance of assets.

This paper specifically considers the modelling of property pricing within this economic environment. The theoretical context begins by analysing the relationship between property yields and government bonds, incorporating expectations for property market performance. The analytical context then moves on to specifically include a measurement of risk which stresses its growing importance in real estate market. The model thus incorporates macroeconomic and real estate data, together with an international risk multiplier, which is calculated within the paper.

From this, the paper considers the impact of the globalisation of financial and investment markets on the real estate industry. In particular the analysis looks at which markets have been most impacted by globalisation including the magnitude of that impact on real estate prices and volatility. The outcome of the paper provides important insights into what is driving the yield movements in different markets

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Paper Number: 350

Enhancing graduate employability: Development of a taxonomy of commercial awareness

Joanna Poon, Paul Royston, and Richard Stevens, *Nottingham Trent University*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D8

Employability is likely to be at the forefront of any degree applicant's mind in England and Wales due to an impending large increase in the cost of tuition (Browne, 2010). Applicants for university courses are more likely to commit to paying up to £9,000 per year to study a course which has promising career prospects. Universities must also pay more attention to employability as it is one of the major selection criteria for students' choice of university and courses.

Commercial awareness is an important element of employability. A White Paper produced by the DfES (2005) stated that business awareness is one of the top eight employable skills for business and employment. The CBI has echoed DfES (2005)'s comment. Based on extensive research among employers, the CBI published 'Employability and work experience a quick guide for employers and students' (CBI, 2010). In this report, they identified business and commercial awareness as one of the core competencies that make graduates more

employable. Some major global companies, such as KPMG and IBM explicitly state the importance of commercial awareness in their recruitment criteria (Bourne, 2008 and Manchester, 2010). It is the same case for built environment employers, the human resource managers of real estate consultancies identify commercial awareness as one of the top three selection criteria for new graduates (Royston and Poon, 2011). However, there is no agreed definition of commercial awareness. This paper intends to develop a taxonomy of commercial awareness and identify its constituent components. It will also identify the types of knowledge, skills and attributes required for the development of commercial awareness.

Paper Number: 351

How many leases are enough to diversify a portfolio of multi-let industrial properties?

Brett Robinson, *Seven Dials Fund Management*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A2

In modern finance, portfolio diversification is analysed by considering the interaction of the individual portfolio assets: the variances and correlations of the individual asset returns are of central importance. Within parts of the industrial property sector however, diversification is often referred to with a different emphasis. For multi-let properties, investors and lenders are often particularly concerned with the variability of the overall portfolio income and the possibility and extent of shortfalls in income through, for example, voids and tenant defaults. In this context, the variability of asset performance (total return) is inadequate in isolation for the analysis of investment risk. With multi-let properties, one of the primary goals of diversification is to reduce the risk of income shortfall. But how many leases is enough to give an acceptable level of risk of income shortfall? This paper attempts to answer that question.

Paper Number: 352

Impact of land use regulations on density and development patterns in the National Capital Region in India

Anil Kashyap, Jim Berry, and Surjit Singh, *University of Ulster, and Institute for Spatial Planning and Environment Research*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F4

The unprecedented growth in population of Delhi and the consequent haphazard developments had been putting severe pressures on the existing physical and social infrastructure since 1950s. The region comprising portions of 3 adjoining states around Delhi measuring a total area of over 33500 square kilometres was designated as National Capital Region (NCR) in 1985 by Government of India. The key rationale was to promote balanced and harmonized development through an inter-state regional development planning framework of regional plan, sub-regional plans, development plans and land use regulations for the region. Land development in NCR has been strongly guided by planning regulations in accordance with master plans prepared from time to time primarily involving green field locations.

Haryana sub-region has been quite proactive among all the constituent states by preparing development plans for the urban areas under its jurisdiction, thus providing certainty to developers and investors. Innovative partnership model of development in the form of public-private partnership has been an active mode of supply of housing and commercial property for last three decades. Public sector has also played a catalyst role in providing trunk infrastructure and services in the initial periods of development cycle. Compulsory purchase has been used by the public sector as a key instrument to kick-start the development process. However, private sector will have to assemble land independently from the open market. Land use regulations and development controls have been key factors in shaping the skyline and urban form in Haryana sub-region. This paper begins with analysis of variation in development patterns by using Gini coefficient, which is an index of inequality. Furthermore, the paper analyses the impact of planning regulations on density and development patterns in the case study area of Haryana sub-region of National Capital Region.

