

HOME EQUITY RELEASE

By Chris Coon - Actuary

Synopsis

This paper covers the emergence of Home Equity Release products. It will principally cover Life-Time Loans, where interest is rolled up and paid at maturity - on death or move to a permanent care-facility.

The paper discusses the sharp demographic changes occurring over the next 50 years and the financial ill-preparedness of most people reaching retirement age. In addition, demographic ageing will create huge strains on government provision of retirement benefits and health care.

Attitudes to inheritance are changing rapidly, but it will take time for a greater acceptance of returning to debt.

The overseas growth of HER is considered. Comparison is made between Life-Time Loans and Reversions as well as variable v. fixed interest rates.

A guarantee that the accumulated loan should never exceed house realisation value should always be provided (Non-Negative Equity Guarantee - NNEG). NNEG risk is a function of longevity, interest rates and house appreciation. NNEG risk is a complex risk to manage as it typically starts to meaningfully bite after about 20 years and lasts up to 50 years.

House appreciation appears to be cyclical in nature and broadly following wage earning rates. Interest rates are also cyclical but with less variability than house prices. Both are driven by inflation. Mortality is a reasonably easy issue – the main question is population or annuitant rates – I think population. Mortality improvement rates are a bigger issue due to the long duration of risk. Move-to-care statistics are available. Voluntary move-out has very limited history.

A proper and robust approach to reserving is required to cover NNEG risk.

The paper concludes with an assessment of where the NZ HER market might be in 25 years time.

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Introduction

Home Equity Release (HER) may be defined as using the surplus value built up in a house to produce cash in the form of a lump sum or an income.

Although this paper is about HER financial products, it will consider all forms of releasing equity from the home. HER loans prior to retirement would typically require interest and capital to be repaid over a limited term. I shall only consider HER loans where interest is rolled up and paid at maturity.

The desire to provide an inheritance to the children has limited HER products in the past but attitudes have recently changed quite considerably as a new generation of “matures” has retired and the “baby boomers” are moving towards retirement. In addition, house values have grown hugely in real terms and can now perform a number of functions – house values in real terms are now treble values of 35 years ago. I think that our world has become more consumer intensive and I would expect the retired generation to not want to be excluded.

I believe that the risks associated with HER are very much part of the actuarial bag – house appreciation, interest and longevity. Banking has a good grasp for the first 2 risks but probably less feel for longevity.

The Need

Home Equity Release refers to Home-owners releasing the equity in their homes to help them with lifestyle expenses in their retirement years. We have found that the main uses of cash are for

- Home renovation, extension or upgrade
- Travel
- New vehicle
- Medical treatment
- Repaying outstanding and expensive debt
- Helping children or grand-children
- Just making life easier and more fun!

Forms of Home Equity Release

It is important that any-one considering taking out an HER product does consider all the alternative options available to them.

The equity in the home can be released in a number of ways

- Sale of the house and move to rented accommodation – generally this tends to be associated with the need to move to a protected-living or care facility
- Sale and trade down to a cheaper house – downside is moving to an unfamiliar area late in life and substantial costs (up to 10% of house value) and stress associated with the move – logical if different style of home required (less maintenance) or to be closer to family or other facilities (particularly health related)
- Sale and move in with family – generally as health fails
- Let part of your home to a paying tenant – could solve problems of loneliness, security, etc but may be create many other problems.
- Standard mortgage raised on the house – servicing costs will typically preclude a P&I or Interest Only mortgage
- Sale of reversionary interest in the house (like a sale and lease-back) – generally unpopular because of the loss on early death and lack of transparency.
- HER lifestyle loan product.

Retirement Gap

Full State pension is about \$19,000 p.a. for a couple and \$11,000 for an individual. Only 20% of over 65's have an income over \$20,000, including Government super.

Only about 15% of the population receive any private superannuation.

Under an EET superannuation tax structure, a funding rate of about 15% of gross earnings from age 30 is required to provide a comfortable income in retirement – a total of about 70% of pre-retirement earnings, inflation-linked. Under our TTE regime, the funding cost increases to about 35% of after-tax earnings. This is a very hard strain for the individual/employer to jointly meet, particularly in the early working years when there are substantial costs associated with house purchase and young family.

Without compulsion, I do not think people will want to put much away for retirement, even with a benign tax regime. Even if compulsion and a benign tax regime were introduced, there would still be a substantial savings shortfall for retirees over the next 50 years.

Demographic Distribution

Slow birth rates and improving mortality will make the 21st century the “Silver Century”. The demographic change is the Ultimate Strategic Issue of the century.

