Key research created by SMARTER to support residential green finance

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Research & Data Structuring
WP coordination

PhD Research - Teaching Assistant
Research & Data Structuring for Green Homes & Green Mortgages programs
Reviews, surveys and data analysis

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No. 847141.
WP Overview

Research & Data Structuring for Green Homes & Green Mortgages programs

1) Review of key research on default risk effect of green homes

2) EPB scores as a proxy for more extensive Green certifications → for mortgage portfolios

3) Assessment of construction Cost Premiums of Green Homes

4) Country by country identification of legal, social, economic, policy... barriers to green mortgages

5) Upgrading plan for existing Green Homes certification programs in line with Level(s)

6) Upgrading plan for alignment with CEN standards and other relevant national standards

7) Assessing minimum requirements for Green and EPB Certificates for local programs eligibility – and as a minimum level “Green investment” tagging

8) Data collection structure for energy performance and other green criteria – meaningful for mortgage portfolios and compatible with e.g. EEFIG’s DEEP database and EeMAP’s EeDAP database.

9) Recommendation and guidelines to Green-Homes valuation
Highlights of Outcomes and Results WP2

Reference Research on default risk effect of green homes – lead partner Turkeco

A. Focusing on energy savings relating to financial risks/benefits e.g.
- From 1998 key references show “evidence of Rational Market Valuations for Home Energy Efficiency” (Nevin & Watson)
- To “New results and implications for energy efficiency investments” (Mathew, Wallace et.al. 2018 -Berkeley Lab)
- To “Policies to finance energy efficiency: An applied welfare assessment” (McCoy et.al, LSE, 2018)

Such studies
- confirm the direct default risk impacts of energy efficiency and related factors as energy pricing...
- allow to better evaluate the cost-effectiveness of public policies and even
- Invite to consider and value the multiple and non-financial benefits energy efficient buildings.

B. Addressing health, comfort + other quality/ benefits relating to value & financial risks e.g.
- HEALTHY HOME LOAN PACKAGE studies from ANZ Bank (New Zealand 2019)
- Residential Green Valuation Tools. (Adomatis, Appraisal Institute Chicago 2014)
- Inadequate housing and health: an overview. (Bonnefoy, Paris, 2007)

Higher Real Estate value mainly supported by certifications

Even with less quantitative data and direct evidence, these studies confirm the default-risk corelation and the financial and value benefits of healthier and more comfortable homes.
Green Homes **COST PREMIUMS?**

### Table 1: Elements and factors affecting sustainable building cost

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<th>Building Life Cycle Cost</th>
<th>RIBA Work Stages</th>
<th>Sustainable Building</th>
<th>Green cost premium factors</th>
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<td>Preliminary Cost</td>
<td>1. Preparation and Brief</td>
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|                          |  |  | 2. Appointment of prefabricated manufacturer.  
|                          |  | E6 | 1. Lack of proficiency with sustainable technology.  
|                          |  |  | 2. Less competition among contractors (dominated by G7).  
|                          |  | E1 | 1. Scarcity of materials.  
|                          |  |  | 2. Research and development (more testing and code approval required).  
|                          |  |  | 3. Lack of information on sustainable materials.  
|                          |  | E2 | 1. Complexity of installation process.  
|                          |  |  | 2. Expensive.  
|                          |  |  | 3. Difficulties in matching the equipment with the design requirements.  
|                          |  | E3 | 1. Higher management cost.  
|                          |  |  | 2. Higher transportation cost – raw materials to prefabrication site and prefabricated elements to construction site.  
|                          |  |  | 3. Assembly cost – special PC installation, frequency of tower crane usage, higher jointing cost.  
|                          |  |  | 4. Higher machinery cost.  
|                          |  | BIM | 1. Higher implementation cost.  
|                          |  |  | 2. Uncertain ROI recovering.  
|                          |  | E7 | 1. Additional values of the coverage provisions.  

- **Average 12% ~ 15% of extra cost considered for a Green-Home certified building.**

- **Research shows much lower and affordable situation and even no extra-cost** (market and building codes evolution...)

- **Integrating GH objectives form the beginning allow to limit the potential cost-premiums.** (Planning, Design, Studies phases)

- **Some green requirements/choices may mean up-front savings.**

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Good news is that it is more of a perceived barrier than a factual financial issue.

Highlights of Outcomes and Results

Visit project online platform
https://c2e2.unepdtu.org/smarter/

& EU CORDIS project page
For further reference and public deliverables
https://cordis.europa.eu/project/id/847141
Highlights of Outcomes and Results

Green-Homes valuation

Green investment tagging...

Certification programs alignment with Level(s) framework for buildings sustainability assessment...

→ Coming up next