Paper Number: 353

The rise and rise of private renting: Insights from supply and demand system modelling in Britain and New Zealand

Glen Bramley and Chris Leishman, *Heriot-Watt University, and University of Glasgow*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C8

Most academic attention seems to focus on owner occupation or social renting, but the big story of the last decade or more in many countries has been the resurgence of private rented housing. Both UK and New Zealand have seen large and sustained rises in the relative and absolute size of the sector, with relatively low increases in rents. After briefly reviewing the institutional and broader economic context for this phenomenon, including evidence on the profile of private landlords, the paper will suggest an appropriate framework for modelling the sector. This adapts the classic demand and supply model to yield a system entailing a rent and supply stock or flow function, possibly embedded in a wider housing market system addressing house prices and supply, at a sub-regional scale. Implementations of such models for New Zealand and parts of the UK (England, N Ireland) are compared and assessed, and implications for current views of investor and consumer behaviour are drawn out. Simulation models for wider housing systems in these countries are used to look at a range of potential future scenarios, leading to the conclusion that the rise of private renting is very likely to continue.

Paper Number: 354

The impact of earthquake risk on the spatial pattern of house prices: A multi-level analysis

Berna Keskin and Craig Watkins, *University of Sheffield*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G8

There is considerable evidence, exemplified by the work of Onder et al (2004) that explores the effects of the 1999 Marmara event, that earthquake risk has distorted spatial and temporal house price patterns in the Istanbul metropolitan area. Last year's earthquake activity in Eastern Turkey, although not sufficiently proximous to be directly problematic in our study area, reinforced the need for policy makers, real estate agents, valuers, mortgage lenders and housebuyers within the wider geographic region to be able to accurately measure the impact of perceived earthquake risk on property values. Although typically researchers have used either hedonic or willingness to pay methods to generate such measures, both of these approaches have been subject to extensive critiques. The purpose of this paper is to consider and illustrate the potential utility of an alternative approach: the multi-level method. Multi-level models tend to be employed where the observations being examined are clustered and correlated and where the underlying causal processes operate at multiple spatial scales. The model allows us to disentangle the impact of different property attributes on values at different spatial scales. This means that, when compared with hedonics, the estimated impact of the earthquake risk measures will be quantitatively different (arguably more accurate; Costello et al, 2011) and more spatially refined. The paper applies the multi-level method to the analysis of house prices from more than 2000 dwellings in Istanbul during 2006/7. The paper concludes that the estimates are robust and offer a richer picture of spatial differences than traditional hedonic estimates.

Paper Number: 355

A comparative framework for commercial and residential markets

Graham Ive and Regina Fang-Ying Lin, *University College London*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H7

In the analysis of property markets, most research focuses on either the commercial or the housing sectors. Each body of literature has developed its own stylised facts' about normal values for such things as income yields and price elasticities of supply, around which cyclical models have been built. However, what is treated as normal in one sector may appear as unusual and requiring special explanation when viewed from the perspectives of the other. This work provides a matrix and organized framework to compare these two property sectors, residential and commercial, using a 4-marketsframework familiar in analysis of commercial property

(Ball et al, 1998): user-occupier market; investor-owner market; developer market; and land market "" all in the context of the broader financial markets. The approach applied in this research is comparative analysis of ratios, in their means, trends and cyclical components. More than one data resource is used: UK government official public data from 1970; mortgage lenders' data; IPD UK data from 1970 for commercial market; IPD UK data from 2001 for investment residential property; company accounts data on developers' profitability and cost structure.. The output of this research provides a comparative framework and model that might be useful in systemic thinking about the problems of regulating and making business decisions in housing and commercial markets and for generating more questions about the changing property economic environment in a comparative way. Last but not least, this paper aims to contribute to the literature seeking to develop a better understanding of property cycles.

