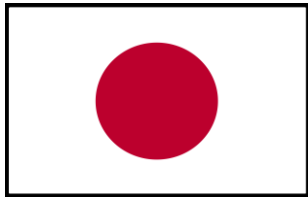




Strengthening Reverse Mortgage Development: U.S. Housing Finance Innovations for the Elderly

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Presentation agenda

1. Senior Housing Context in Japan & the United States
2. Comparing Reverse Mortgage Insurance Programs
3. Optimizing Reverse Mortgage Design based on U.S. Experience
4. Evaluating Reverse Mortgage Risk Management
5. Challenges & Opportunities to Strengthen Reverse Mortgages
6. Conclusion



HOUSING AND REVERSE MORTGAGE CONTEXTS



Senior housing context in Japan and the United States

Elderly Demographics (65+ years)

- 24.6% in U.S.A.
- 41.5% in Japan

Life Expectancy

- Japan has highest life expectancy in world
- 83.7 years in Japan
- 78.8 years in U.S.A.

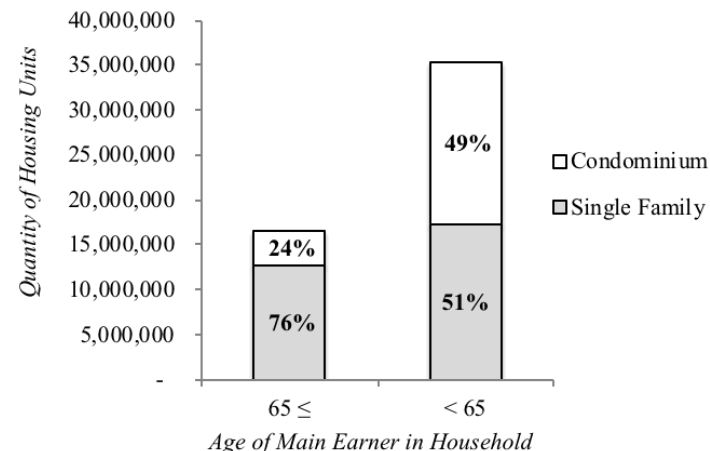
	Female	Male	Total
United States	81.2	76.4	78.8
Japan	86.8	80.5	83.7

Elderly Household Structure

- 65% are one-person households in U.S.A.
- 75% are two-person households in Japan

Senior Homeownership

- Four-fifths reside in owner-occupied housing



Median Home Value

- \$250,000 in U.S. versus \$295,000 in Japan

Property Price Trends

- Depreciation in Japan since 1980s (-3.53%);
- Appreciation in U.S.A. post-2008 (2.1%)



Sources: MIAC, 2017; 2015b; 2016b; Census, 2016; OECD, 2016

Japan's reverse mortgage market offers products with a range of different characteristics

Japanese Reverse Mortgage Trends by Lender Type, 2011-2017

Lender	Age	Core Spending Restrictions	Interest Rate	Collateral	Loan Range	LTV	Disbursement	Repayment
Public Sector	65+	Living needs, Medical expenses & Renovations	Fixed	Land & Property	¥15 million ≤	≤ 70% for Detached; ≤ 50% for Condo	Monthly, annuity & Lump sum	Lump Sum
Major Bank	57.5+	Security deposit for retirement rental, Home construction Purchase & Renovations	Adj.	Property	¥10 - ¥200 million	50 or 60% Max., Min. property value ¥40 million average		Lump sum & Monthly
Local Bank	55-80	Unrestricted	Adj.	Deposit & Property	¥5 - ¥100 million	≤70%		Monthly

