Practical Considerations in Evaluating a Long-term Care Securitisation

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Items to be Discussed

- Some background on home equity release products
- Structure contemplated for this securitisation
- Data and methodology
- How our approach differs
- Practical problems and solutions
  - Inconsistencies in housing data
  - Determination of suitable LTC incidence rates
  - Applying housing data to longer time periods
- Further research
Background on HER Products

- Would satisfy a real need
- Actual take-up far less than expected
- Academic analysis suggests that products poorly priced (from a consumer perspective) – Non Negative Equity Guarantee (NNEG) over-valued
- Equity release for LTC is a specialised version of the product – demand should increase as the population ages
Homeowner seeking equity release

PPPFI screens lenders on behalf of homeowner, determines maximum loan value, calculates swap terms, and provides NNEG

Banks
Insurers
Other Lenders
Data and Methodology

- For post codes CT1 & CT2 (Canterbury) and ME8 (Medway) – all in Kent
- Land Registry data from January 1, 1995 – December 31, 2011: 30,724 transactions
- Only repeat sales data retained: 18,747 transactions
- For mortality & morbidity used Gompertz model parameterised by Ji, Hardy & Li 2011
- Start with couple both aged 65 with 1 healthy spouse (X) and 1 spouse requiring care (Y) – no possibility of recovery
Possible Transitions

1. No change in state of X and Y
2. X healthy, Y deceased – *no prepayments*
3. X requires care, Y requires care
4. X deceased, Y requires care
5. X requires care, Y deceased
6. X deceased, Y deceased

*In states 3 – 6 home sold*
7. X healthy
8. X requires care
9. X deceased

In states 8 & 9 home sold
How Our Approach Differs

- Loan and NNEG unbundled
- Pricing of NNEG is securitised
- Loans offered on a variable rate basis
- Analysis based on actual data not a model
- Land Registry data used – not Nationwide Index
- Calnea Analytics (2007) suggest Land Registry Index is preferable due to manner of construction

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Inconsistencies in Housing Data

- Some transactions are repeated with separate IDs
- Some homes change in type
- Repeat transaction data more voluminous during the middle of the period
- Some transactions recorded very close to each other
- Some extreme returns – we winsorised both tails
- Transaction data has exact dates and HPI is monthly – we used linear interpolation on HPI values
Did Not Adjust For “Under Representation”
HPI: Upward Trend but High Volatility
Autocorrelation: A Challenge to Model

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Return Differences
Winsorised but not De-Meanned

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Desirable to have incidence rates for entry into care and duration in care, for England – Unavailable

NLTCS – very detailed data regarding participants and care requirements – Insufficient to construct incidence and exit rates

Used report on private insurer data in US based on unlimited benefit period to construct sex-distinct incidence and exit rates in 5 year age bands

Used Canadian insurer J&S mortality experience Appropriateness?
Applying Data to Longer Periods

- One million simulations
- Annualised return differences show a duration effect with a positive skew
- Given propensity to “age in place”, it is realistic to incorporate the duration effect
- Limitation: our data only covers a 17 year period
- We winsorized the annualised return data at 15 years
Duration Effect

Years

0 2 4 6 8 10 12 14 16

0% 5% 10% 15% 20% 25% 30%

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Further Research

- Urgent need to gather data by country that can be used to price HER products – government action likely required to facilitate this process
- Consider feasibility of PPP structure and alternatives to provide NNEG and efficient underwriting and administration
- Regarding the variability between individual prices and the index and autocorrelation
- Effect of aging in place on property values
- Duration effect
- *We have a paper showing premiums calculated*