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A New Loan Structure For Elderly: Adopting Reverse Mortgage Plan In Malaysia

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Abstract

Reverse mortgage is a type of loan where the homeowner or borrower is allowed to borrow money from lenders against the equity accumulated in the home as long as the borrower stays in the house. The reverse mortgage can help the elderly who face cash-poor, but house-rich to survive. The loan will be given either by lump sum or constant monthly. The borrower has to repay the lender together with interest if he/she dies, sells the house, or moves out of the house. The study aims to analyze the reverse mortgage plan in other countries and identify the suitable reverse mortgage parameters, introduce a reverse mortgage plan as a new loan product for elderly in Malaysia. The result achieved will be proposed as the Malaysian reverse mortgage to aid retirees to add their income during their old days.

INTRODUCTION

Retirement income is the earned income that elderly receive once it is compulsory for them to retire, usually in the form of pension or contributions in the Employee Provident Fund (EPF). Apart from retirement fund, Bishop and Shan (2008) suggested that one of the largest non-pension wealth components for retirees is housing wealth. The Malaysian population is getting old since the number of elderly aged 60 years and above is rising (Sherina, Rampal, & Mustaqim, 2004). Caraher (2000) stated that retirees cannot meet the needs of life beyond retirement. If they were to totally rely on their Employee Provident Fund (EPF) or their monthly pension fund, especially with the rising cost of living. Currently, there is no loans product in Malaysia that is offered to elderly since they are no longer working and have no sufficient income to meet their obligations. The combination of retirement income's inadequacy and weaken social security left most of Malaysia's elderly population to rely on family support for old-age provision. In this study, we aim to introduce a reverse mortgage plan as a new loan product in Malaysia. To achieve this target, we need to analyze the reverse mortgage plan in other countries and recognize the parameters for reverse mortgage plan to be implemented based on the Malaysian scenario.

Reverse Mortgage

According to Cho *et al* (2004), while still remain in their homes, retirees can liquidize their housing wealth via reverse mortgage. Retirees as the borrowers of reverse mortgage receive money from lenders, which is in contrast with traditional mortgage whereby borrowers are required monthly installments until their loans are

fully settled. Without the need to move out of the house, reverse mortgage allows elderly to stay in their home and use home conversion program to add extra income after their retirement. There are several requirements that have to be met before applying for reverse mortgage and that includes the age of the borrower to be at least 60 years old for private sector's retirees and government's pensioners, the borrowers must possess the property or house that the reverse mortgage is tied to and the house is their primary residence. Besides, the borrowers must not have any bad records of federal debts and should undergo counselling to discuss about the eligibility requirements. Usually, the mode of payment for reverse mortgages may take any of these options, which are lump sum, annuity, line of credit or the blend of both. The settlement of the loan with interest must only be made upon the death of borrower, the sale of the house of the borrower or the borrower move to another place.

The Current Reverse Mortgage Products

Reverse mortgage is not a new financial product for many countries especially in the United States, Australia, Canada, United Kingdom, India, Korea, and Singapore. In the UK, the plan is called Equity Withdrawal Mortgage and Lifetime mortgage while in Korea, it is called the Korean reverse mortgages. In the United States, the Home Equity Conversion Mortgage (HECM) is the predominant reverse mortgage is the Home Equity Conversion Mortgage (HECM). HECM is insured by the US government, via the Federal Housing Administration. To encourage the development of the equity release market, the US government insures mortgages with a No-Negative Equity Guarantee. Based on HUD, there are a few uses of HECM including to settle the current traditional mortgage product, make the current residence as home equity for a reverse mortgage after the mortgage has been fully paid, to refinance the current reverse mortgage or to get a reverse mortgage loan for a new house.

For HECM, it is the most common type of reverse mortgage that is insured by the Federal Housing Administration (FHA). HECM also establishing 90% of the U.S. reverse mortgage market (Shan, 2009). HECM program is the most popular and can be considered as the safest program in United States compared to the other two other major reverse mortgage programs in the US market which are Fannies Mae's Home Keeper program and Financial Freedom's Cash Account Advantage Plan. According to Chen *et al* (2010), reverse mortgages has been widely accessible in United States since HECM program been introduced by the Department of Housing and Urban Development (HUD) in 1989. Meanwhile, Korean Reverse Mortgage is used in Korea and Korean Government has launched this program for the first time in July 2007 (Ma & Deng, 2006).

