The Value in Sustainability

Where are we now?

Prof. Sarah Sayce BSc PhD FRICS IRRV
Head of School of Surveying & Planning
Kingston University
Member of RICS Valuation & Sustainability Group

&

Dr. David Lorenz FRICS
Karlsruhe Institute of Technology (KIT)
Member of RICS Valuation & Sustainability Group

40 per cent Symposium
23rd November 2011
There is an undisputed desire to find the proof that ‘green’ or ‘sustainable’ buildings command a higher value (or others should be discounted?)

- To underpin a business case
- we need to (must?) reduce energy/ carbon consumption
- We wish to mitigate – in preference to adapt to – climate change
- To fulfil our public interest responsibilities
- We have a belief in and preference for markets to lead change
MARKET VALUE
Market value is the estimated amount for which an asset should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion.

WORTH OR INVESTMENT VALUE
Worth or Investment Value is: The value of property to a particular owner, investor, or class of investors for identified investment or operational objectives.
Valuers primarily reflect the behaviour of the markets...

...how far can it be assumed that a knowledgeable and prudent purchaser would account for sustainability issues in any assessment of prices, rents and yields now and moving forward?

Key questions for sustainability and Market Value
“Worth is the stuff of decisions”
Mallinson, 1994

...how far in respect of sustainability issues can it be assumed that a knowledgeable and prudent investor would act ahead of the market?

Where worth leads – market value may follow

Key Questions for Sustainability & Investment
Worth
• The role of the valuer is primarily to reflect markets
• They work on data and evidence
• If there is a lack of evidence then the valuer cannot factor them in to their Market Values – but may need to advise on investment worth

“When calculating a property’s worth, the market doesn’t currently take the issue of sustainability into account, but this could also have been said for central heating way back in the 1970s when people weren’t convinced it was going to have a market impact”.

Ben Elder RICS Global Valuation Director, September 2011
The Theoretical Position

Sustainability Criteria met

Investment worth higher than market value

Sustainability aware investor exploits mis-pricing to purchase or retain asset

As sustainability bites, asset performs better than market norm

Market identifies mis-pricing and adjusts

Sustainability Criteria not met

Investment worth lower than market value

Sustainability aware investor exploits mis-pricing to sell asset

As sustainability bites, asset performs worse than market norm

Market identifies mis-pricing and adjusts
Sustainable Buildings: just what are they ......?
Green Gauge Survey

- Energy source, usage and management
- Carbon emissions
- Occupant comfort, barrier-free accessibility
- Flexibility and adaptability of the building solution / floor plan
- Durability
- Environmental- and health-friendliness of building products and components
- Water usage and management
- Proximity to facilities such as education, retail and leisure destinations
- Proximity to public transport systems and nodes
- Risk of flooding and other natural or man-made hazards

Source: Draft listing for discussion at RICS Seminar „Finding the links - Sustainability performance measurement, property valuation and asset management, ExpoReal, 5 October 2011, Munich, Germany
“despite the publicity and promotion, the voluntary certificated section is miniscule in terms of the current commercial real estate stock”

(Fuerst & McAllister, 2011)

Valuers work throughout the building life cycle - there are still insufficient certificated buildings to provide good data for comparability..
EPCs are more universal in application – but only measure one dimension..
And sustainability is a moving target
• Surveys have long shown that many people say they might pay up to 10% premium for LEED/BREEAM (CoreNet/JLL, 2008)
• But interviews show that whilst sustainability is desired, traditional selection criteria dominate (Dixon et al.; 2009; Cushman & Wakefield; 2011)

“the trouble is that to calculate you need a sizeable benchmark and we don’t have that”

