Introduction to
Korean Reverse Mortgage

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Section 1 Background information on Korean aging society
According to the United Nation’s definition* regarding aging population, Korea has already reached “aging society” in 2000. Expectations show that Korea will reach “aged society” by 2018 and “super-aged society” by 2026.

*If above 7% of the total population is 65 years old or older, it is called “aging society”. If above 14%, it is called “aged society” and above 20%, “super-aged society” consecutively.

-Korean society is aging at the fastest pace among all countries in the world.

### Aging Population in Korea

<table>
<thead>
<tr>
<th>Country</th>
<th>Year of reaching</th>
<th>Year required to reach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aging society</td>
<td>Aged Society</td>
</tr>
<tr>
<td>Japan</td>
<td>1970</td>
<td>1994</td>
</tr>
<tr>
<td>France</td>
<td>1864</td>
<td>1979</td>
</tr>
<tr>
<td>Germany</td>
<td>1932</td>
<td>1972</td>
</tr>
<tr>
<td>Italy</td>
<td>1927</td>
<td>1988</td>
</tr>
<tr>
<td>USA</td>
<td>1942</td>
<td>2015</td>
</tr>
<tr>
<td>Korea</td>
<td>2000</td>
<td>2018</td>
</tr>
</tbody>
</table>

(Source: UN)
1-2. The Circumstances of Retirement in Korea

◈ The baby boomer of Korea was born in 1955 ~ 1963
  ❖ Japan: 1947 ~ 1949, (about 6.8million people)
  ❖ U.S: 1946 ~ 1964, (about 77million people)

◈ An average baby boomer in Korea
  ❖ About 7.1 million people = 15% of total population
  ❖ Retirement in 2010 ~ 2018 (about 55-year-old)
  ❖ Insufficient retirement preparation
  ❖ The ratio of real estate to their whole asset is avg. 83%

The ratio of real estate to their whole asset is avg. 83%

\[
\text{Real Estate (275)} + \text{Financial Assets (45)} + \text{Etc (10)} = 330 \\
\text{(million KRW)}
\]
1-2. The Circumstances of Retirement in Korea

Life expectancy is extended

(Source: Statistics Korea, 2012)
Section 2: Main Characteristics in Korean Reverse Mortgage (KRM)
Program for elderly Koreans, who are homeowners with inadequate cash flow for elderly years, to receive monthly RM payments by collateralizing their house.

KRM was launched by KHFC in July, 2007
2-2. Basic Features

The HECM in the U.S. has these three features:

- Non-Recourse
- Lifetime Tenure
- No repayments during the term

- Borrower retains title to home
- No income verification
- Borrower may choose loan index rates
- Reverse mortgage guarantee premiums (MGP) are “financed”
- MGP are not refundable except cancelation period
2-2. Basic Features (cont’d)

**Loan Interest Rate**

1. 3month CD Rate + 1.1% (3-month adjustable rate)
2. COFIX Rate + 0.85% (6-month adjustable rate)

**Mortgage Guarantee Premium (MGP)**

1. Up-front Guarantee Premium = Property Value X 1.5%
   - Charged once when first monthly payment is made
2. Annual Guarantee Premium = Loan Balance X 0.75%

**Cancellation Period**

- Borrower may cancel the contract by repaying all loan balance
- Cancellation Period: 30 days after the day first monthly payment is made
- MGP will be refunded
2-3. Eligibility

**Borrower Eligibility**

- Homeowner must be 60 years old and above
  
  => This rule will be eased to attract more potential borrowers from homeowners to **one of married couples** in April 2016

- All borrowers must complete counseling before closing

- Collateral property must be the borrower’s primary residence

- Borrower must not have any defection on borrower’s credit information

**Property Eligibility**

- Eligible Properties: Detached House / Multi-Units / Apartment

- House price must be less than ₩900 million

- Collateral property must not have mortgages or any infringement on homeownership
2-4. Loan Termination

1. Death of both borrower and his/her Spouse
   - Death of the borrower
     → Spouse can take over and stay under the contract until his/her death

2. Loss of ownership of the house
   - Selling or transferring ownership of the house
   - Demolition by fire or natural disaster

3. The borrower has not been residing in the house
   - The borrower and his/her spouse has not resided for more than one year
   - But, hospitalization or long-term medical treatment is allowed

4. Breach of Contract
   - Other Purposes of Usage of house
2-5. Repayment

**Repayment**

- The total repayment amount of RM is the minimum amount of total loan balance or the property value.
- Partial repayment can be happened at anytime.

