Intervention of the State in UK's Equity Release Market

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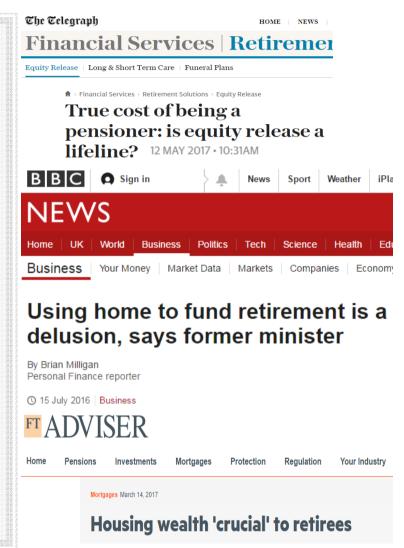| Introduction | Research Background | Equity Release | State Intervention in the ER Market |

- Housing Equity Withdrawal and Pension Adequacy

- Call for Proposals VP/2014/014 – Promoting the Contribution of Private Savings to Pension Adequacy

- 6 European Universities

Research Background & Motivation

- Sustainability of existing pension systems

- Promotion of private pension schemes and savings for retirement

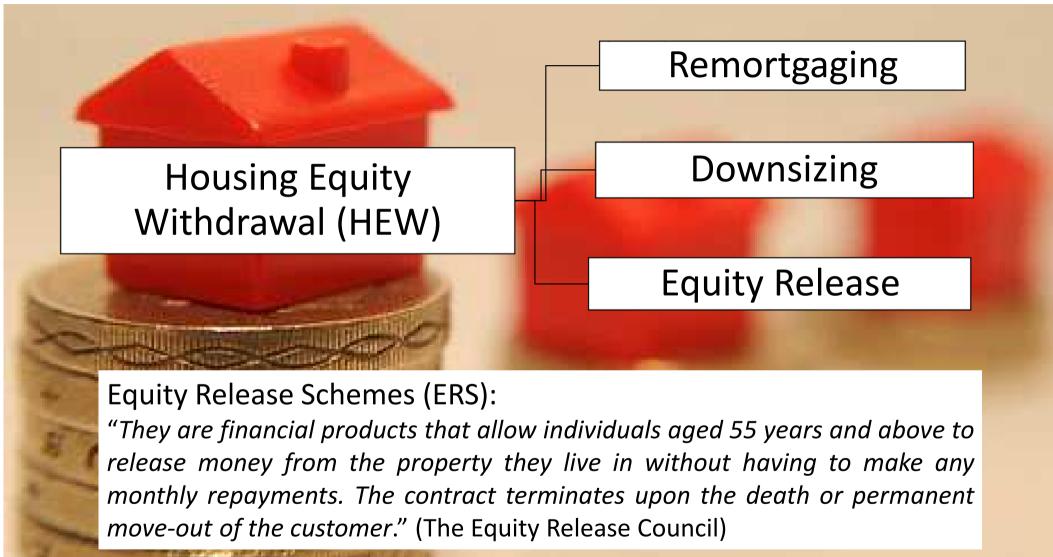- Ongoing debate on using housing equity for retirement funding

Research Background & Motivation

- 76% of older households own their own homes

- More than 2/3 of 65+ are homeowners without a mortgage

- High house prices, particularly in South East

Pension wealth vs property wealth for homeowners aged 55 years and above.
Source: Wealth and Asset Survey, ONS

Housing Equity Withdrawal (HEW)

- Remortgaging
- Downsizing
- Equity Release

Equity Release Schemes (ERS):

"*They are financial products that allow individuals aged 55 years and above to release money from the property they live in without having to make any monthly repayments. The contract terminates upon the death or permanent move-out of the customer.*" (The Equity Release Council)

Main Points

- Recognised to have great potential to support people's needs in retirement

- UK market – 0.5% of the entire mortgage market

- Dominant product – Lifetime mortgage (loan model) vs Home Reversion (sale model)