Sources: Kobayashi et al., 2017b; Mitchell and Piggot, 2011

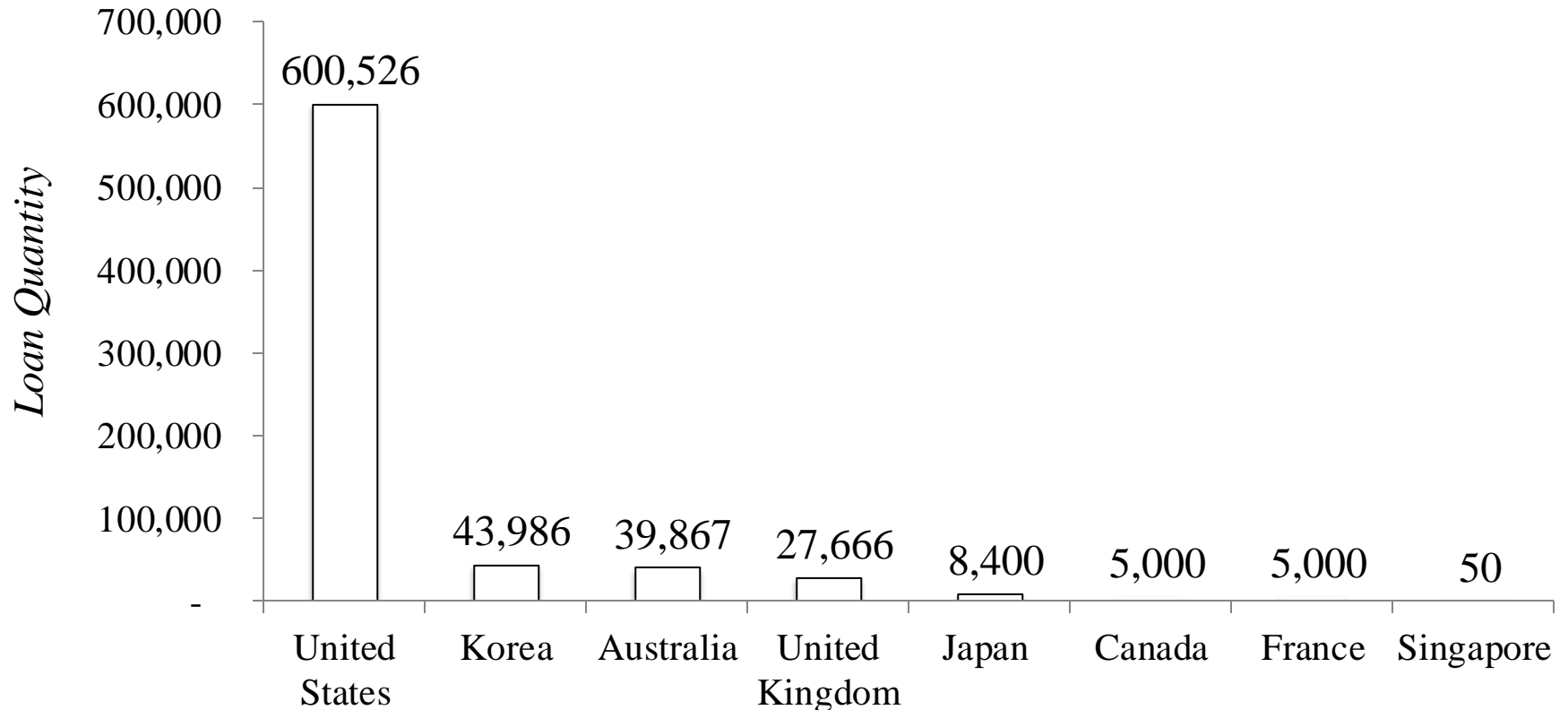


REVERSE MORTGAGE INSURANCE PROGRAMS



Reverse mortgage markets with public sector support tend to have higher volumes

Approximating Active Reverse Mortgages throughout the World, 2010-2016



Sources: Author's calculation and estimation



Government mortgage insurance programs have similar characteristics, despite different markets

Comparing Reverse Mortgage Insurance Programs, 2017

	JHF	FHA
Eligibility	60+ homeowners	62+ homeowners
Borrower Payment Modalities	Lump sum	Lump sum, Line of credit, Term payment, Tenure payment, Hybrid (2).
Consumer Protection	Financial institution counseling	3 rd party, HUD-approved counseling
Repayment	Both, recurring interest rate monthly; interest rate upon morbidity	Principal and interest repayment upon morbidity, mobility or technical default
Borrower compensation liability	Both, recourse at regular premium; non-recourse at higher premium	Non-recourse
Participating lenders	30 as of May 2017	840 as of March 2017
Securitization	None	HMBS through Ginnie Mae

Sources: JHF, 2017; FHA, 2016; 2017c

Government mortgage insurance premiums or MIPs differ base upon market risk assessments

Premium Structures* for Reverse Mortgage Insurance Programs, 2017

Before 2 October 2017

FHA Principal Limit	Upfront	Annual
$\leq 60\%$	0.50%	1.25%
$60\% <$	2.50%	1.25%



As of 2 October 2017

FHA	Upfront	Annual
All	2.00%	0.50%

*Reviewed ad hoc by FHA

JHF Appraised Collateral Value	Annual, Recourse	Annual, Non-Recourse
$\leq 50\%$	0.39%	0.49%
$50\% \leq 60\%$	0.88%	1.01%

*Reviewed annually by JHF



The FHA Mutual Mortgage Insurance (MMI) Fund has experienced economic value fluctuations.