Paper Number: 357

The impact of condition and environment on the letting and selling transaction process in the German residential market - an empirical study

Stephan Kippes and Gheorghe Multescu, *Nurtingen-Geislingen University, and London South Bank University*

Date: Thursday 14th June

Time: 1530-1700

Parallel Session C7

Whilst market prices and rents in residential property are largely governed by the economics of supply and demand, the impact on market price, of the condition and environment of individual or even entire residential blocks of properties is hugely affected by buyer and tenant perception. This is may be enhanced by their professional advisors together with their specialised knowledge of the property sector.

The causes behind perceptions are manifold; these may range from poor maintenance, an unfavourable layout of the property, flats in an upper floor without an elevator, flats without balcony, high ancillary expenses, poor energy efficiency, a high percentage of migrants in the neighbourhood, noise from a nearby road or railway lines, poor infrastructure, and occasionally to the exposure to overhead power lines, wind farms and similar, to name but a few. These factors may be so severe that they can create a property stigma which will affect its marketability.

The purpose of this paper is to examine the awareness and acceptance of potential buyers or tenants to these factors, and how they might impact on the buying or letting decision. The role of the property professional and their duty to reveal expert knowledge in the transaction process is also critically examined

This study, which focuses on residential properties in Germany, will hopefully provide a greater understanding of consumer behaviour in the residential property market in relation to condition and environment.

This paper is based on a new survey carried out by the author in spring 2012

Paper Number: 359

Is the valuer the barrier to identifying the value of sustainability?

Georgia Warren-Myers, *Deakin University*

Date: Friday 15th June

Time: 1100-1230

Parallel Session E5

Broad-scale investment in sustainability is limited due to the lack of evidence of the relationship between sustainability and the property's market value. Although evidence is being found, this evidence is not being reflected in the valuation process. Valuers have a pivotal role in financial markets, in the reporting of asset values. Consequently, they are the current barrier in large scale investment in sustainability, due to their lack of reporting or considering sustainability in the valuation process.

This research investigates, in the Australian context, whether valuers' are incorporating sustainability as a consideration in the valuation process and their depth of reporting on it. Further, the research investigates whether valuers' have the knowledge and skills to accurately report on sustainability in the valuation process.

The research highlights the implications for the broader market and the valuation profession, as a result of the valuers' current lack of knowledge, skills and ability to incorporate or consider sustainability in the valuation process. The potential for inaccurate knowledge regarding sustainability being incorporated in the valuation process is very high, and could potentially have litigious issues in the future. There is an imperative requirement

for investigation into appropriate, accurate knowledge development in the field of sustainability for the valuation profession.

Paper Number: 362

House price diffusion and cross-border house price dynamics in Asia

Mei-Se Chien and Chien-Chiang Lee, *National Kaohsiung University of Applied Sciences, and National Sun Yat-sen University*

Date: Friday 15th June

Time: 0900-1030

Parallel Session D6

This paper examines lead-lag relationships and the dynamic linkages among cross-border house prices in four Asia countries and cities, including Taiwan, Mainland China, Hong Kong and Singapore. We employ the Johansen (1988) cointegration technique, Toda and Yamamoto's (1995) Granger causality test, the generalized impulse response approach, and variance decomposition analysis to find out the extent and the magnitude of their relationships. Our empirical results of Johansen's (1988) cointegration test shows there is a long-run equilibrium among these four Asian cross-border house prices, implying a diffusion of corss-boder house prices among Taiwan, Mainland China, Hong Kong and Singapore. Second, the results of Toda and Yamamoto's Granger causality test provide evidences of bidirectional relationship of house prices between Taiwan and HongKong, and there is no causality of house prices between Mainland China and HongKong. Besides, Taiwan's house prices can lead Mainland China's house prices. As to the causalities of house prices between Singapore and others, HongKong can lead Singapore, while there are no causalities between Singapore and the others. Furthermore, the impacts of the shocks of house prices from HongKong to Singapore are significantly positive, while the mutual impacts of shocks between any other cross-border house prices are insignificant. Finally, the results of the generalized impulse response approach indicate that house prices of Mainland China is the most exogenous while Taiwan is the most endogenous in the long run.

Paper Number: 364

Real estate development between stagnation and modernization

Jo P. Soeter and Peter de Jong, *Delft University of Technology*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G1

After a historical peak in 2001 the Dutch non-residential real estate market is characterized by growing vacancy, discontinuity of building construction and uncertainty about development opportunities. The recession in 2008/2009 -and again in 2011/2012- strengthens the loss of demand, which underlies the general stagnation of the real estate markets. Moreover this leads to a slowdown of the modernization of the building stock.