I have been greatly impressed by the amount of academic research directed at these issues and disappointed at the apparent lack of response from

Government. I guess our electoral terms are too short to raise these issues to a high level.

A summary of the current and projected age distributions can be seen from the following table.

Age Band	2006		2031		2056	
	m	%	m	%	m	%
<20	1.19	29	1.32	25	1.53	24
20-64	2.40	58	2.84	53	3.18	49
65-84	.46	11	.98	18	1.16	18
85-99	.06	1	.16	3	.51	8
>99	.00	0	.01	0	.05	1
Total	4.11	100	5.31	100	6.43	100

There are currently 4.6 “working age” 20-64 year olds to each “retired” 65+. By 2031, we expect this proportion to fall to 2.5 and to 1.8 by 2056.

The number of people aged 85+ are projected to grow nearly 10-fold over the next 50 years. Although one would anticipate health levels for a given age to rise, this is likely to place a huge burden on the health service.

I calculate that current Male 65 life expectancy is 20 years and that a male aged 65 in 2031 will have a life expectancy of about 25 years and one aged 65 in 2056 will have a life expectancy of about 29 years.

To maintain any semblance of State pension and reasonable state health benefit will require substantial changes to current practice including some of the following

- Higher retirement age. This will be a hard sell as our generation is pretty comfortable with retiring young to have fun. However, sold on the basis that life expectancy is rising strongly should make this acceptable. It would be logical to at least split part of the greater life expectancy into working – perhaps retirement age 69 in 2031 and 72 in 2056.
- Lowering pension entitlements would not be a vote-catcher.
- More means testing – but this then acts as a disincentive for people to become independent.
- More self-reliance in health care – probably would need tax incentives.
- Increasing taxation. Death duties put the cost back where it belongs - but it may need removing the vote for ages 65+ before this could be achieved! Generations X and Y will be very unimpressed with any

additional tax burden to pay for the baby-boomers who introduced them to student debt. They will also compare their starter homes with the veritable palaces owned by the pensioners that they are being asked to support.

Home Equity Release Need

People owning their own homes have benefited hugely in wealth creation. Inflation has averaged about 7.4% a year over the last 35 years whereas house appreciation has averaged 10.8%. This means that the average house has tripled in value in real terms over this period.

However, it is clear that a very large number of retired people are virtually dependant upon the state pension and are “cash poor”, yet “asset rich”, having a substantial asset in their home. Those retiring over the next 20 years will also not have accumulated any substantial pension funds.

Research indicates that most people feel that they generally have about enough for day-to-day living but get hit by financial problems when the roof leaks, the car breaks down, an urgent operation is needed, family problems, etc. Their “generally enough to live on” excludes any fun.

We have witnessed some changes in attitude to inheritance over the last decade. There was an almost untouchable sacrosanct treatment of the family home with no perceived right by the owner to interfere with the full inheritable value. However, it has always been difficult for the 40 year old “children” to build the inheritance into their financial plan when the 70 year old parents could die at any time over the next 40 years – receiving an inheritance at age 80 would be less than timely! I think that the concept of returning to debt is now more of the issue than inheritance. Satisfaction surveys indicate that 98% of those taking HER products are very satisfied or satisfied. I think that word of mouth will probably be a strong determinant in the growth of this market.

We have found a much stronger demand for lump sums together with flexibility to return for top-up loans rather than a more formalised annuity income for life. It is also clear that there are various phases of retirement

- Early phase 65-80 (perhaps) when fit and healthy – wanting to travel, particularly to visit family – still driving car and pursuing many interests
- Middle phase 80-87 (say) when less active but relatively healthy – fairly inexpensive period.
- Last legs 88+ when health breaks down – can be very expensive in terms of care provision – likely to be provided by the state unless substantial assets left.

Thus the market need is generally a substantial lump sum at age 70-75 (say) together with flexible access to additional sums from time-to-time. It is often around age 70-75 also that assets saved for retirement are exhausted.

Home Equity Release Schemes Overseas

Although HER has been available in the UK, the USA and other parts of the world for many years, it has only really reached substantial levels over the last 5-7 years but is now growing at a very strong rate.

I was involved as a consultant in London in the early HER days designing a scheme for a client. Life companies arranged a fixed interest mortgage for their client with a banking institution. The funds were then used to purchase an annuity with their life company. This became very tax-favoured when interest became payable net of tax at the basic rate to the bank (MIRAS), whether or not the client was in a taxed position. The interest content in the annuity was then taxed at the client's marginal rate – often zero.