MMI Fund Portfolio, HECM and Forward Mortgage Accounts, 2009-2016

Fiscal Year	HECM Economic Value ^a (\$)		Forward Mortgage Economic Value ^a (\$)	Fund Transfers ^b
2009	909,000,000		2,732,000,000	
2010	-503,000,000	←	5,160,000,000	\$1.748 billion transfer in May 2010 to <i>HECM financing account</i> from <i>forward mortgages financing account</i> to cover expected net cost of HECM FY 2009 book of business ^c
2011	1,358,000,000	←	1,193,000,000	\$535 million transfer in May 2011 to <i>HECM financing account</i> from <i>forward mortgages financing account</i> to cover the increase in expected HECM losses ^c
2012	-2,799,000,000		-13,478,000,000	
2013	6,540,000,000	←	-7,871,000,000	\$4.26 billion transfer to <i>HECM financing account</i> from <i>forward mortgages financing account</i> ^c
2014	-1,166,000,000	→	5,930,000,000	\$770 million transfer to <i>forward mortgages financing account</i> from the <i>HECM financing account</i> . Without the transfer, <i>forward mortgages account</i> economic value would have been \$2.68 billion lower than the FY 2013 estimate ^d
2015	6,778,000,000		17,044,000,000	
2016	-7,721,000,000		35,270,000,000	