The aim of this research is to model the adjustment of the building stock, in relation with the growth of the stock in use and with the observed and future replacement of the building stock. The future need for replacement depends on the capability of the available building stock to meet contemporary and future requirements (after refurbishment). The social-economic context of the future real estate development is characterized by diminishing population growth, moderate economic growth and the urge to meet higher technological, social, functional and environmental standards. The analysis will be completed for offices, for industrial & commercial buildings and for shopping stores. The remaining corporate and public property types are analysed in brief and integrated in the macro overview.

Topical problems in The Netherlands are a continuously high vacancy and underutilization of offices and business complexes. Re-use and transformation activities are limited. The market sectors (industry, commercial services and agriculture) tend to a high replacement activity, with scaling-up, relocation and spatial concentration. Consequently this leads to high disinvestment and disposal of buildings. In the public sector the state of the building stock varies from high quantitative and qualitative shortages of the building stock for health care etcetera to zero growth of the stock in use for education, government and the non-profit sector, in combination with moderate replacement activity.

In the macro view a lower future growth of activities dominates, resulting into a lower growth of production and accommodation capacity and a structural lower level of investment for expansion of the building stock. To

a high extent this loss of real estate development will be compensated by a higher need for replacement and refurbishment etcetera in order to upgrade the non-residential property.

Paper Number: 368
Profit allocation in urban renewal: A real options approach
Oliver Shyr and Chen-Fu Wang, *National Cheng Kung University*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A9
Urban renewal practices in Taiwan have been criticized for its contribution to urban gentrification and rising housing prices that deteriorates housing affordability. On the other hand, disputes regarding the allocation of profits among landowners and developers may often delay or jeopardize the progress of these renewal projects. The disputes are usually resulted from two reasons: 1) the uncertainty of future housing market performance; and 2) landowners' lack of information on housing markets. The aim of our study is to apply real option to estimate the both the option values and intrinsic values of parcels in Taipei by taking into account the demolition costs and restrictions associated with urban renewal in Taiwan. In the case study we found that landowners would disapprove urban renewal proposals or delay the renewal process if the option premium is much higher than the average market premium. This explains why landowners of the prime real estate locations are often reluctant to approve urban renewal proposals and developer would have to postpone the development project during the period when the housing market is prosperous.

Paper Number: 369
Living on the sunny side - the effect of sunshine duration and land prices
Sebastian Keiler and David Koch, *Deutsche Bundesbank, and ERES.NET GmbH*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A7
Asking for price determining factors of real estate prices will always return the location as a major factor. Though undoubtedly driving prices this term stays ambiguous. Seeking for clarification we focus this study on a rather unique location specific influence on land prices. The very special topological circumstances in the mountain region of Austria restrict the access of sunlight in a very significant way. Unlike in topologically less pronounced areas the variation in sunshine emissions varies significantly across parcels due to shading mountains. This is especially true for the winter season. Several studies have found weather effects to be significant for stock returns. This study aims to price the amount of sunshine a parcel obtains and thus shares this attempt with other studies. To our knowledge this application is unique for the real estate sector. In order to explore the effect of sun emissions we focus on undeveloped land plots for residential use and find significant impacts on property prices. Investors are willing to pay for longer sunshine duration while especially sunshine in winter is being regarded as a price determining factor.

Paper Number: 371
The relevance of management contracts in the hospitality industry
Ramón Sotelo and Kai Fischer, *Bauhaus University Weimar*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C4
This paper analyses the relevance of management contracts for the finance of hotel projects and delivers a scheme for decision making for the question. Using modern approaches to finance different forms of contracts between the landlord and the hotel-management can be seen as a continuation between debt finance the case of pure lease contract and equity finance the case of a pure management contract. Hybrid forms of contract can therefore be seen a mezzanine form of finance. It is shown, the optimal lease or management contract depends on the liquidity of the location and the standard and type of services delivered to the guest, being usually the category of the hotel the proxy for the ladder. Due to the risk situation of the management contracts they have a direct impact on the project finance of the hotel-project.

