IMMO VALUE

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EVALUATING THE CO-BENEFITS OF LOW-INCOME WEATHERISATION PROGRAMMES

IEA Fuel Poverty Workshop 1. Dublin ,27-28 January 2011

Focus on Property Value Increases as a Benefit of Weatherisation

IEE project: Improving the market impact of energy certification by introducing energy efficiency and life-cycle costs into property valuation practice (IMMOVALUE)

Sven Bienert
Competence Center of Sustainable Real Estate, University of Regensburg, Germany

Daniela Popescu
Technical University „Gheorghe Asachi“ Iasi, Romania

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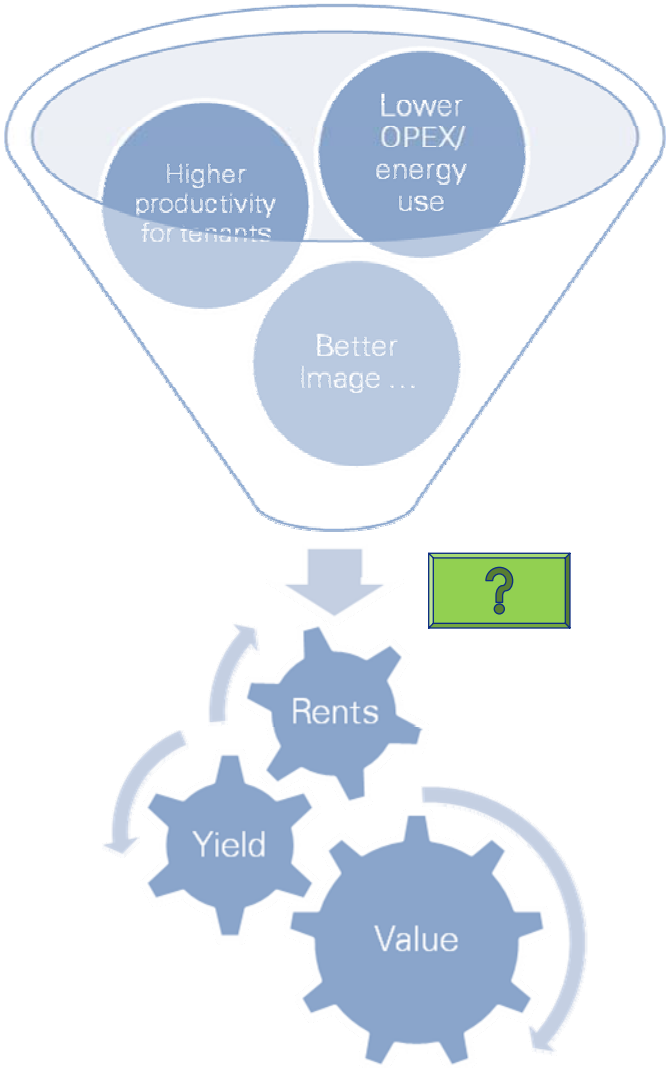
Green Value vs. Market Value

- A **Green Building** is a property that uses resources efficiently, reduce waste and CO2 emission, provide superior indoor air and other qualities, and avoid negative social impacts.
- **Energy efficiency** is therefore part of the various green building features.
- A **Green Value** is the net added value obtainable by a green property in the market compared to a non-green peer group.
- According to the definitions of green and market value it can be assumed that the green value is an **integral part of the overall market value.**

What does a green building promise?