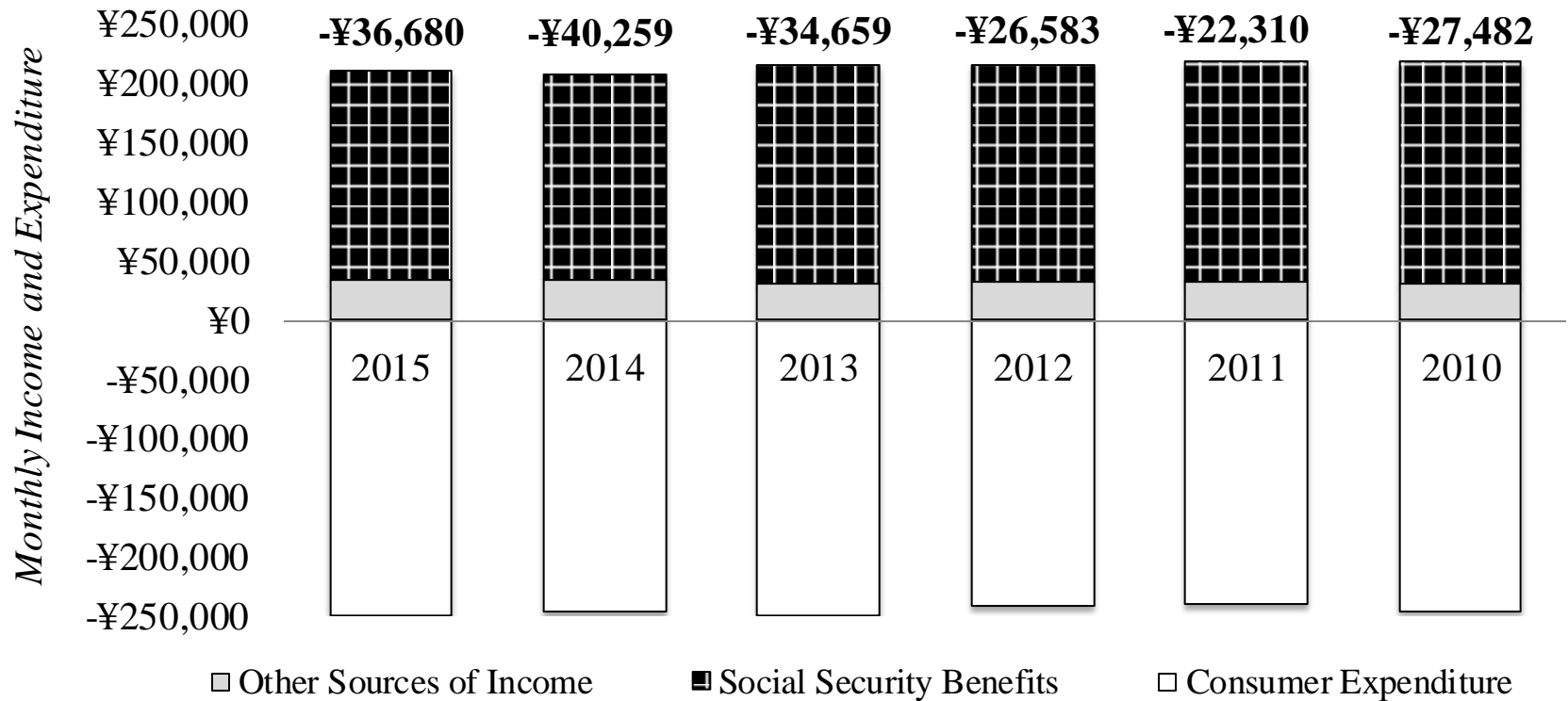
Source: Szymanoski et al., 2017

REVERSE MORTGAGE DESIGN



Elderly Japanese households consumption needs outstrip income

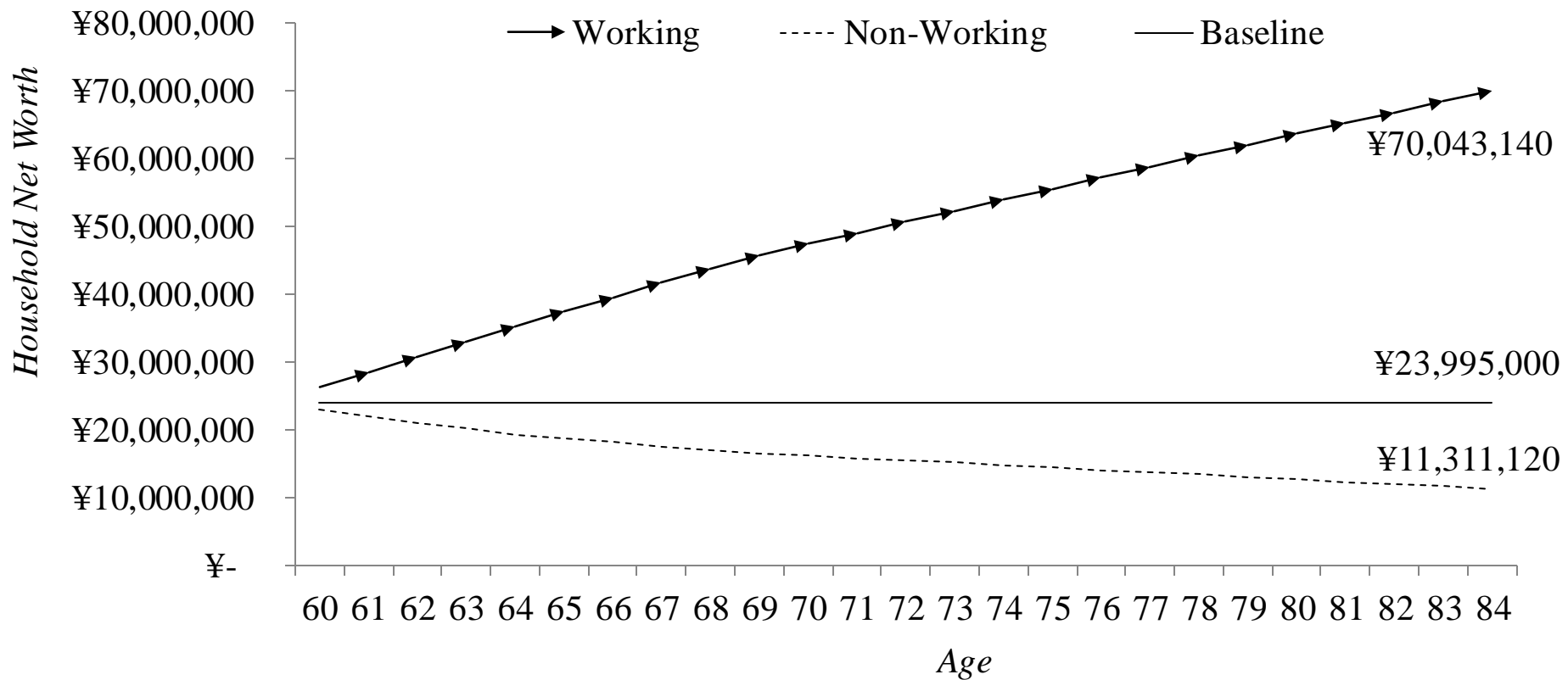
Monthly Income Deficit for Non-Working Elderly Households, Two or More Persons, 2010-2015



Source: MIAC, 2016b

Japanese working households have a financial surplus while non-working confront diminishing assets

Median Income, Saving and Spending for Elderly Working and Non-Working Households, Two or More Persons, 2015



Source: MIAC, 2016b



The median elderly and lower-middle income households contend with living expenses outstripping their income

Annual Income for Lower- and Moderate- Income Japanese Households, 2013

Annual Income	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	75 years and older	Total
≤ ¥1 million	52,600	71,900	46,000	12,600	9,800	192,900
¥1 to ¥2 million	181,800	287,300	182,700	50,500	30,600	732,900
¥2 to ¥3 million	276,600	471,900	272,900	87,400	48,000	1,156,800
¥3 to ¥4 million	301,800	485,900	271,000	86,500	45,500	1,190,700
¥4 to ¥5 million	319,600	384,800	202,000	69,800	40,500	1,016,700

Source: MIAC, 2015b



Housing constitutes significant component of Japanese household's wealth

Median Home Value and Equity for Elderly in Japan, 2015

Annual Income	50 to 59 years	60 to 69 years	65 years and over	70 years and over
<i>Home Value</i>	¥30,428,000	¥36,505,000	¥37,136,000	¥37,063,000
Land Component	¥13,166,000	¥17,194,000	¥18,359,000	¥18,149,000
Structure Component	¥17,262,000	¥19,311,000	¥18,776,000	¥18,914,000
<i>Home Equity</i>	70.7%	90.1%		94.8%

- Property depreciation in Japan hinders household property worth
- Median Japanese senior household has ¥50 million in savings



Sources: MIAC, 2016c; 2016b

Local banks are positioned as better positioned to meet median senior household living expenses

