Recognizing the Benefits of Energy Efficiency

Changing the Fundamentals of Multifamily Underwriting

The Deutsche Bank Americas Foundation & Living Cities

ACEEE 2011 Symposium on Market Transformation | 4.12.11
overview
lending practices
case studies
opportunities & recommendations
next steps
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case studies

opportunities & recommendations

next steps
challenges  A paucity of data concerning the efficacy of energy retrofits

Lack of interaction between the worlds of building science & finance

response  Build a set of reliable data to change underwriters’ practices to incorporate energy efficiency
Goal of analyzing 20,000 affordable housing units in NYC
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Current practices

1. Risk aversion dominates process
   - Guided by standards and/or historic usage
   - No incorporation of forward-looking projections

2. Structural considerations
   - Appraisers rely on indexes and comparables
Challenges

1. Lack of Motivation
   - Potential savings represent small % of building’s finances
   - Market interest unclear
   - Lack of owner equity
   - Lack of knowledge re: benefits
Challenges

1. Lack of Motivation

2. Lack of Data or Verifiable Standards
   - No existing universal dataset
   - Lack of M&V
   - Lack of universal data standards or 3rd party verification
Challenges

1. Lack of Motivation
2. Lack of Data or Verifiable Standards
3. External Risk Factors
   - External unpredictability: *weather, costs, market*
   - Human error and behavior
Challenges

1. Lack of Motivation
2. Lack of Data or Verifiable Standards
3. External Risk Factors
4. Structural & Regulatory Impediments
   - Lender-side: economic climate, multi-player process
   - Borrower-side: affordable housing utility allowances
Potential benefits

Higher energy performance will:
1. Reduce risk by increasing cash flows
Potential benefits

Higher energy performance will:

1. Reduce risk by increasing cash flows
2. Allow lenders to amend loan recommendations

Most Lenders

- Improve Debt Service Coverage

Some Lenders

- Increase Loan Size
- Allow Subordinate Debt
- Provide More Loans
- Reduce Cap Rate

Potential benefits
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Case Study Properties

1. 19-unit pre-war

2. 102-unit modern
Case Study #1: 19-unit pre-war
1. 19-unit pre-war
1. In pre-war buildings, vast majority of an owner’s operating costs are due to fuel (not electricity)

2. When atmospheric boilers are replaced, fuel savings tend to be under-predicted (due to conventional modeling protocols)
1. 19-unit pre-war

What if we underwrote against the projected heating savings?
1. 19-unit pre-war

What if we underwrote against the projected heating savings?
1. 19-unit pre-war

What if we underwrote against the projected heating savings?

Annual space heating expenses

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>Before</td>
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<td>After (projected)</td>
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<td>$ 6,600  (33%)</td>
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**Debt supported via savings**

- Debt service coverage ratio: 1.30
- Annual debt service: $5,100
- Loan (7%, 30 years): $63,800
What if we underwrote against the projected heating savings?

**Annual space heating expenses**

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**Total retrofit cost:** $84,200

76% supported
Case Study #2: 102-unit modern
2. 102-unit modern
What is the risk associated with the underperformance of electric savings projections?
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**Project stats**
- Total retrofit cost: $224,000
- Projected savings: 11%
What is the risk associated with the underperformance of electric savings projections?

**Project stats**

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### ...with underperformance of electric

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What is the risk associated with the underperformance of electric savings projections?
What is the risk associated with the underperformance of electric savings projections?

Annual savings $14,300

Annual savings $6,800

$(-7,500)

<1% of expense budget
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Opportunities & recommendations

1. Improved Access to Data
   – DB/LC dataset: *current performance & projection accuracy*
   – NYC’s Greener, Greater Buildings Plan
Opportunities & recommendations

1. Improved Access to Data

2. Potential Underwriting Modifications
   – Incorporate practice into first mortgage
   – Allow second mortgage for capital improvements
   – Hold loan increase in escrow until savings realized
   – Create mini-permanent loan product
Opportunities & recommendations

1. Improved Access to Data
2. Potential Underwriting Modifications
3. Structural and Regulatory Changes
   - Require higher performance
   - Public sector should take on initial risks of incorporating savings projections
   - Market demand for “green” features will eventually drive appraisals
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Next steps

July ‘10
- Project commencement
- Study methodology
- Database creation

Oct ‘10

Apr ‘11
- Analysis of first dataset

Oct ‘11
- Analysis of second dataset
- Issue report
Contact

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