Paper Number: 373

Infrastructure and real estate development

Colin Elliot, *Heriot-Watt University*

Date: Thursday 14th June

Time: 1330-1500

Parallel Session B9

Infrastructure is a wide ranging and essential phenomena for urban civilisation, but it is also the key enabler in the development and regeneration industries. The complexity of major urban development in UK brings about the challenge of integrating infrastructure creation with real estate development. The UK experience has been characterised by a series of strategies in the past where key infrastructure has lagged/dragged programmes of needed real estate development, which on a high proportion of projects, is the paymaster enabling works. Planning mechanisms by way of conditions and agreements is a method of seeking to extract essential infrastructure costs from the developer. More sophisticated and informed approaches to planning agreements are being applied, particularly as sustainability is now a further requirement within the planning agenda. Major sect. 75 agreements such as King's Cross and Westfield, Stratford will be evaluated in terms of their effectiveness. Furthermore, the general funding crisis has led to the government and industry seeking other ways of procuring and financing infrastructure. The recent advent of tax increment financing initiative and private infrastructure finance investment vehicles will be explored in terms of its ability to generate key infrastructure. The recent series of TIF confirmations and the linkage to property in terms of overall objectives will be explored. Other mechanisms will be considered such as single estate strategy (Canary Wharf), rates levy (cross rail) and comprehensive public sector funding will also be appraised in terms of their direct cost and benefit provisions with affected real estate and development proposals. The paper will conclude with an indication of UK best practice in delivering real estate through infrastructure innovation.

Paper Number: 375

How accurately do investors' attitudes forecast demand-supply mismatch across real estate sectors?

Gianluca Marcato and Anupam Nanda, *University of Reading*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A1

We look through both the demand and supply side information to understand dynamics of price determination in the real estate market and examine how accurately investors' attitudes predict the market returns and thereby flagging off extent of any demand-supply mismatch. Our hypothesis is based on the possibility that investors' call for action in terms of their buy/sell decision and adjustment in reservation/offer prices may indicate impending demand-supply imbalances in the market. In the process, we study several real estate sectors to inform our analysis. The timeframe of our analysis (1995-2010) allows us to observe market dynamics over several economic cycles and in various stages of those cycles. Additionally, we also seek to understand how investors' attitude or the sentiment affects the market activity over the cycles through asymmetric responses. We test our hypothesis variously using a number of measures of market activity and attitude indicators within several model specifications. The empirical models are estimated using Vector Error Correction method. Our analysis suggests that investors' attitude exert strong and statistically significant feedback effects in price determination. Moreover, these effects do reveal heterogeneous responses across the real estate sectors. Interestingly, our results indicate the asymmetric responses during boom, normal and recessionary periods. These results are consistent with the theoretical underpinnings.

Paper Number: 376

Property investor behaviour: qualitative analysis of a very large transaction

Peter Öhman, Bo Söderberg, and Stig Westerdahl, *Mid Sweden University, Uppsala University, and Malmö University*

Date: Friday 15th June

Time: 1330-1500

Parallel Session F3

We study property investment decision-making from a behavioural perspective on the very micro level. We do this by analysing an extraordinary large real estate transaction that took place in the Swedish property market 2008. In an open-bid transaction the properties of the corporation Vasakronan AB was sold for SEK 41.1 billion (equal to some EUR 4.4 billion).
By applying a qualitative empirical approach we are able to obtain a deep understanding of the processes of data-collection, property and market analysis, securing of financing and investment decision-making that takes place within real estate companies as they produce a bid for the portfolio offered. Our investigation is a case study, but the scale and complexity of the transaction secure it contains all, or most, critical moments in a general property investment decision-making process. By so doing, we approach the investment property market in a way that is so far under-researched.
Managers in both the purchasing company and the company with the second highest bid were interviewed. Interviews were carried out one person at a time. The interviewees were encouraged to speak freely most of the time, but we also supplied an interview guide with a number of themes as well as certain specific questions. The interviews are transcribed. The results, along with citations, are reported under headings that correspond to the main sub-processes of the investment decision-making.
Detailed information about this remarkable transaction itself is revealed, but general insights are also gained about certain important market institutions rarely revealed by official records and reports from the players and authorities in the property market. Findings of the study are put in perspective by relating to normative property investment textbooks as well as earlier empirical surveys of investment behaviour in the property market.