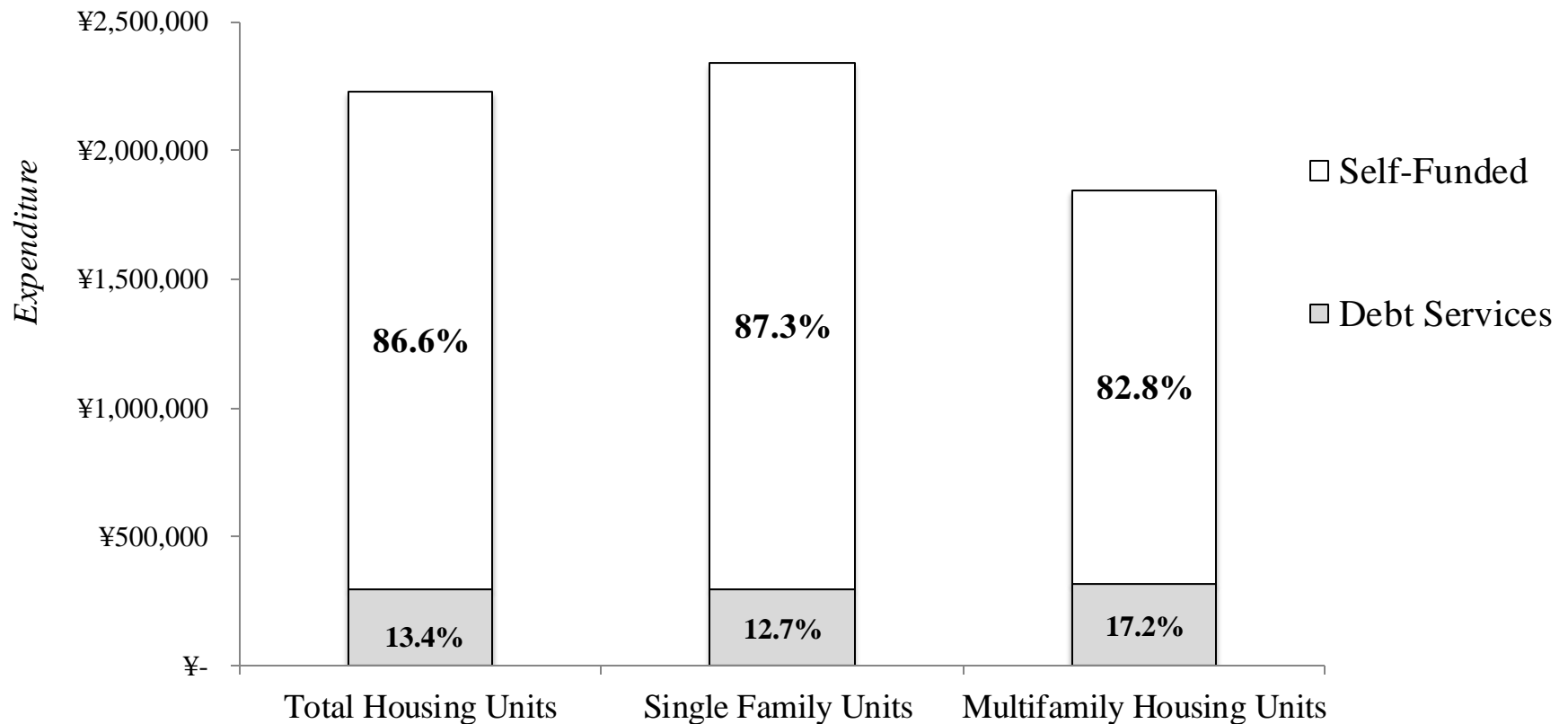
Reverse Mortgage Products to Satisfy Median Senior Household Living Expenses in Japan

Lender Type	Maximum Loan Value for Median Senior Household	Is the Median Borrower Eligible?
Government	¥12,035,800 for 70% LTV Detached, ¥8,222,751 for 50% LTV Condo	No , needs ¥15 million loan minimum
Major Bank	¥16,445,503 for 50% LTV Detached, ¥19,734,603 for 60% LTV Detached	No , needs ¥40 million minimum property valuation
Local Bank	¥12,035,800 for 50% LTV Detached	Yes , meets median senior household living expense needs

- Reverse mortgages in Japan can accommodate consumption needs

Reverse mortgages can suit elderly Japanese households needs in upgrading their housing stock