The UK has had a relatively chequered past with some inappropriate and dangerous schemes that did not help the reputation of the HER market. The worst product was a combination of a variable rate mortgage to purchase Asian Equity Growth stocks right at the top of the equity market and immediately preceding a strong rise in interest rates. Another was SAM's (Shared Appreciation Mortgages) where interest was equated to 3x the actual capital appreciation of the house – introduced just as the property market took off with 40% appreciation and hence 120% as an interest rate – this was considered fairly usurious!

This is all behind them now and the UK market has grown from a mere UKP50m in loans 10 years ago to over UKP1bn in 2003. The market is now taking a breather as they contend with strong regulation by the FSA.

The US experience has also seen most of the growth in the last 7 years. Growth has been slower than the UK as a result of a very expensive up-front fee to cover the Government-provided guarantee cost (the Non-Negative Equity Guarantee) and the Government requirement to seek "financial" counselling before being able to apply for such a loan! There is also a potential CGT problem with HER in the USA.

HER in Australia is also very much in its infancy where there are now about 16 providers, the main companies being

- Australian Seniors Finance (our sister company)
- Bluestone Mortgages
- Commonwealth Bank
- OFMI
- St George Bank

Most of this activity has again taken place over the last 5 years.

It is clear that HER is a product whose time has come but will require time for many in the market to assimilate the concept of returning to debt to support a comfortable life-style. People are only just coming to the recognition that the home is not a birthright that is required to be handed intact to the next generation.

Home Equity Release Schemes - Reversions

A reversion is the sale of part of the home for immediate cash but retaining a right to live in the house until death. Typically, the payment is about 50% of the part of the house being sold into reversion. Probably, the person's life expectancy is about 12-15 years.

The advantage of reversions is that they are capable of releasing the highest amount of equity. This is because of the pooling of longevity risk. However, it is hard for an individual to assess the value. The majority of people believe they have a lower life expectancy than what we actuaries allot! They also have difficulty assessing the discounting value. Reversions tend to be inflexible, effectively losing their part of the house on voluntary early move-out.

Reversions in the UK account for only about 7% of new HER business despite a large number of companies providing products.

Home Equity Release Schemes – Lifetime Loans

For lifetime loans, interest and fees are not due to be paid until the end of the loan term. The term is until death or earlier move to care facility of the homeowner or the last survivor if there are two. They can of course move out for any other reason and then the loan is repaid – this is referred to as “voluntary move-out”. The loan can also be transferred to another property.

Most HER products have a maximum loan expressed as a Loan to Value Ratio (LVR) that increases with age – e.g. at age 70 LVR would typically be about 25%.

The repayment at the end of the term is limited to the lower of

- Accumulated debt or
- Net Realizable Value of the home

This guarantee is called “Non-Negative Equity Guarantee” (NNEG).

HER Complexities of NNEG Risk and Securitization

NNEG is a hugely complex risk to properly manage. There are 4 approaches one can take with the NNEG risk

1. Oblivious – not an option as we are well aware of the risk
2. Ignore it – again not an option and I don't think the Rating Agencies or the securitized Bondholders would be too impressed with this approach
3. Build up conservative reserves in an actuarial fashion to meet the risks
4. Reinsure part of the risk

We are applying a combination of 3 and 4. We think that, as LVR's seem relatively low, that there is a danger that others might under-estimate the NNEG risk and fall into the first 2 categories. Most banking organizations that we have spoken to about NNEG have usually responded that this is a minor part of their total loan book and that they do not currently have a reserving basis. We have also heard of banks seeking actuarial input and then translated this into an assumption that all males die at age 77 and females at age 81!

On some of their early securitizations, Norwich Union provided NNEG cover to the bondholders. On the later ones and all other securitizations that I am aware of, the NNEG risk is effectively carried by the bondholders. I really believe that this risk should be better understood and better managed by insurance/reinsurance companies, particularly the risk-spreading by combining different years of issued loans. The insurance/reinsurance market has been very slow to react to this emerging product. It is probably not helped by not really understanding whether it is a life or general product. Also the very long term nature of the risk is daunting.

The other complexity to HER loans is in the securitization process through a Bond offering. As HER loan interest is deferred to the end of the term, "interest" is effectively paid from the move-out repayments. The rate of all move-outs will certainly be lower than the bond interest rate in the first year and likely to be in the second year. Thereafter, the move-out rate may be close to the bond rate. Any bond interest shortfall is financed through a "Liquidity Facility" from a bank.

The rate of interest on HER loans is thus higher than for a standard mortgage because of

- Cost of NNEG Risk
- Complex securitization structures
- Fixed costs covered by smaller loans
- Higher commission rates as smaller loans

I think the HER lifetime loan margin over standard mortgages will tend to be about 1-1.5%. This margin could rise or fall according to the perception of the NNEG risk. A serious property market fall would certainly concentrate the mind.