- Lifetime Mortgage (recognised by ERC) –
  - Fixed or cap rate of interest
  - Guarantee the right to tenure without regular repayments being required
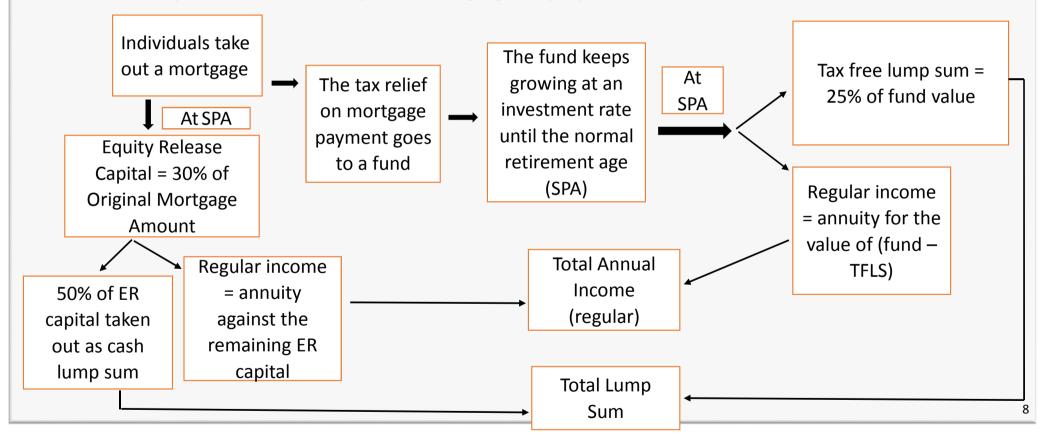 - No Negative Equity Guarantee (NNEG)

Actions Required

- **(-) Barriers**
  - Loan to Value Ratio (LTV)
  - Over-regulation
  - 'Market is neither competitive nor innovative' (FCA)
  - Shortage of financial advisers
  - Reputation, product knowledge and trust

- **(+) Better pricing techniques, product innovation and increased competition**

- **(+) Role of the government**

> "From a regulator's perspective - are there barriers to competition or even missing markets? We believe there is a debate to be had about what products, markets could exist, and whether more entrants and innovation here might benefit consumers with greater choice and improved products."
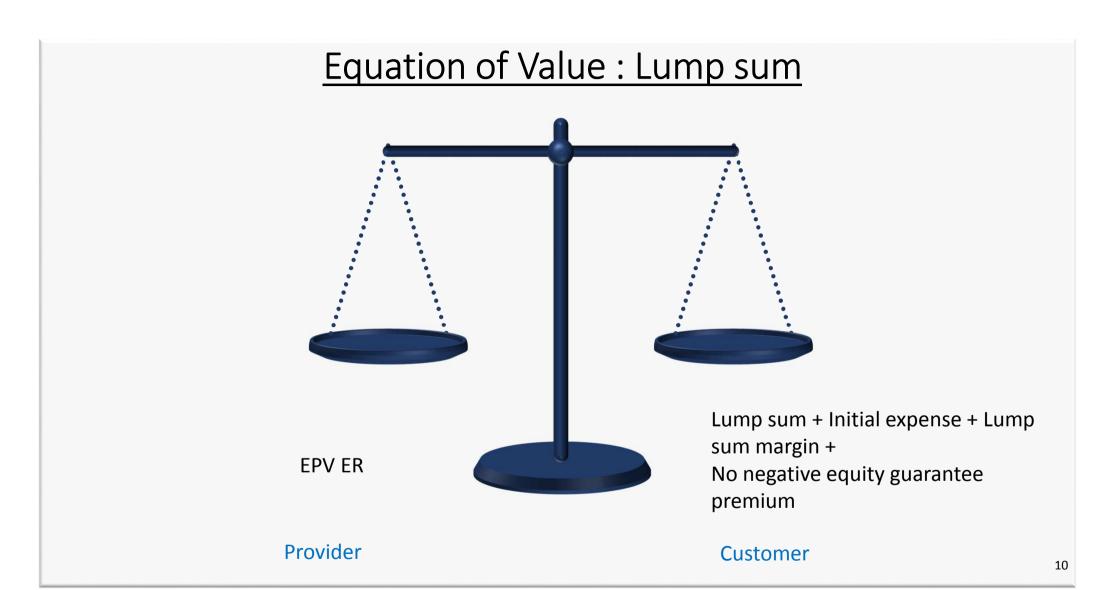> Christopher Woolard, Director of Strategy & Competition, FCA 07/09/2015.