So- what have researchers done? Don’t get too excited – yet!
<table>
<thead>
<tr>
<th>Study/Autos</th>
<th>Country</th>
<th>Property Type</th>
<th>Sustainable Credentials</th>
<th>Observed impact on</th>
<th>+/-</th>
<th>Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Department of the Environment, Water, Heritage and the Arts, 2008</td>
<td>Australia</td>
<td>Residential Homes</td>
<td>Energy Efficiency Rating, EER, (0 to 10 stars in 0.5 star increment)</td>
<td>Selling Price</td>
<td>+</td>
<td>1.23 % – 1.91 % for each 0.5 EER star</td>
</tr>
<tr>
<td>Brounen and Kok, 2010</td>
<td>The Netherlands</td>
<td>Residential Homes</td>
<td>Energy Performance Certificate (Class A, B, C)</td>
<td>Selling Price</td>
<td>+</td>
<td>2.8 %</td>
</tr>
<tr>
<td>City of Darmstadt, Rental Index, 2010</td>
<td>Germany (Darmstadt)</td>
<td>Residential Multi-family houses</td>
<td>Primary energy value below 250 kWh/m²a, Primary energy value below 175 kWh/m²a</td>
<td>Rental Price</td>
<td>+</td>
<td>0.38 €/m², 0.50 €/m²</td>
</tr>
<tr>
<td>Eichholtz, Kok and Quigley, 2010</td>
<td>USA</td>
<td>Office Buildings</td>
<td>LEED, Energy Star</td>
<td>Selling Price, Rental Price</td>
<td>+</td>
<td>11.1 %, 5.9 %</td>
</tr>
<tr>
<td>Fuerst and McAllister, 2010</td>
<td>USA</td>
<td>Office Buildings</td>
<td>LEED, Energy Star</td>
<td>Occupancy Rates, Selling Price, Rental Price</td>
<td>+</td>
<td>8 %, 3 %</td>
</tr>
<tr>
<td>Fuerst and McAllister, 2008</td>
<td>USA</td>
<td>Office Buildings</td>
<td>LEED, Energy Star</td>
<td>Selling Price, Rental Price</td>
<td>+</td>
<td>31 % - 35 %, 6 %</td>
</tr>
<tr>
<td>Griffin et. al, 2009</td>
<td>USA (Portland / Seattle)</td>
<td>Residential Homes</td>
<td>Built Green, Earth Advantage, Energy Star, or LEED</td>
<td>Selling Price, Selling / Marketing Time</td>
<td>+, -</td>
<td>3 % - 9.6 %, 18 days</td>
</tr>
<tr>
<td>Pivo and Fischer, 2010</td>
<td>USA</td>
<td>Office Buildings</td>
<td>Energy Star, close distance to transit, location in redevelopment areas</td>
<td>Net Operating Income (NOI), Rental Price, Occupancy Rates, Market Value, Income Returns / Cap Rates</td>
<td>+, +, +, +</td>
<td>2.7 % - 8.2 %, 4.8 % - 5.2 %, 0.2 % - 1.3 %, 6.7 % - 10.6 %, 0.4 % - 1.5 %</td>
</tr>
<tr>
<td>Study/Authors</td>
<td>Country</td>
<td>Property Type</td>
<td>Sustainable Credentials</td>
<td>Observed impact on</td>
<td>+/-</td>
<td>Magnitude</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
<td>---------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>-----</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Pivo and Fischer, 2011</td>
<td>USA</td>
<td>Office, retail, industrial and apartment properties</td>
<td>Walkability (distance to educational, retail, food, recreational and entertainment destinations), measured as a Walk Score from 0 to 100</td>
<td>Market Value (office, retail)</td>
<td>+</td>
<td>0.9 % for each unit increase in Walk Score</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Market Value (apartment)</td>
<td>+</td>
<td>0.1 % for each unit increase in Walk Score</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Net Operating Income (office, retail)</td>
<td>+</td>
<td>0.7 % for each unit increase in Walk Score</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Income Returns / Cap Rates</td>
<td>-</td>
<td>0.007 % for each unit increase in Walk Score</td>
</tr>
<tr>
<td>Salvi et. al, 2008</td>
<td>Switzerland</td>
<td>Residential Homes</td>
<td>MINERGIE Label</td>
<td>Selling Price</td>
<td>+</td>
<td>7 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residential Flats</td>
<td>MINERGIE Label</td>
<td>Selling Price</td>
<td>+</td>
<td>3.5 %</td>
</tr>
<tr>
<td>Salvi et. al, 2010</td>
<td>Switzerland</td>
<td>Residential Flats</td>
<td>MINERGIE Label</td>
<td>Rental Price</td>
<td>+</td>
<td>6 %</td>
</tr>
<tr>
<td>Wameling, 2010 (Nienburg)</td>
<td>Germany</td>
<td>Residential Homes</td>
<td>Primary energy demand per m² and year (kWh/m²a)</td>
<td>Selling Price</td>
<td>+</td>
<td>Ca. 1,40 €/m² per reduced kWh/m²a</td>
</tr>
<tr>
<td>Wiley, Benefield and Johnson, 2008</td>
<td>USA</td>
<td>Office Buildings</td>
<td>LEED, Energy Star</td>
<td>Rental Price</td>
<td>+</td>
<td>7 % - 17 %</td>
</tr>
<tr>
<td>Yoshida and Sugiura, 2010</td>
<td>Japan (Tokyo)</td>
<td>Large residential condominiums</td>
<td>Tokyo Green Labeling System</td>
<td>Selling Price</td>
<td>-</td>
<td>6 % - 11 %</td>
</tr>
<tr>
<td>Newell, MacFarlane and Kok, 2011</td>
<td>Australia</td>
<td>Office</td>
<td>NABERS Label</td>
<td>Rents</td>
<td>+ and</td>
<td>Up to 9% for high rated and discount emerging for low ratings</td>
</tr>
</tbody>
</table>