Non-Negative Equity Guarantee (NNEG) Risk

It is clearly many years before any NNEG claims are likely to occur. This generally makes life harder because insurers and reinsurers are more comfortable with risks over the next 10 years than between years 20 and 40!

The risks are a function of

- House appreciation v. interest rates
- Longevity of life – early death removes the risk
- Move rates to a care facility
- Rates of voluntary move-out for other reasons – many of these are actually health-related issues

House Appreciation

Real NZ house appreciation has fallen into 9 cycles averaging about 8 years each as follows over the last 75 years. These figures assume that there are no further nominal price increases for the remainder of the current cycle, assumed to last for a further 5 years.

Period	No. of Years	Annual Real Growth %	Period	No. of Years	Annual Real Growth %
1936-42	6	4.1	1980-86	6	3.9
1942-50	8	-.9	1986-92	6	1.2
1950-60	10	5.1	1992-01	9	3.1
1960-71	11	.8	2001-11	10	3.3
1971-80	9	.0			

The average net real house appreciation rate for NZ over the last 75 years would be 2.2%. With future inflation likely to be 2.5%, I would have some comfort assuming best-estimate future nominal house appreciation of about 4.5-5% p.a. For reserving purposes, I would think a rate of about 2.5% would be appropriate – thus a margin of 2-2.5%. I would also adjust values through the cycle to a perceived trough – this would mean discounting current values by about 25% on the assumption that we are at cycle-peak. The reserving approach should reflect the cyclical nature of property prices without the reserve fluctuating wildly.

Interest Rates

I think that historical patterns of interest rate movements are less helpful with the Reserve Bank control mechanism now in place. If inflation remains at about 2.5% p.a., I expect variable mortgage interest rates to average about 7.5% and thus HER rates would be about 8.5-9%. A best-estimate margin of 2.5-3% for standard mortgage interest rates over house appreciation is consistent with investor net rental yields of about 3-4%.

For reserving purposes, I would adopt a further interest margin of about 1.5% - making a combined interest/house appreciation risk margin of 3.5-4%.

If inflation were to increase, I would expect interest rates to compensatingly rise and our risk would not increase. We would be similarly protected were there to be a long deflationary period.

A major issue is whether it is better to take variable or fixed interest rates. With a standard mortgage, a fixed interest rate provides a benefit of smoothing out the servicing payments. However, a long fixed term creates inflexibility with substantial early repayment penalties if interest rates have fallen.

With HER, no smoothing of payments is required as all the interest is paid at the end of the term. With a fixed rate, I would anticipate that early repayment through death or move-to-care would not invoke the penalties if interest rates have fallen. But they are likely to remain for the other voluntary move-outs, which I anticipate will be the bulk of the earlier move-outs.

My research for NZ shows a very strong correlation between interest rates and house appreciation, both being determined from inflation. Interest rates have had a cyclical movement but smaller than house appreciation. There was also a delay effect on interest responding to inflation as it rose and then as it fell back. The accumulation of variable interest less house appreciation over a moving 15 year period has been remarkably stable, much more so than with fixed interest rates. I believe there is a risk of a Japanese-style long deflationary period – a substantial fall in interest rates would invoke very high penalties on early VMO and low house appreciation (or falls) would cause NNEG to bite very quickly.

Mortality Rates

I would expect mortality of HER clients to be reasonably in line with population statistics – Norwich and Rating Agencies seem to use annuitant mortality. I would expect a reasonable selection period for 2 reasons. Firstly, very unhealthy lives are probably not looking for loans other than for medical treatment. Secondly, there will be a delay, perhaps averaging 6 months, between death (or other event) occurring and the sale of the home.

Rates of mortality improvement are another unknown and our risks cover numerous decades. Much of the older age mortality improvement is a result of the effect of reduced smoking levels – this will eventually wear off. There has been a lot of talk about miracle drugs greatly extending life-span. I think anyone who puts his hand up for finding such a drug will not get the Nobel Prize – he (or she) will be taken out the back and shot!

For reserving, I use lower than best-estimate mortality rates with higher mortality improvement rates.

Move-to-Care Rates

In NZ, about 60% of females and 40% of males aged 95 are in care or hospital. Clearly, the mortality rates for those in care will be much heavier than those in their homes. Thus, it is easier to consider a net move-to-care additional rate to mortality. If the additional rate is 20% on top of the mortality table, it may be that the mortality rate for those in their homes is 85% of the table and the move-to-care rate the balancing 35% of the mortality table.