Paper Number: 378
The impact of asset management on investment performance and implications for valuation
Alan Gardner and Lulu Wang, *Ignis Asset Management*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B3
Quantifying the impact of asset management on investment performance has always proved challenging. The 'we add value because we do!' is a familiar story for asset and fund managers alike. The impact of asset management through lease regears, tenant renewals, managing vacancies or bearing down on costs will be even more crucial in a property market characterised by over-renting, modest economic growth and a weak job market.
This paper draws on a broad range of leases across a number of institutional assets which covers a range of commercial sectors. The analysis intends to put a perspective of how lease events have impacted upon asset level performance across the recent, turbulent period. Through a mixture of quantitative and qualitative techniques, it will expand on recent research undertaken in respect of measuring asset management impact and work attributing individual asset performance to a combination of market movements and lease events.
The paper also seeks to offer suggestions as to where traditional valuation assumptions, may misprice assets where the leasing opportunities may be weaker or more resilient than suggested. It analyses the impact of asset management across sectors and grades of properties assessing whether the traditional 'prime v secondary' risk pricing accurately reflects the behaviour of individual leases.

Paper Number: 379
Coskewness in European real estate equity returns
Tobias Dechant, *University of Regensburg*
Date: Thursday 14th June
Time: 1330-1500
Parallel Session B2
The paper investigates the effect of coskewness on expected European real estate equity returns. The study tests whether equities that contribute negatively to the skewness of the general equity market have, on average, higher returns than those which contribute positively to market skewness. In addition to the Fama-French (1993, 1996, 1997) three-factor model, two multi-factor models as well as unconditional and conditional Fama-MacBeth (1973) cross-section regressions are applied to a sample of 275 real estate equities from 16 European countries over the 1988 to 2009 period. When considering different measures of coskewness, cross-

section results reveal that coskewness is an important factor in explaining conditional European real estate equity returns, independently of whether the conditioning variable is the general or the real estate equity market. However, results are dependent on the examined time period and the employed specification of the asset pricing model, which delivers strongest results when controlling for potential country or currency effects. In accordance with other studies, a relationship between size and coskewness is evident

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Paper Number: 381

A market structure perspective on the new reality of core vs. non-core real estate markets in Europe

Éamonn D'Arcy, *University of Reading*

Date: Saturday 16th June

Time: 0900-1030

Parallel Session H1

Two decades ago there was a clear distinction between core (mature) and non-core (emerging) real estate markets in Europe. In particular non-core markets accommodated a narrow range of market objectives, exhibited very high transactions and information costs and possessed very limited professional capacity related to real estate. These factors and the risks they implied inhibited investor activity in non-core markets. Recent evidence on the internationalisation of real estate involvements in Europe suggests that such traditional distinctions between core and non-core have become less relevant over time. This paper explores the 'new reality' of core vs. non-core in the context of European real estate markets. It assesses the continued relevance of such a distinction within the context of the significant step-change which has taken place in the structure of European Real Estate Markets over the past twenty years. The analysis suggests that the relevance of the distinction between core and non-core now relates more to investor and product characteristics rather than more traditional market structure based distinctions.

Paper Number: 382

Adjusting for aggregation bias in house price indices: A clustered trajectory approach

Nema Dean, Rebecca McKay, and Gwilym Pryce, *University of Glasgow, and Scottish Government*

Date: Thursday 14th June

Time: 1100-1230

Parallel Session A6

This paper explores how the "price index problem" has a fundamentally spatial component to it in the context of housing because houses in different sub-regions change in value at different rates. The problem, we argue, is essentially one of how to group small areas on the basis of similar price trajectories, and then how to apply the appropriate weighting when computing price indices. We aim to demonstrate that, without such adjustment, significant biases can occur in index computation that frustrate meaningful cross-regional comparisons because different regions are likely to experience different degrees of aggregation bias due to different degrees of housing market segmentation. Our solution is to use clustered p-splines to group areas on the basis of similar price trajectories which has the effect of identifying groups of areas that have stable price relatives and can therefore—according to the Composite Commodity Theorem—legitimately be entered as a single "commodity" into a price index. We find that the proposed method produces significant reductions in aggregation bias—the Ten Cluster Fisher Index computed using our clustered geography is almost indistinguishable from the All Areas Fisher Index derived from every individual small area being entered separately into the index calculation.