**Empirical Research – Starting to move to Europe and beyond**

Kingston University London
• In Switzerland, sustainable / energy efficient building practices are becoming the norm in new construction
• This will lead to price erosion for non-compliant stock
• The same is happening in SE Asia

Source: Salvi, et. al, 2010, *Der Minergie-Boom unter der Lupe*, Center for Corporate Responsibility and Sustainability, Universität Zürich

Again a link to Energy enabled by Data
• In the city of Nienburg selling prices for single family houses increase by circa 1.40 €/m² per reduced kWh/m²pa.

• This is unique fine graining ...

• Over time – if EPCs are reliable data will improve..

• Residential markets respond differently to commercial

Green labeled buildings may also trade at a discount; in this case between 6% and 11%.

May be due to buyers’ skepticism of non-familiar technologies and limited knowledge of future performance.

<table>
<thead>
<tr>
<th></th>
<th>Median Score</th>
<th>(1) OLS</th>
<th>(2) LAD</th>
<th>(3) Quadratic Size &amp; Age</th>
<th>(4) Green x Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reduction of thermal loads</td>
<td>0.5</td>
<td></td>
<td></td>
<td>0.0457</td>
<td></td>
</tr>
<tr>
<td>2. Renewable energy</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Energy saving</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Eco-friendly materials</td>
<td>0.5</td>
<td>-0.0393</td>
<td>-0.0287</td>
<td>-0.0286</td>
<td>-0.0319</td>
</tr>
<tr>
<td>5. Longer life of building</td>
<td>0.67</td>
<td>0.0869</td>
<td></td>
<td>0.1005</td>
<td>0.1099</td>
</tr>
<tr>
<td>6. Water circulation</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Greening</td>
<td>0.33</td>
<td>-0.0469</td>
<td>-0.0296</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Mitigation of heat island</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) Sum of itemized scores</td>
<td>0.0476</td>
<td>-0.0756</td>
<td>0.088</td>
<td>0.078</td>
<td></td>
</tr>
<tr>
<td>(B) Baseline effect</td>
<td>-0.1125</td>
<td>-0.1966</td>
<td>-0.1888</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total effect (A+B)</td>
<td>-0.0649</td>
<td>-0.0756</td>
<td>-0.1086</td>
<td>-0.1108</td>
<td></td>
</tr>
</tbody>
</table>
• London is one of the most ‘at risk’ cities internationally due to the economic importance
• Flood is as much about SUDS as coast of rivers
• Research found that whilst taken into account on purchases it is not adequately accounted for subsequently
• Too little recognition of impact of Flood & Water Management Act 2010
• Flood risk insurance is a ‘live issue

“it is important for valuers to understand how to articulate flood risk when pricing property investment assets even though evidence of a measurable effect on investment yields of on property rents is not readily apparent”

CEM, 2011
Another way of Analysing: 

- Examining the link with financial performance
- Analysis of 47 European Portfolios
- Very limited data series available

S-i-r-e Project (Bernet, Sayce et al 2011)

1% More Rent for 1% Less Carbon?