Davidoff *et al* (2014) stated that the costs incurred during closing are mortgage insurance premium (MIP), origination fees, closing costs, and monthly house maintenance fees. MIP in HECM is used in case the homeowner is incapable to repay his debt while financial institutions that offer HECM need to cover the losses. Financial institutions that offer this product is protected by FHA, thus they do not bear much loss. According to Bansal and Ellis (2014), the origination fee is charged on a loan at 2.25% on the first \$2000,000 of the MCA and plus 1% thereafter with a limit between \$2,500 and \$6,000 set by Federal Housing Administration (FHA) based on the MCA. In HECM, at loan origination, the borrowers need to pay an upfront Mortgage Insurance Premium (MIP) of 2% of the maximum mortgage amount and the borrowers pay 0.5% of the loan balance for an annual insurance premium (Yang, 2011). For KRM, the upfront MIP and the annual rate of 0.5% of the loan's outstanding balance is same with HECM program and the reverse mortgage program is guaranteed by The Korean Housing Finance Corporation (Ma & Deng, 2006).

In order to find the present value of expected losses equal to the expected insurance premium, Szymanoski,(1994) stated that the loan to value (LTV) of HECM is calculated using the trial and error method or expected survival rate but in Korea, Ma and Cho (2004) use the borrower's age to find their life expectancies. According to Case and Schnare (1994), the older borrower tends to get higher the loan entitlement as they are expected to have shorter remaining life expectancies than younger borrowers in order to counterpart the total payment made throughout the loan.

Benefits of Reverse Mortgage

According to Caplin (2000), the reverse mortgage is more advantageous than standard home equity loans, in terms of borrower's income whereby the family of elderly with low income is not eligible to apply. According to Kang (2010), the main benefit for the reverse mortgage borrowers is they are able to exchange their home equity with cash but they are still able to live in their property. Furthermore, the economic status of the elderly who face cash poor, but house rich can also be maintained and enhanced by proposing reverse mortgage (Chou *et al*, 2006 and Kang, 2010). According to Tsay *et al* (2014), reverse mortgages are typically non-recourse loans and a lender can only claim repayment of the principle and interest from the proceeds of selling the collateralized home. Based on HUD, there are a few uses of HECM including to settle the current traditional

mortgage product, make the current residence as home equity for a reverse mortgage after the mortgage has been fully paid, to refinance the current reverse mortgage or to get a reverse mortgage loan for a new house.

The Risks To Lenders

Reverse mortgage represents a number of risks to both the borrowers and the lenders. Lee *et al* (2015) stated that the risks that lenders have to bear include crossover risk, housing price depreciation risk, and interest rate factors. As the principal advances and the accumulation of interest on the loan increase, cross over risk occur when the house price depreciates and life expectancy of borrower improved. It represents the mortgage credit in reverse mortgage markets. By right, the maximum repayment amount should not exceed the sales proceeds of the house but in crossover risk, the opposite event occurs. Losses due to insurance claims are expected to occur in the event that the borrower’s total outstanding loan balance exceeds the appreciated value of the property at the time the loan is due and payable. According to Bansal and Ellis (2014), in HECM, mortgage insurance premium (MIP) is imposed to protect FHA against losses if homeowner is incapable to pay off the borrowed amount. When the reverse mortgage introduced in Korea, the Korean reverse mortgage adopted the same insurance premium structure as that in the U.S HECM program as HECM program has been tested and successfully improved over times.

