Property and sustainability - identifying the risk gap
Dr Jorn van de Wetering - 28/06/2014
Overview

- Literature on sustainability risk
- Datasets
- Methodology
- Results
- Conclusions and challenges
- Further research
Sustainability Value Risk

Property risk: \( r = RFR + rp \)

Source: JLL (2013)
Investors and environmental risks

- Tenant risks
  - CSR and government property acquisition policy

- Structural risk
  - Flooding risks may lead to issues of (un)insurability
  - Rising energy prices; energy security
  - Building climate change prevention/adaptation/mitigation?

- Planning risk

- Legislation risk
  - Short-term (e.g. Energy Act 2011) and long-term (unknown)

- Taxation risks (e.g. CRC)

- Or are sustainable, green buildings higher risk buildings because they are “unconventional”?
Government influence

- Modification of legislative framework
  - Implementation of EU Directives
  - Climate change act 2008
  - Part L of building regulations (conservation of fuel and power)
  - Energy Act 2011

- Advocating improvement of environmental efficiency
  - Planning regulations
  - Code for Sustainable Homes

- Provision of market incentives
  - Energy Company obligation
  - Green Deal

- Imposing of financial penalties (e.g.) through taxation
  - Carbon Reduction Commitment (CRC) energy efficiency scheme
49 Non-domestic energy efficiency regulations

(1) The Secretary of State must make regulations for the purpose of securing that a landlord of a non-domestic PR property -

(a) which is of such description of non-domestic PR property as is provided for by the regulations,
(b) in relation to which there is an energy performance certificate, and
(c) which falls below such level of energy efficiency (as demonstrated by the energy performance certificate) as is provided for by the regulations,

may not let the property until the landlord has complied with the obligation mentioned in subsection (2).

(2) The obligation is to make to the property such relevant energy efficiency improvements as are provided for by the regulations.
EPC certificate - Example

- **Asset rating**
  - Based on intrinsic performance of building

- Required for a building upon construction, sale or when it is let
EPC limitations

- Reliability (Garbage in/Garbage out)?
- What is measured and what is not?
  - EPC measures intrinsic, modelled energy performance
  - Actual consumption as measured by DECs may be more efficient
  - No calculation of embodied energy, transportation emissions, etc.
- Lack of compliance with legislation (low adoption rates)
  - Anecdotal evidence suggests poor compliance rates EPCs, for instance: e.g. NES (2009), Elmhurst Energy Systems (2010), Lainé (2011)
  - EPCs sometimes reported after heads of terms have been agreed or even after transactions are completed
Portfolio challenges

% of F & G rated units with lease end/break from April 2018 by ERV

- Source: IPD
Data

- CoStar UK Building characteristics
  - Address information, age, building quality, etc.

- Non-domestic energy performance certificate register
  - EPC rating band, heating fuel, heating system, etc.

- Complications
  - Time-consuming
  - Not straightforward to match addresses
  - Inconsistent information on multiple EPCs for same building (e.g. EPC band, heating system, etc.)
  - Multiple EPCs for same floorspace within building
EPC rating band distribution
Methodology

• First stage of research involves exploratory research

• Assess the characteristics of the stock that is at risk of future energy legislation, looking specifically at relationship between:
  – Age and energy efficiency of building
  – Heating system and energy efficiency
  – Fuel type and energy efficiency
  – Building quality and energy efficiency

• Next stage of research to involve investigation of financial impacts
### Results - 1: Age and energy efficiency

#### Chart Description:
- The chart visually represents the age distribution of energy efficiency across different decades.
- Each bar color represents a different efficiency range: 0-25, 26-50, 51-75, 76-100, 101-125, 126-150, and 151+.
- The chart breaks down the data year by year from 1900 to 2001.

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Results - 2: Heating type and energy efficiency

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Results - 4: Building class and energy efficiency

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Conclusions

• Newest age cohort (2001-2010) of buildings outperforms all preceding age cohorts
• No evidence to suggest that air-conditioned space underperforms
• Early indications confirm that main heating fuel may impact on energy performance of buildings
• Strong indications of relationship between high building class and high level of building energy efficiency
Challenges – Values and perceptions

• Complicated relationships between landlords and tenants
• Traditional characteristics outrank green building features
• Highly specified, energy inefficient buildings are norm?
• Cost of green features perceived to be high
• Apathy; energy is minor cost/low priority for stakeholders
• Scepticism in industry
• Lack of knowledge and know-how in property sector
• Uncertainty regarding energy efficiency effectiveness
Further research

- Analysis is still ‘basic’; descriptive
- No interaction of multiple variables
- Dataset currently only contains properties located in London
- Large section encompasses historic/listed buildings

- Impact of size to be investigated
- Investigate Walkability and location (impact of local energy policies)
Thank you

- Questions?

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