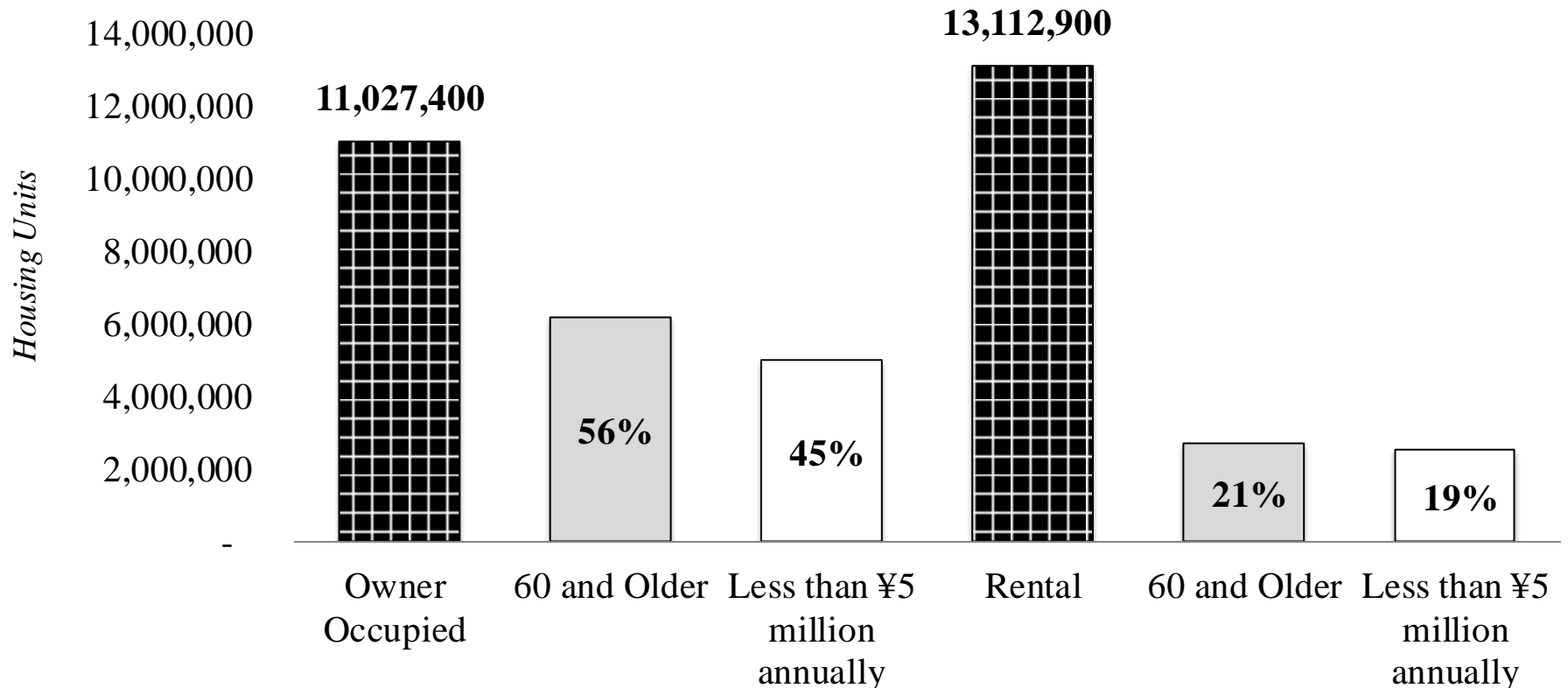
Average Expenditures for Urban Housing Renovations, 2012-2016



Source: MLIT, 2016a

Particularly, there is substantial need towards configuring housing for the elderly