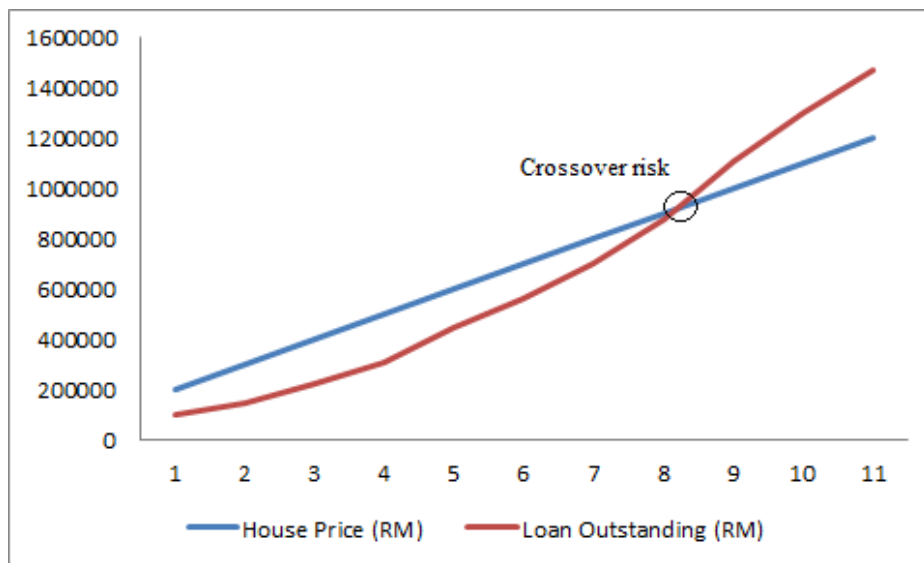


Fig. 1.
The crossover risk

METHODOLOGY

The main purpose of this study is to introduce a reverse mortgage plan as a new loan product for elderly in Malaysia. Based on the formula for HECM and KRM, we will develop a reverse mortgage program that uses the actuarial structure based on the forecasted value of interest rate and the growth of the future house price, the incurred loan cost and prediction on loan termination. To complete this research, the data of house price growth rate, average house price, market interest rate, age, gender and base lending rate will be used to determine the suitable parameters for the Malaysian environment.

HECM and KRM are calculated as follows:

Under the HECM Program

Constant Monthly Reverse Mortgage Payment:

$$PMT_C^{HECM} = \frac{\text{Net Principal Limit}}{\frac{1 - (1 + \text{Monthly Compounding Rate})^{-k}}{\text{Monthly Compounding Rate}}} \tag{1}$$

Where:

Net Principal Limit = (Principal Limit Factor x Average House Price) – Mortgage Insurance Premium (MIP) – Closing Cost

Closing cost = 1.5% of the initial house price

$$\text{Monthly compounding rate} = \frac{\text{Expected Rate } i - \text{Periodic MIP}}{12}$$

$$k = (\text{Max Age} - \text{Borrower's Age}) \times 12$$

For lump Sum reverse mortgage payment:

$$LSUM^{HECM} = PMT_C^{HECM} \times \left(\frac{(1 + \text{Monthly Compounding Rate})^k - 1}{\text{Monthly Compounding Rate}} \right)$$

Under the KRM Program

For Lump Sum Payment:

(2)

$$LSUM^{KRM} = H_0 \prod_{t=1}^N [(1 + g_t)/(1 + r_t)]$$

Where H_0 = current house price ($t = 0$)

N = remaining of borrower's expected life

g = average growth rate of housing price at time t

r = average nominal interest rate at time t

Constant Monthly Reverse Mortgage Payment:

$$PMT_C^{KRM} = \frac{LSUM^{KRM}}{\sum_{t=0}^{N-1} \left(\frac{1}{1+i} \right)^t} \tag{3}$$

Where i = annuity rate

$\sum_{t=0}^{N-1} \left(\frac{1}{1+i} \right)^t$ = cumulative discount factor (CDF)

In equation (2), the net discount ratio is the non-linear relationship between house price appreciation and discount factor, $(1+g_t)/(1+r_t)$. It is a main concern to lenders if the house growth rate increases slower than the interest rate. As the loan become due, insurance claim losses happen when the borrower's accumulated loan balance surpasses the house appreciation values. To avoid crossover risk, MIP is used to cover for all losses that might occur, including if the house price depreciates. In HECM and KRM, the MIP consists of 2% of the loan entitlement for the upfront cost and 0.5% yearly based on amount of loan outstanding. Thus, we propose below loan structure in Malaysia where we include a net single premium to be charged to borrowers as the reverse mortgage premium in Malaysia is assumed to be insured by the lenders themselves.

Proposed loan structure of RM Program in Malaysia

$$LA (1+i)^n = H_0(1+g)^n$$

where LA= Net Principal Amount + Insurance

$P[LA (1+i)^n > H_0 (1+g)^n]$ is the probability of the total outstanding loan to exceed the appreciating house price at the time of loan termination.

Insurance Net Single Premium (NSP) is defined as the present value of the future death benefit, which will be charged as the MIP.

$$NSP : A^1_{x:n}$$

$$A^1_{x:n} = \sum_{k=0}^{nm-1} v^{(k+1)m} \quad {}_{k/m}p_x \quad {}_{1/m}q_{(x+k)/m}$$

where by :

k : the multiple of $1/m$ beginning $[k/m, (k+1)/m]$ within which the policy age $T-x$ at death is to lie.

n : number of years

m :mode of payment

x : borrower's age

A reasonable insurance premium structure is vital for lenders to provide borrowers with a fixed insurance premium to cover any losses pertaining to the difference between the total outstanding loan and the current house value. The proposed method is achievable to us, considering the Malaysian Base Lending Rate (BLR) and

average house growth rate that can move in any direction. The risk to lenders has to be minimized while still assisting the elderly to obtain additional retirement income for their golden years.

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