State Intervention + Hybrid Product

The State provides tax relief on mortgage repayments

Individuals take out a mortgage

At SPA

Equity Release Capital = 30% of Original Mortgage Amount

The tax relief on mortgage payment goes to a fund

The fund keeps growing at an investment rate until the normal retirement age (SPA)

At SPA

Tax free lump sum = 25% of fund value

Regular income = annuity for the value of (fund – TFLS)

50% of ER capital taken out as cash lump sum

Regular income = annuity against the remaining ER capital

Total Annual Income (regular)

Total Lump Sum

Assumptions			
Mortgage interest rate	4.25%	Initial expense	30%
Investment Return	5.00%	Annual expense	5%
ER roll up Interest rate	5.50%	**Tax Relief**	**20%**
Annuity interest rate	3.00%	TFLS %	25%
Inflation	0.00%	ER LS %	50%
Lump sum expense	5.00%	ER capital %	30%
Gender/Age	M/25	Retirement Age	68

Illustration			
Mortgage term/value	30 / £200 k	Expected Life from retirement	17.73
Mortgage Repayment (annual)	£11,673	**Retirement Fund**	**£299 k**
Tax-Free Lump Sum	**£75 k**	**Pension Income**	**£15.6 k**
Equity Release Capital	£60 k	Accumulated ER Loan	£163 k
Equity Release (Tax-Free Lump Sum)	**£30 k**	**Equity Release (Annual Income)**	**£2,086**

Introduction	Research Background	Equity Release	State Intervention in the ER Market

Equation of Value : Lump sum

EPV ER

Lump sum + Initial expense + Lump sum margin +
No negative equity guarantee premium

Provider

Customer

Equation of Value : Lump sum

$$EPV = Lump\ sum + Initial\ expenses + Lump\ sum\ margin + NNEG$$

House price inflation And interest rates (a function of macro economy and policy

Risk that realised house price $< L_{T_x} = L_0 \exp(\sum_{T_x} i)$

Interest rate risk

House price risk

Longevity risk

Basis risk : Index vs realised house price (idiosyncratic hp risk)

Theoretical Framework

Homeowners require funds through an equity release product	PPP – processes application (loan amount, assesses and underwrites the NNEG risk)	Provider lends to the PPP

- Framework (Andrews and Oberoi,2014)
- PPP: Public-Private Partnership
- Lender: Pension funds, insurance companies
- Variable rate: Borrower pays a charge which is linked to a regional house price inflation index (HPI).
- If L_0 = £100000 and if property prices in region rise by 2% over the year consumer owes £102,000 at year end ; if prices fall by 2% consumer owes £98,000. What the consumer owes fluctuates with the HPI.

Methodology

- Shao et al. (2015): A reverse mortgage (lifetime mortgage) pricing framework allowing for idiosyncratic house price risk and longevity risk

- Pricing Framework

Accumulated Loan Value at Termination: $L_{T_x} = L_0 \exp(\sum_{T_x} i)$

$i = risk\ free\ rate\ (zero\ coupon\ bond\ yields) + lending\ margin + mortgage\ insurance\ premium\ rate(\pi)$

$$Loss_{T_x} = \max\{L_{T_x} - (1-c)H_{T_x}, 0\}$$

$$NNEG = \sum E(Loss)$$

$$Shortfall = NNEG - MIP$$

$$Value\ at\ Risk\ (VaR) = Tail\ value\ of\ shortfall\ _{95\%}$$

House Price Risk : Hybrid Hedonic Repeat Sales House Price Model (Shao et al., 2015)

$$Value\ of\ house\ (V_{it}) = Quality\ measure\ \times House\ price\ index$$

$$V_{it} = \alpha + \beta_t + X'\gamma + X'\Delta_t + \eta_i + \xi_{it}$$

$$Differencing\ the\ equation\ \ V_{jt} - V_{js} = D'\beta + X'\Delta D + \xi_{jt} - \xi_{js}$$

- β : Coefficients for time dummy variables

- γ : Coefficients for house characteristics variables X

- Δ : Coefficients for the interactions between time dummy and house characteristics variables

- η_i : Individual house specific error, uncorrelated with ξ

- D : Differenced time dummy variables

- **Generating Economic Scenarios : VAR(2)**

$$Y_t = k + \Phi_1 Y_{t-1} + \Phi_2 Y_{t-2} + \Sigma^{1/2} Z_t$$

5 State Variables :
a.) one-quarter zero-coupon bond yields
b.) Spread over 5 years
c.) GDP growth rates
d.) Average HPI growth rates
e.) Rental yields

Vector of independent standard normal variables

- Risk adjusted stochastic discount factors (Alai et al., 2014)

- Projection of individual house prices : VARX(1,0) model

- Stochastic Mortality: Lee and Carter (1992)

Emerging Issues

- (?) Estimate the impact of government intervention (GI) on LTV within this set up – geographical variations

- (?) Estimate the impact of GI on economic capital – effect on VAR

- (?) How is this model going to take care of the problem of restructuring of lifetime mortgages under Solvency II