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Commentary

On the profitability of equity release mortgages loans

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We obtain projections of the profitability to lenders of equity release mortgage loans both to single borrowers and to couples over a wide range of ages. Results suggest that loans to couples are less profitable than loans to borrowers who are single. Loans to couples are only profitable at all if both members of the couple are in their late 70s or older. These results suggest that the sector is not profitable.

Key words: Equity release, equity, profitability, lump, valuation

INTRODUCTION

An Equity Release Mortgage (ERM) is a loan made to an older property-owning borrower that is collateralized by their property. In the UK, ERMs usually embody a No-Negative Equity Guarantee (NNEG) that stipulates that the amount due for repayment is capped at the minimum of the rolled-up loan amount and the property value at the time of repayment (Buckner et al., 2020, Cairns et al., 2009, Dowd, 2018 Dowd, 2021, Equity Release Mortgage, 2020).

This article examines the profitability to lenders of lifetime lump sum ERM loans to single and couple borrowers. We find that the profitability of these loans is surprisingly low and often negative (Dowd et al., 2019, Equity Release Council, 2021, Li et al., 2010, Prudential Regulation Authority, 2016).

EXPECTED TIME TO EXIT

We consider loans to a single male, a single female and a male-female couple. Excepting early repayment, an ERM contract specifies that the loan is to be repaid when the borrower permanently exits their home. Assuming away any stay in care, exit occurs when a single borrower dies or when the last surviving member of a borrower couple dies (Figure 1) shows the density functions for the time to exit.

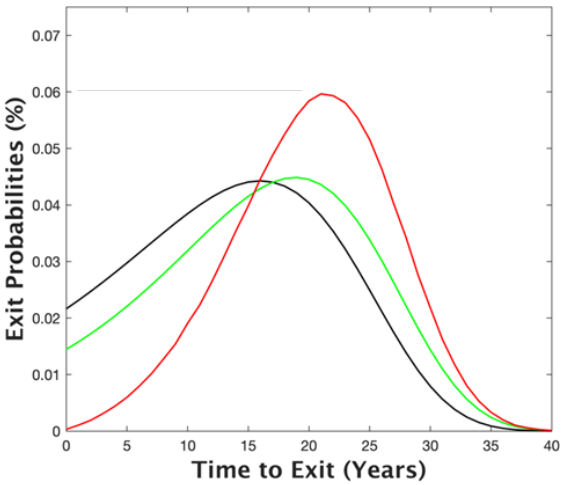

Figure 1. Density Functions for Time to Exit.
Note: Obtained from 1,000,000 Monte Carlo simulations of the mortality rates q_t using the M5-CBD mortality model calibrated on Life & Longevity Markets Association death rates data.
Note: (——) Males aged 70; (——) Females aged 70; (——) Couple both aged 70;

(1) ERM Valuation and Profitability

The present value ERM of an ERM loan is equal to the present value L of a risk-free loan, minus the present value NNEG of the NNEG guarantee

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$$ERM = L - NNEG$$

(2) L is given by

$$L = \sum_t \left[exit\ prob_t * amount\ loaned * e^{(l-r)t} \right]$$

where exit $prob_t$ is the probability of exiting the house in year t, r is the risk-free interest rate and amount loaned*e^{lt} is the rolled-up loan amount.

(3) NNEG is given by

$$NNEG = \sum_t \left[exit\ prob_t * NNEG_t \right]$$

where $NNEG_t$ is the present value of the NNEG guarantee for t

Each $NNEG_t$ involves a put option on the value of the property at t, struck at the rolled-up loan amount. $NNEG_t$ is valued using a Black 76 option pricing model (Black, 1976), where the underlying price, F_t, is the forward house price for t.

$$(4) F_t = Se^{(r-q)t}$$

where S is the spot property price, r the risk-free interest rate and deferment rate q. We calibrate q from an estimate of the net rental yield.

We obtain the profitability of each ERM loan as the annualised return, so the ratio ERM/loan amount gives the return on the loan over its expected lifetime. The annualised returns are obtained from the internal rates of return.

When a borrower is single, lenders will assess the amount of the loan by some approximation of the 'age minus 30' rule, i.e. the LTV ratio will be the difference between the borrower age and 30 divided by 100. Where the borrower is a couple, lenders typically determine the loan amount by applying their loan determination rule to the younger member of the couple. Projected annualized returns for the age range up to 90 are given in (Figure 2).We see that loans to single males are only profitable if borrowers are at least in their early 70s, those to single females are only profitable if borrowers are at least 76, and loans to couples are only profitable if the younger member is even older.

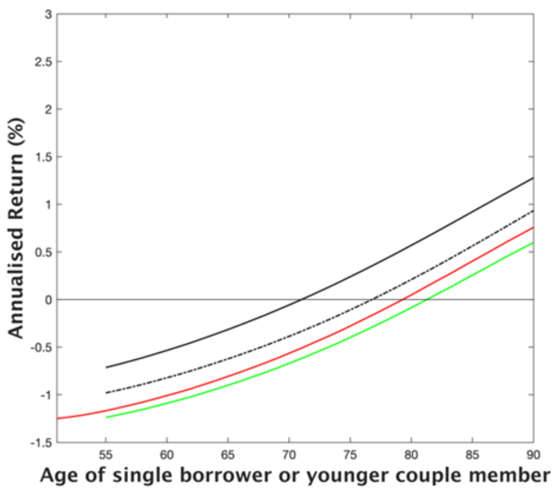

Figure 2. Projected Annualised Returns.

Note: (▬▬) Single males; (-------) SingleFemales; (——) Couple same age; (——) Couple female 4 years younger;

(5) Calibration

We assume the following parameter values

r = 0.25% p.a.

l = 4%.

q=4.2%.

(6) We calibrate the volatility parameter σ using

$$\sigma = \sum_t exit\ prob_t * \sigma_t$$

where σ_t is a volatility term structure that is dependent on both the age and gender of the borrower.

CONCLUSION

These results have obvious implications for the financial wellbeing of the equity release industry. The implication for lenders is that they should increase their minimum age requirement and lend only to borrowers in their 70s or older. The industry needs to downsize drastically if it is ever to be profitable.

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