1. **Direct Repayment**
   # Borrower can quit RM by repaying loan balance at anytime

2. **Repayment by sale of Property**
   # Repaid by sale of property at the death of both borrower and spouse
   # This repayment may occur when loan termination causes are happened

| Value of property < Loan balance | = Shortfall not claimed against the program user (inheritor) |
| Value of property > Loan balance | = Balance taken by the program user (inheritor) |
2-6. Counseling

**Counseling Requirements**

- All borrower and Spouse must be counseled regardless of location of property
- Counseling is conducted by special elderly employers hired by HF
- No counseling fee

**Topics Covered in Counseling**

- Amount of Monthly Payment
- Interest Rate
- Collection of Reverse Mortgage Guarantee Premium (MGP)
- Cancelation period
- Causes of Loan Termination
- Ways of repayment
2-7. Payment Plan & Payment Type

### Payment Plans

1. **Tenure Payment**
   - A fixed amount of monthly payment until loan termination

2. **Modified Tenure Payment**
   - Lump-sum withdrawals are allowed within a certain limit (within 50% of the Net Principle Limit)

### 50% of NPL

1. **General Purposes**
   - (Medical, ceremonial and house repair expenses, etc)

2. **Other Loan Repayment Purposes**

### Payment Types

1. **Fixed**
   - Fixed throughout their lives

2. **Decreasing**
   - Decreased by 3% each year

3. **Increasing**
   - Increase by 3% each year

4. **Two-Phases**
   - More PMT first 10 years, then decreased
Section 3 : Risk Factors in Korean Reverse Mortgage (KRM)
3-1. Principle of Equivalence

The method that the actuarial model calculates monthly payments
- The present value of guarantee fees equals the present value of expected loss

- Home Price Appreciation Rate
- Expected Long-term Interest Rate
- Life Expectancy
- Other Variables

Principle of Equivalence

Present value of Expenditure

Monthly Payments

Present value of Expected Income
3-2. Cross-Over

**Cross-Over**

- Cross-Over means the time which loan balance are equal to house price
- Loss\(_{(t)}\) = Loan Balance\(_{(t)}\) – House Price\(_{(t)}\)

- \([t_0]\) is Cross-over
- If loan is terminated at \([t_1]\), loss at that time is :
  \[LB_{(1)} - H_{(1)}\]
3-3. House Price Risk

House Price Risk on Reverse Mortgage

- Due to the economic recession or weak domestic demand, Appreciation of house price may fall short of House price growth rate assumed in Actuarial Model

- Cross-over is moved from \([t_0]\) to \([t_0']\) by lower growth rate than assumption

- If loan is terminated at \([t_1]\), loss will increase:

\[
\text{LB}_{(1)} - H_{(1)} \rightarrow \text{LB}_{(1)} - H'_{(1)}
\]
3-4. Interest Rate Risk

**Interest Rate Risk on Reverse Mortgage**

- Loan balance may increase rapidly by unexpected higher interest rate than assumption in actuarial model

- Cross-over is moved from $[t_0]$ to $[t_0']$ by rapid growth of loan balance

- If loan is terminated at $[t_1]$, loss will increase:

\[
LB(1) - H(1) \rightarrow LB'(1) - H(1)
\]
3-5. Longevity Risk

**Longevity Risk on Reverse Mortgage**

- Due to medical or healthcare improvements, borrower may live longer than assumption in actuarial model

- Cross-over is not affected by longevity, but the time of loan termination will be delayed

- Comparing loss at $[t_1]$ and $[t_2]$, loss will increase
3-6. Other Risks

**Property Sale Rate**
- By the way of property sale after loan termination, sale rate may differ
- Lower property sale rate causes increase of shortfall

**Move-out Rate**
- Loan may be terminated not by death of borrower but by move and voluntary repayment
- Lower move-out of borrower than assumption may have a similar effect with longevity
Section 4 : Benefits and Supply
## 4-1. Benefits

<table>
<thead>
<tr>
<th>1. Non-recourse</th>
<th>• Never owe more than the loan balance or the value of property</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Lifetime residence &amp; payment</td>
<td>• Not only borrower but also his/her spouse</td>
</tr>
<tr>
<td>3. Government guarantee</td>
<td>• There is no risk of payment interruption</td>
</tr>
<tr>
<td>4. Low-interest rate</td>
<td>• Lower than a regular mortgage loan</td>
</tr>
<tr>
<td>5. Low initial costs</td>
<td>• Tax exemption(registration, education, special tax)</td>
</tr>
<tr>
<td>6. Tax incentives</td>
<td>• 25% discount on property tax</td>
</tr>
<tr>
<td>7. Protection of borrowers</td>
<td>• Attachment (seize) of property is not allowed</td>
</tr>
</tbody>
</table>
4-2. Supply and Monthly payment

Supply of RM has drastically increased every year

**Numbers of Guarantees**

(End of Year, 2015)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Guarantees</th>
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<tbody>
<tr>
<td>2007</td>
<td>515</td>
</tr>
<tr>
<td>2008</td>
<td>695</td>
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<tr>
<td>2009</td>
<td>1,124</td>
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<tr>
<td>2010</td>
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<td>2011</td>
<td>2,936</td>
</tr>
<tr>
<td>2012</td>
<td>5,013</td>
</tr>
<tr>
<td>2013</td>
<td>5,296</td>
</tr>
<tr>
<td>2014</td>
<td>5,039</td>
</tr>
<tr>
<td>2015</td>
<td>6,486</td>
</tr>
</tbody>
</table>

**Monthly Payment**

(House Price: KRW 100million, Monthly Payment: KRW 10 thousand)

<table>
<thead>
<tr>
<th>Age</th>
<th>Price</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>391</td>
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</table>

Source: KHFC
Thank you for listening

Q & A