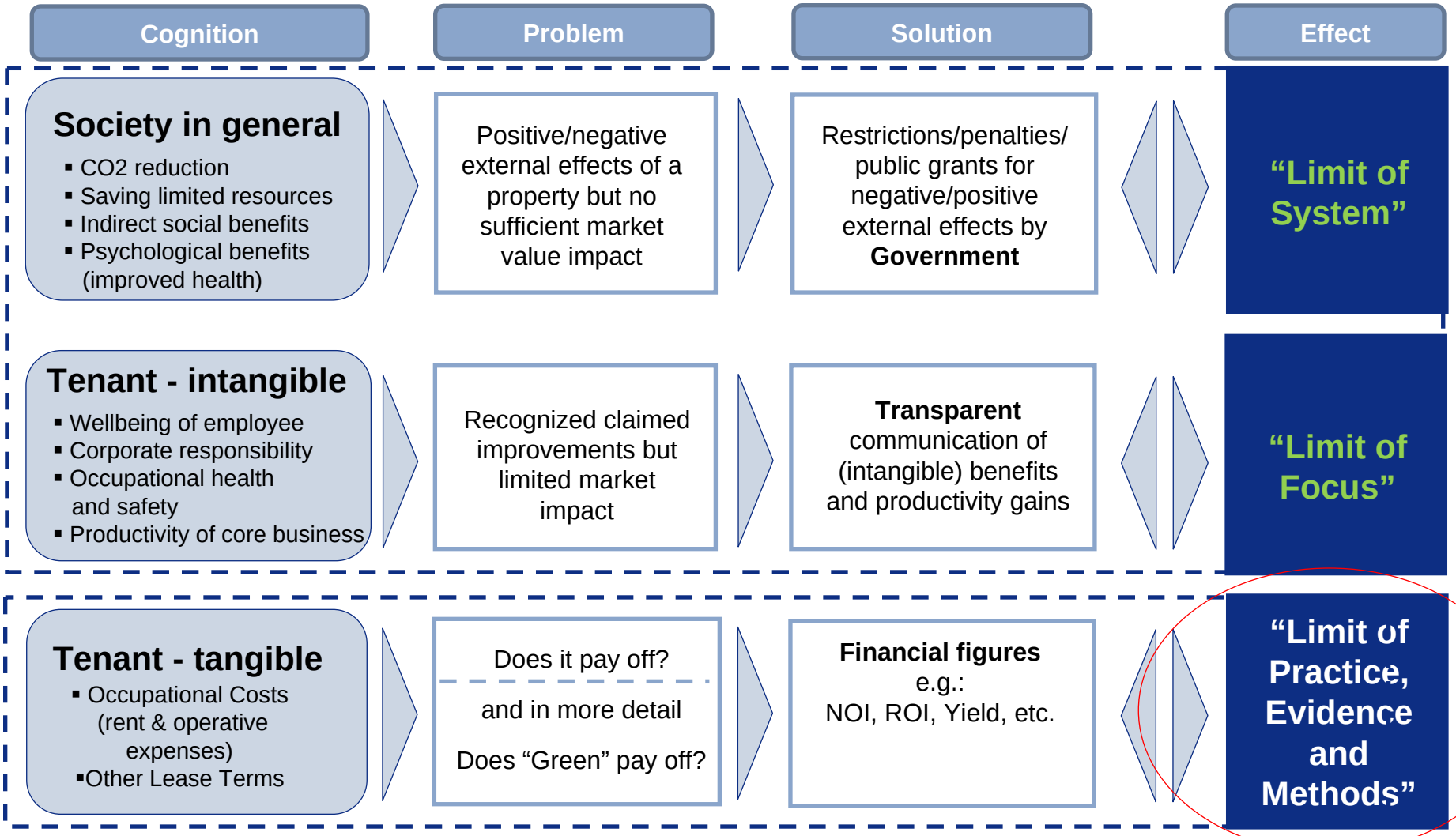


In US-Numbers (here LEED)...

8-9 %	Decrease of operating expenses
7,5 %	Increase of the current market value
6,6 %	Increase of the ROI
3,5 %	Increase of the occupancy rate
3 %	Increase of rent

Source: U.S. Green Building Council, Date: 15.04.2008

Integration of green attributes – three major obstacles (Or why markets failed)



Some basic answers!

1. **Could there be a general premium / discount rule ? NO**
2. **Are new valuation methods needed? NO**
3. **Could there be a pan-European approach/guidance to these aspects? YES**
4. **Should we distinguish between developed and less transparent markets? YES**
5. **Do we also need to revise report structures accordingly? YES**
6. **Are there already valuers who handle this aspect in the right way? NO**