Housing Not Configured for the Elderly by Tenure, Age and Income in Japan, 2013



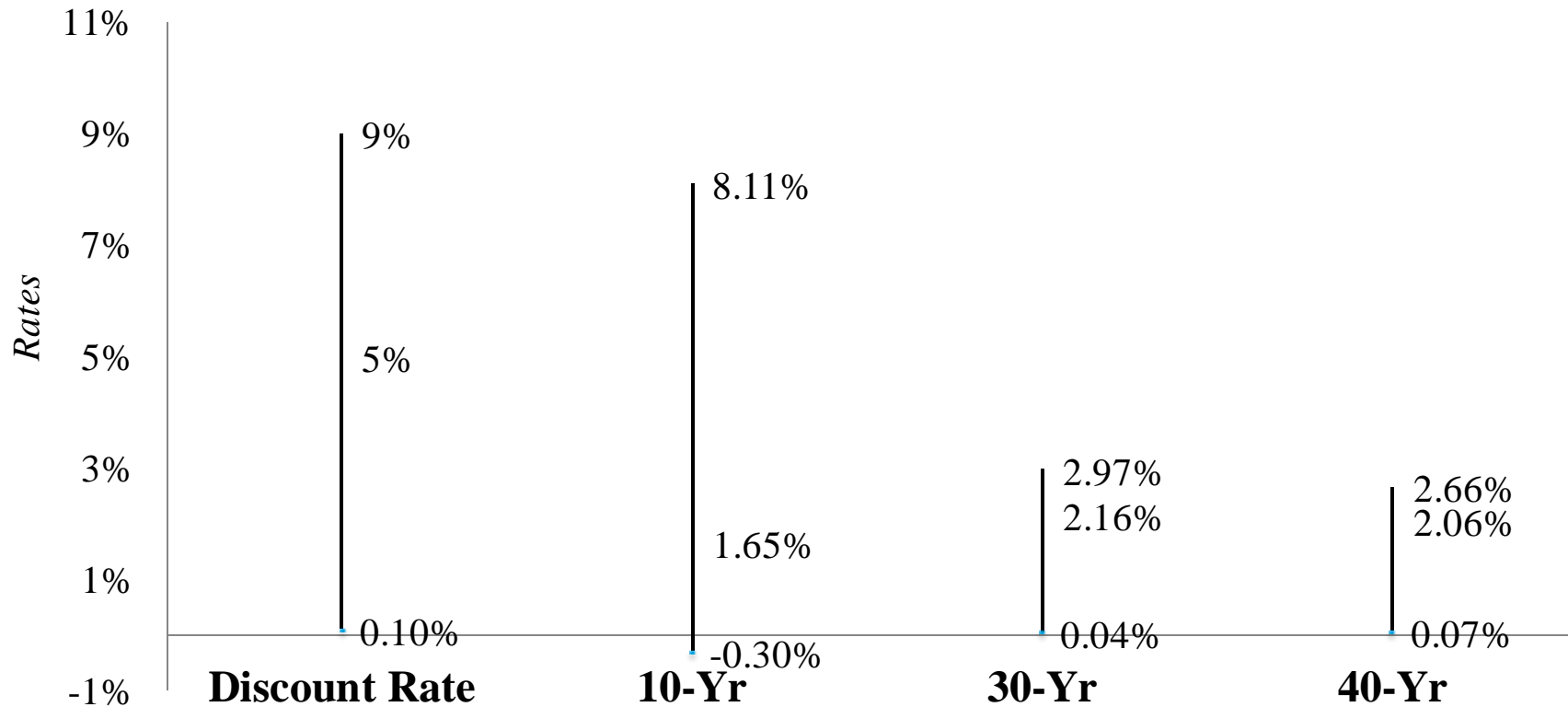
Source: MLIT, 2016a

RISK MANAGEMENT



Interest rate fluctuations are critical to reverse mortgage risk management

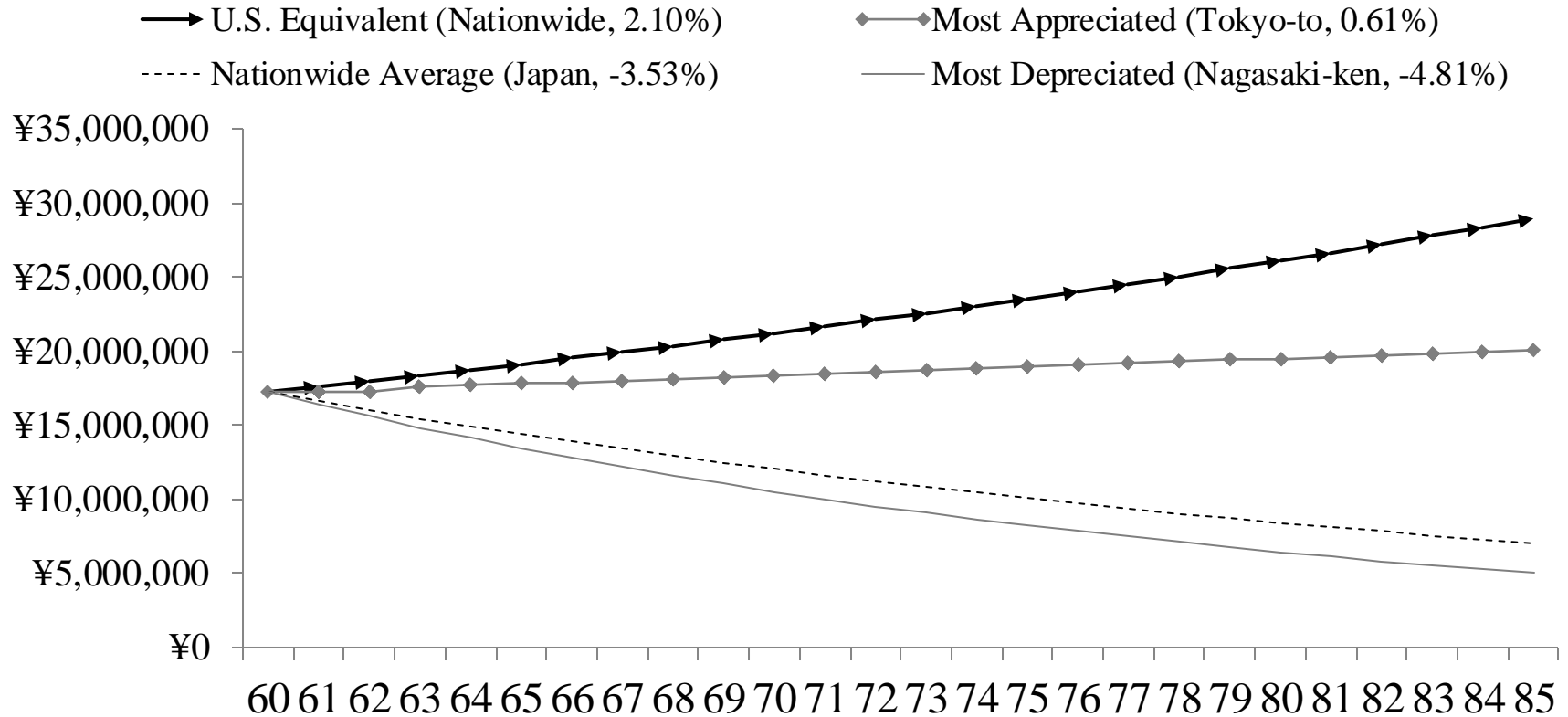
High, Median and Low of Interest Rates for Japanese Government Bonds (JGBs), 1950-2017