Paper Number: 383

Office occupiers: Cultural Differences and Preferences

Quan Gan and Barry Haynes, *Sheffield Hallam University*

Date: Friday 15th June

Time: 1530-1700

Parallel Session G1

Purpose:The purpose of this paper is to look at the impact of globalisation on workspace management. Specifically, it seeks to identify the key attributes in affecting productivity and creativity in workplace.

Design/methodology/approach:The authors evaluates the literature that categorises office occupiers' preferences. The occupier perspective of office provision is fully explored. Office occupier segmentation and analytical tools are identified.
Findings: This paper establishes that the office occupier's cultural background has an impact on how they work. The design of the office environment will have an impact on productivity and creativity. The findings from this paper will enhance the design of future workplace.
Originality/value: This paper will demonstrate that a greater understanding of office occupiers' and users' preferences adds to the organizations' knowledge. This additional knowledge enables the opportunity to provide space to support the well-being and productivity of the individual space users.
Paper Type: Research paper

Paper Number: 386
Measuring the risk of unlisted property funds - A forward looking analysis
Kieran Farrelly, *CBRE*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A4
This study sets out a practical methodology for assessing and measuring the risk of unlisted property funds on a forward looking basis. Renewed investor interest, particularly cross-border, in property as an asset class had led to tremendous growth in the size and importance of the indirect property investment market. Having emerged during the early part of the century, unlisted property funds are now a widely used institutional investor conduit for property investment. However, despite increasing research interest into the performance of these vehicles, the estimation of their risk-return characteristics remains scant, in part due to the paucity of available data. To overcome these data limitations, this study makes use of a monte carlo simulation framework to generate unlisted property funds' returns on a forward looking basis. This accounts for the uncertainly of the key stochastic driver themselves, their interdependency, and model uncertainty. To estimate the risk-return trade-offs of unlisted property fund strategies the study makes use of measures which explicitly account for the asymmetric properties of unlisted property fund returns. These are a composition of direct property returns (well know to be non-normal), the impact of financial leverage, any tax incidence, and fund fees. The study pays particular attention to the impact of financial leverage and the increasing degree of return asymmetry that it creates. It contributes to the existing literature by employing measures which are not based upon the first two statistical moments and has pertinence given the current regulatory environment.

Paper Number: 388
On the principle of comparison
Ünsal Özdilek, *University of Montreal*
Date: Thursday 14th June
Time: 1100-1230
Parallel Session A3
As in many other areas, the notion of comparison is important in real estate appraisal. It is most convenient and practical to estimate the market value of a subject property based on the comparison of its characteristics with those of similar properties (comparables). Convergence to the similarity is the approach that systematically excludes the difference because, besides being convenient, results emerge more easily. Yet what actually exist in practice are properties often different from the subject. Is it possible to use rather uncomparable properties, in inverse direction, to estimate the market value of the subject property? It is the issue of interest in this paper which aims to enlighten the process of comparison by proceeding with uncomparable properties. Based on the use of a large dataset from Montreal (Canada), some coherent empirical results are presented.

Paper Number: 389
Value-add or not? Assessing value in European real estate markets
Simon Kinnie and Craig Wright, *Standard Life Investments*
Date: Thursday 14th June

Time: 1530-1700
Parallel Session C2

With the backdrop of heightened economic volatility emanating from the on-going euro zone problems, investors are naturally cautious and have been seeking shelter in relatively expensive safe haven assets. Is this a sensible strategy given that a lot of these assets look overpriced on some measures? Are investors likely to miss near trough of the cycle "value" in some sectors? How do you assess value in the current market, particularly as investor's classic proxy for the risk free rate, the respective country government bond yield, looks to be very far from risk free in some markets? The analysis seeks to answer these questions and also assesses where value lies in the current market. Furthermore, historical analysis of the UK market examines whether value has been rewarded throughout the cycles. The analysis covers the period 1981 to 2011.