Published empirical research results on green value

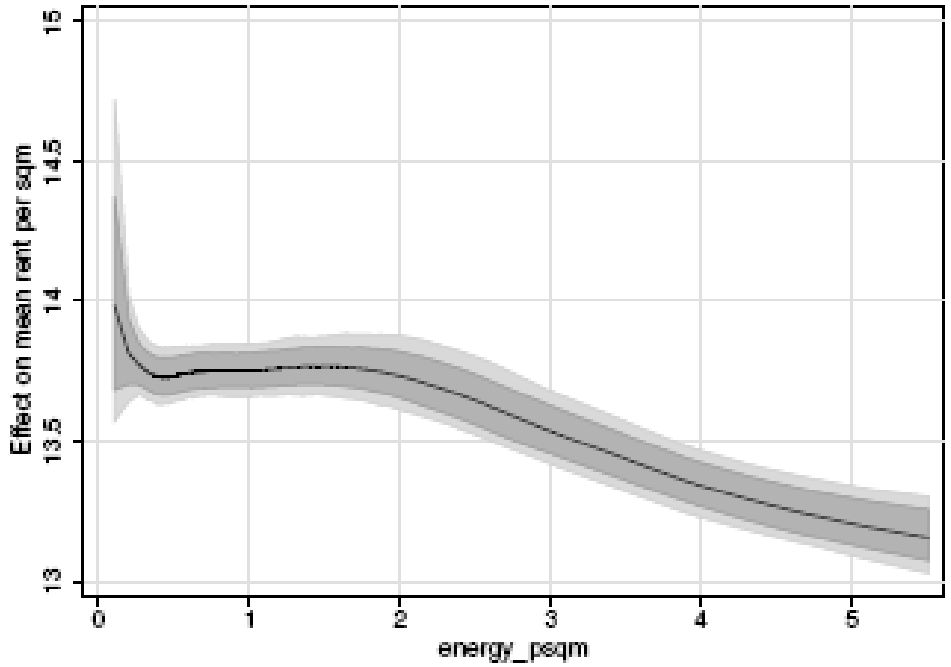
Variable \ Country	USA (Mc Graw, Hill Construction 2005)	USA (Mc Graw, Hill Construction 2008)	USA (Miller et al. 2008, using CoStar Database)	USA (Fürst, McAllister. 2008, using CoStar Database)	USA (Eichholtz et al. 2009, using CoStar Database)	Australia (Bowman, Wills 2008)
Rental Growth for non-Green	-	-	-	-	-	-1.50%
Rent Premium for Green	3.00%	6.10%	-	-	3.00%	
Energy Star	-	-	2.80%	-	-	
LEED	-	-	0.30%	-	-	
Energy Star/LEED	-	-	-	11.80%	-	
Effective Rent	-	-	-	-	6.00%	-
Decrease Operating Expenses	8.00-9.00%	13.60%	-	-	-	-
Reduction cap rate	-	-	-	-	-	0.25-0.50%
Improved ROI	6.60%	9.90%	-	-	-	-
Increase occupancy ratio	3.50%	6.40%	-	-	-	-
Market value	7.50%	10.90%	-	-	-	-
Selling price	-	-	-	-	16.00%	
Energy Star	-	-	5.76%	10.00%	-	
LEED	-	-	9.94%	31.00%	-	
Energy Star/LEED	-	-	-	11.40%	-	

Few empirical results in Europe

1. **The „hard“ way: using advanced methods!**
2. **Question at the beginning: can a single valuer ever perform this for every valution? - NO**
3. **Finding the proof for the connection between lower energy cost and higher rents**
4. **Obtaining complete data sets**
5. **Different databases**
6. **Market analysis always lags behind the market**

German data set analysis – results

$$\ln(rent\_psqm) = \beta_0 + \beta_1 quality\_h + \beta_2 quality\_m + \beta_3 elev + \beta_4 full\_air$$
$$+\beta_5 part\_air + \beta_6 age + \sum_{i=7}^{10} \beta_i year_i + \sum_{j=11}^{31} \beta_j city\_no_j$$
$$+\beta_{32} \ln(ngf)) + \beta_{33} \ln(maint\_psqm) + \beta_{34} \ln(energy\_psqm) + \beta_{35} \ln(other\_psqm) + \mathbf{u}$$