Rental Income

2006 2007 2008 2009 2010

100 105 110

Carbon Intensity

2006 2007 2008 2009 2010

87 89 89 94 107

100 101 103 104 100

Source: shine

Another way of Analysing...

Kingston University London
ISPI Monitor of Sustainable Properties in the UK
“One good return deserves another”

• Recognises that few properties have full data
• Based on weighted criteria:
  • Energy
  • Waste
  • Water
  • Flood
  • Accessibility or
  • BREEAM

• Now monitoring 1,200 properties across 100 portfolios

“Sustainability is not yet priced into commercial property valuations in the UK, but when it is, the ISPI Monitor should show sustainability impacts on returns”.

An important UK initiative ...
• It is all about energy ... where we have better metrics - mainly positive but..

• Offices in US – clear evidence to link energy certification (Energy Star) – some evidence re LEED

• Offices in Australia: discounts for low scores; impact return, yield and vacancy of CBD offices

• Broad brush – do not differentiate grades

• Relationship between rent/energy costs very variable

• In Europe fewer studies and extend to residential more than offices
• A large scale survey of German valuation expert bodies
• But intention v action...

Are you planning to extend the scope of your database by using information from energy performance certificates?

- 37% yes, preparations have been / are being made
- 55% in principle yes, but without precise preparations
- 8% no, not planned in the near future

Source: Kertes, J., Lützkendorf, T. and Lorenz, D., 2008, German Property Transaction Data Survey, Universität Karlsruhe
“it is increasingly important that the valuer is aware and can reflect (moves to sustainability) in the advice given.”

Valuers should collect data – even if it is not apparently reflected in MV
Clients are changing: Responsible Investors Agenda
The business/investment argument develops

• A different Metric
• From cost to risk reduction

Buying into sustainability

Harms performance

Buying into sustainability

Has no effect on performance

Buying into sustainability

Enhances performance

A different Metric
From cost to risk reduction

• A different Metric
• From cost to risk reduction

Buying into sustainability

Harms performance

Buying into sustainability

Has no effect on performance

Buying into sustainability

Enhances performance

The business/investment argument develops

Kingston University London
Global Reporting Initiative

• provides guidance on how organizations can disclose their sustainability performance

• Construction and Real Estate Sector Supplement (CRESS – a sector supplement- September 2011)

Changing Perspectives: GRI and CRESS

Kingston University London
RICS and United Nations Environment Programme – Finance Initiative (UNEP-FI) statement of intent to

- Increase market transparency
- Gain insight into performance
- Integrate sustainability within the ‘everyday’
- And all within 5 years

• Recognition that it is a challenge in terms of skills, working with clients and with other professionals

RICS/ UNEP-FI a major step forward
• A lack of market response at the pace required:
  • Energy targets not being met - legislation may increase
  • Challenge to create economic case to retro-fit stock – losing stock should not be the only answer
  • The pre-occupation with energy may have clouded other issues
  • Ratings and value to blunt a tool – and concern about accuracy
• Changing corporate & societal environment
  – The growth of GRI may prove more important..

Why more change is needed
• CBRE initiative:
• 6 point sustainability checklist (based on ISPI)
  – quality,
  – accessibility,
  – energy efficiency,
  – flooding,
  – waste and
  – water efficiency

other organisations may follow...

The Need for Data continues – but the will is now there!
A schematic of where value and sustainability meet:

- Will rental value be compromised/enhanced by degree of ‘future-proofing’?
- How long will the building live?
- Timing & frequency of refurbishment?
- Will the risk of void increase?
- What ‘risk premium’ should be built in?
- In multi lets – will costs of services increase?

Kingston University London
• Results are coming through but the pace is still slow
• Certification is not the only answer
• Guidance is improving
• Data is a continuing issue – consistency and accuracy require cooperation and management records
• Government agendas and grants may help/ require step change
• There is a danger of thinking just energy
The development of ‘sustainable value’ methodologies will take time and commitment and will reveal a skills gap that will require address.

But on the positive side it presents opportunities for those ready to rise to the challenge.

We must learn to measure that which we should value instead of only valuing that which we can measure.

Conclusion