Paper Number: 390

Owner-occupier risks and foreclosures - over three downturns in the Danish housing market since 1979

Jens Lunde, *Copenhagen Business School*

Date: Thursday 14th June
Time: 1100-1230
Parallel Session A6

The existence of a foreclosure system is a presumption for an efficient mortgage system with high loan-to-values (LTV). Denmark is among the countries with the highest debt among owner-occupiers and other mortgage borrowers. Since 1979 Statistics Denmark has published data on foreclosures, monthly. In this paper, the connections between the owner-occupier risks of owning and borrowing, their capital structure, their interest payments, the shape of the housing market and entire economy, and foreclosure frequencies are drawn out.

For the single owner-occupier with negative equity, a foreclosure will be the definite result of coming into arrears. For a society, mass foreclosures appear as a result of correlated risks, when many owners default at the same time. Not only are the frequency of foreclosures multiplied, but the characteristics of the repossessed properties and the families involved seem to change. Since 1979, Denmark has been through nearly three housing market cycles. The first two downturns, 1979-1983, and 1987-1993, resulted in mass foreclosures with more than 10,000 houses and flats being repossessed annually. The price drop from the housing market peak in 2006-7 was twice as fast as in the former housing market downturn but only took 2/3 of that fall, before house prices stabilized in 2009. The number of foreclosures has grown but remains far below the former mass foreclosure level. Obviously the low interest regime from the autumn of 2008 has worked. Moreover the Danish owner-occupiers' interest expenditures had been reduced significantly since 1993.

In the meantime, the interest rate risk at mortgage borrowing has changed character. Until around 2000, fixed interest mortgages dominated but now 69% of Danish mortgages are adjustable rate mortgages. Formerly falling interest rates could release foreclosures. The possibility for a new mass foreclosure is worrying, when monetary authorities return to more 'normal' interest rates over the coming years.

In addition, half of all outstanding mortgage loans are interest-only mortgages and as their interest-only period lasts 10 years, these borrowers will experience some automatic payment additions from 2013 onwards, and some of them might meet higher interest rates when remortgaging.

Paper Number: 392

The challenges of Slovak rental housing policies in Solvakia in the broader context of Central Europe

Koloman Ivanička and Daniela Špirková, *Slovak University of Technology*

Date: Thursday 14th June
Time: 1530-1700
Parallel Session C8

The fundamental transformation of housing sector (and the rental housing sector in particular) and housing policies that took place in the last 20 years in the Central Europe has been realized despite the fact that this agenda did not belong among the priorities of public policies. Nevertheless the availability of housing and housing conditions was not profoundly augmented and it is less favorable than in Western Europe. Many incentives and legal instruments approved by public authorities as well as the created institutions in Slovak Republic reflected the reality of emerging real estate markets, however the growing maturity of the housing markets, decreased their efficiency. In addition, nowadays it became clear that the development of housing

sector poorly responds to current requirements of the growing economies, particularly in terms of creating conditions for labor mobility, social cohesion etc. . In this context it is particularly noticeable lagging development of rental housing sector.
These facts are presented by the statistical figures and they represent the challenges for the future development of rental sector. The paper also draws attention to the alternative rental housing policies that have been adopted in transition Central European countries and in Austria. At the end of the paper the recommendation for the development of the rental housing sector in Slovakia in the broader Central European context in post-crises period are formulated.

Paper Number: 393
Empirical testing of the flexibility value in land auction prices
Jianfu Shen and Frederik Pretorius, *University of Hong Kong*
Date: Thursday 14th June
Time: 1530-1700
Parallel Session C1
This paper uses project level data of land auction prices in Hong Kong. It tests the hypotheses that the land auction price (real option premium) contains three sources of flexibility value: waiting to invest, the effect of direct interactions and the effect of financial structure. The OLS regression results show that the option premium embedded in the land price is not only related to real flexibility choices such as delaying investment as identified in traditional real option theory, but it also increases or decreases with the direct interaction of properties, their competition for firm resources and the firms financial status. Firms with more investment properties located close to the auctioned land and with more internal funds would place a higher value on the land at auction; while more profitable firms and firms with less debt capacity would lower its estimate of option value embedded in the auctioned land prices as reflected in bidding. The interaction effect and financial structure in the firm have been confirmed in the empirical studies to influence the option premium in the land price. These results confirm the link between the project level predictions of real option theory and firm fundamentals.