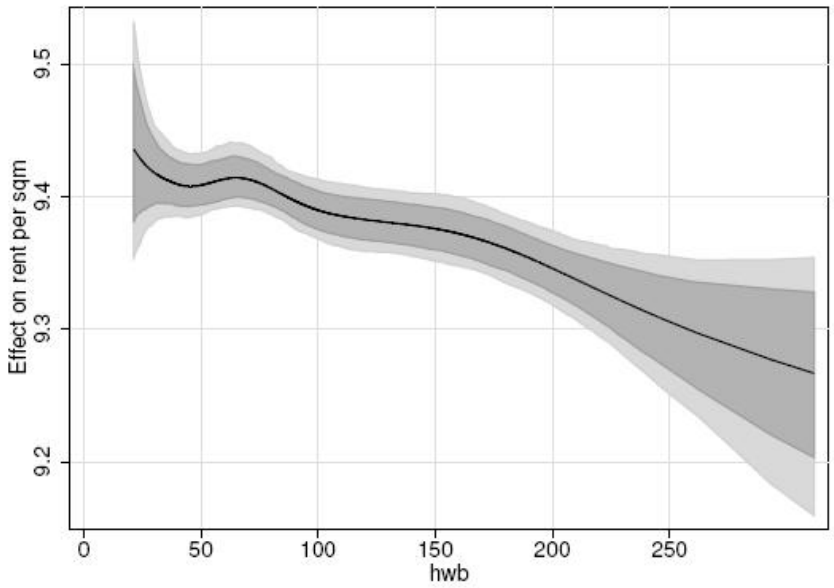
Linear Model

Number of obs	532
F(33, 498)	10.58
Prob > F	0.0000
R-squared	0.4121
Adj R-squared	0.3732
Root MSE	0.3115

logrent_psqm	Coef.	Std. Err.
_cons	2.615	0.210
logngf	-0.058	0.018
age	-0.002	0.001
logmaint_psqm	-0.020	0.018
logenergy_psqm	**-0.095**	**0.035**
logother_psqm	0.270	0.042
year_2003	0.044	0.043
year_2004	-0.023	0.041
year_2005	-0.107	0.040
quality_h	0.357	0.064
quality_m	0.125	0.053
elev	-0.142	0.145
full_air	0.104	0.057
part_air	0.093	0.036

8767 rental flats Vienna 2004-2007

$$\log(\text{rent\_psqm}) = \beta_0 + \beta_1\text{park} + \beta_2\text{balc} + \beta_3\text{gar} + \beta_4\text{cond1} + \beta_5\text{cond3} + \beta_6\text{cond4} + \beta_7\text{terr} + \beta_8\text{elev}$$
$$+\beta_9\text{noelev} + \beta_{10}\text{end} + \beta_{11}\text{area} + \beta_{12}\text{area}^2 + \beta_{13}\text{area}^3 + \sum_{i=14}^{19}\beta_i\text{year}_i + \sum_{j=20}^{42}\beta_j\text{distr}_j + \beta_{43}\ln(\text{hwb}) + \mathbf{u}$$