It also gets very hard when one starts to consider how joint lives should be treated. Clearly, the probability of the 2 dying or moving into care is very much

lower. However, voluntary rates are likely to increase – as for example on the death of spouse.

For reserving, I would limit the move-to-care addition at older ages some time before NNEG is expected to bite.

The probability of spending one's final years in a care facility is about 30% for a male aged 70 and 50% for a female aged 70. Care currently costs about \$35,000 a year. The government will pay for this if assets are below \$150,000. This does provide an incentive to release equity in the home.

Other Voluntary Move-Out (VMO)

VMO is probably the least known element in the NNEG risk. I think that actually much of VMO reflects the deterioration in health as one ages.

VMO includes move-out resulting from

- Death of spouse and moving to friends or family
- Health failure and moving in with family
- Unable to handle large house and garden
- Need to be close to family or facilities
- Move to retirement village or other protected facility

Other move-out rates are difficult to gauge. However, information is now available from the Information Memorandum of the Norwich Union UK Securitizations. It would seem that the rate rises to about 7% by year 4. Not surprisingly, they do not give us any useful age breakdowns. CHIPS, a Canadian company operating in the HER market for 20 years includes in their accounts an overall figure for repayments on their whole book of 15%. Clearly, a high part of this has to be voluntary move-out. However, the Canadian cold may make life-style changes more necessary.

As voluntary move-out is the largest unknown at this point, I would adopt a much lower voluntary move-out rate for reserving purposes.

UK Actuary HER Working Party 2005

An interesting report was produced by a UK Actuarial Working Party in early 2005. They produced a Technical Supplement included Pricing Considerations. I disagree with their overall survivorship conclusions. I think their mortality rates are probably a bit light but not unreasonable. I think their adjustment factors for move-to-care rates are also too light. Comparison with Australian AIHW results and Judith Davey's figures for care-rates in NZ support this. Their assumption for voluntary move-out is based on "a subjective view rather than firm experience". They assume a voluntary move-out rate of about .5% a year – they obviously were unaware of the Norwich Union's public material showing experience building to about 7% by year 4! In their

survivorship table they have 26.4% of females aged 70 still alive and in their own homes at age 95, about where NNEG is likely to commence. I believe the best-estimate answer is closer to 4%.

Estimating the Potential Home Equity Release Market

The current and projected position in 25 years for 65+ home ownership is as follows :-

	2006	2031
Population of NZ =	4.11m	5.31m
Population Proportion 65+ =	12.5%	21.5%
Population Number 65+ =	.52m	1.15m
Home-ownership Rate =	80%	80%
Average house occupation =	1.50	1.50
Potential home numbers =	.28m	.61m
Average 65+ house value =	\$350,000	\$1,115,000
Total 65+ House Values =	\$100 billion	\$680 billion
Percentage of 65+ taking Home Equity Release =		20%
Average Accumulated Loan to Value Ratio =		30%
Anticipated HER Market in 2031 =		\$40 billion

It is assumed that

- Home-ownership of this group remains at about 80%
- 1.5 average occupation reflects mixture of couples and singles
- average house values above median reflecting better established
- house appreciation at 4.75% p.a. reflecting 2.2% real plus 2.5% inflation
- HER market grows to 20% take-up by 2031
- Average accumulated LVR of 30%

Conclusions

My conclusions are

- With limited savings made for retirement by those that are retired and close to retirement, and limited pension benefits that the state is able to provide, there is a strong need to find additional funds. Until recently there has been a strong attitude that the family home is solely for bequeathing. I believe that HER will increasingly be seen as a sensible alternative option.
- Later generations are also likely to find themselves with a fund shortfall at retirement.
- There are limited options other than HER to solve the funding shortfall.

- Strong pressures to increase retirement age as the proportion of the population over age 65 increases.
- The “matures” and the “baby-boomers” are likely to be better off than later generations through high property appreciation in the past – particularly during the high inflation 1970’s and 80’s.
- HER is growing very strongly in the UK, but did need a period to understand and accept.
- NNEG is an essential element within an HER loan.
- NNEG risk depends upon interest rates v. house appreciation, longevity improvement rates, move-to-care and voluntary move-out rates.
- NNEG is a risk that occurs many years hence and could be quite substantial. Absolutely essential to have a robust approach to recognize elements that affect this risk over time and adjust the reserving appropriately – particularly before strong patterns emerge.
- I believe the future potential for HER is huge.
- I shall be interested to see how the insurance/reinsurance markets react to including NNEG in their product ranges.