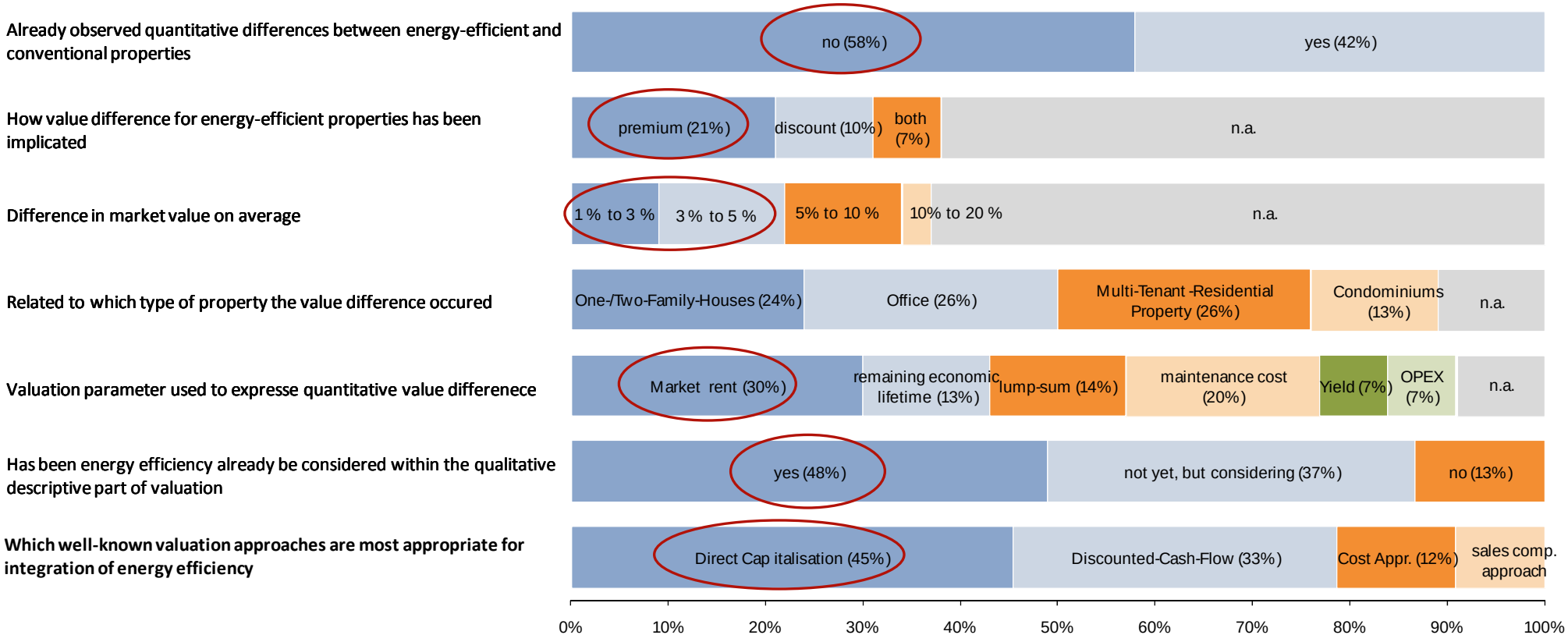
Effects of hwb on monthly rent per sqm

logrent_psqm	Coef.	Std. Err.
year1	-0.002	0.017
year2	-0.065	0.014
year3	-0.090	0.020
year4	-0.027	0.017
year5	-0.031	0.013
year6	-0.029	0.011
cond1	-0.010	0.013
cond3	-0.110	0.007
cond4	-0.267	0.017
lnhwb	-0.043	0.013

Summary of hedonic approach

1. Result: 100 % increase in energy cost will shift rental income up to 95 BP
2. So up front investment cost for energy saving can be compared to rental premiums
3. There is no “One fits all market rule”!
4. National valuation organizations should run regression for general guidance.
5. There must be some guidance for emerging markets.
6. Due to the various types of EPCs across Europe direct integration of the label information is not possible.

Survey


Already observed quantitative differences between energy-efficient and conventional properties
no (58%)
yes (42%)
How value difference for energy-efficient properties has been implicated
premium (21%)
discount (10%)
both (7%)
n.a.
Difference in market value on average
1 % to 3 %
3 % to 5 %
5% to 10 %
10% to 20 %
n.a.
Related to which type of property the value difference occured
One-/Two-Family-Houses (24%)
Office (26%)
Multi-Tenant -Residential Property (26%)
Condominiums (13%)
n.a.
Valuation parameter used to expresse quantitative value differenece
Market rent (30%)
remaining economic lifetime (13%)
lump-sum (14%)
maintenance cost (20%)
Yield (7%)
OPEX (7%)
n.a.
Has been energy efficiency already be considered within the qualitative descriptive part of valuation
yes (48%)
not yet, but considering (37%)
no (13%)
Which well-known valuation approaches are most appropriate for integration of energy efficiency
Direct Cap italisation (45%)
Discounted-Cash-Flow (33%)
Cost Appr. (12%)
sales comp. approach
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

CONCLUSIONS

- ✓ A certain **willingness to pay for environmental features exist**.
- ✓ **Very energy efficient and sustainable properties** come up with a **premium of 5-10 %**.
- ✓ **There is a gap between theoretical importance and the practical application** in integrating energy efficiency and other sustainability issues into property valuation .
- ✓ **Valuers need reliable data bases on comparable buildings** including not only data on building site, rent level and building equipment but also on energy efficiency and different operational cost categories.

- ✓ Results and methods of IMMOVALUE research are reflected in the actual **Guidance Note for the integration of energy performance and LCC into EVS** which has been prepared by the European Group of Valuers' Association **(TEGoVA) .**

The European Group of Valuers' Associations

THANK YOU FOR YOUR ATTENTION!

Contact data

website http://immovalue.org/

SV Dr. Dipl. Sven Bienert MRICS
Director

Tel. +43 512 599 96-5321
Fax. +43 512 599 96-5021
e-mail sbienert@kpmg.at
Address Kudlichstraße 41-43
4020 Linz
Adamgasse 23
6020 Innsbruck

Prof. Daniela Popescu

Tel. +40746036497
e-mail daniela_popescu@tuiasi.ro
Address Technical University Iasi
Bd. D. Mangeron n.59 A,
Iasi, Romania, cod 700050