Source: BoJ, 1950-2017

Depreciating property prices in Japanese land market expedite cross-over risk

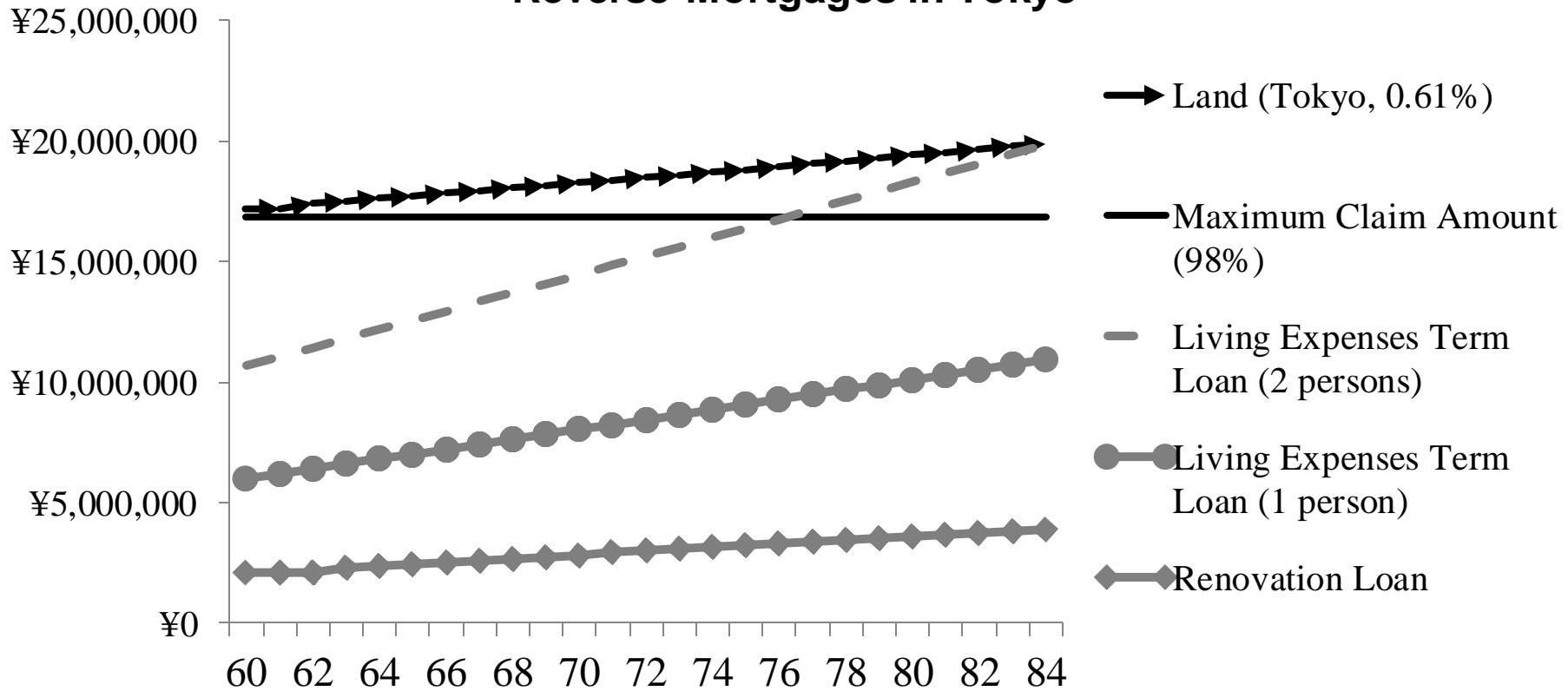
Residential Land Appreciation and Depreciation Trends for Japanese Senior Homeowners



Source: MLIT, 2016b

Reverse mortgages in Tokyo land market function for one-person living expenses and renovation loans

Crossover Risk for Multipurpose Reverse Mortgages in Tokyo

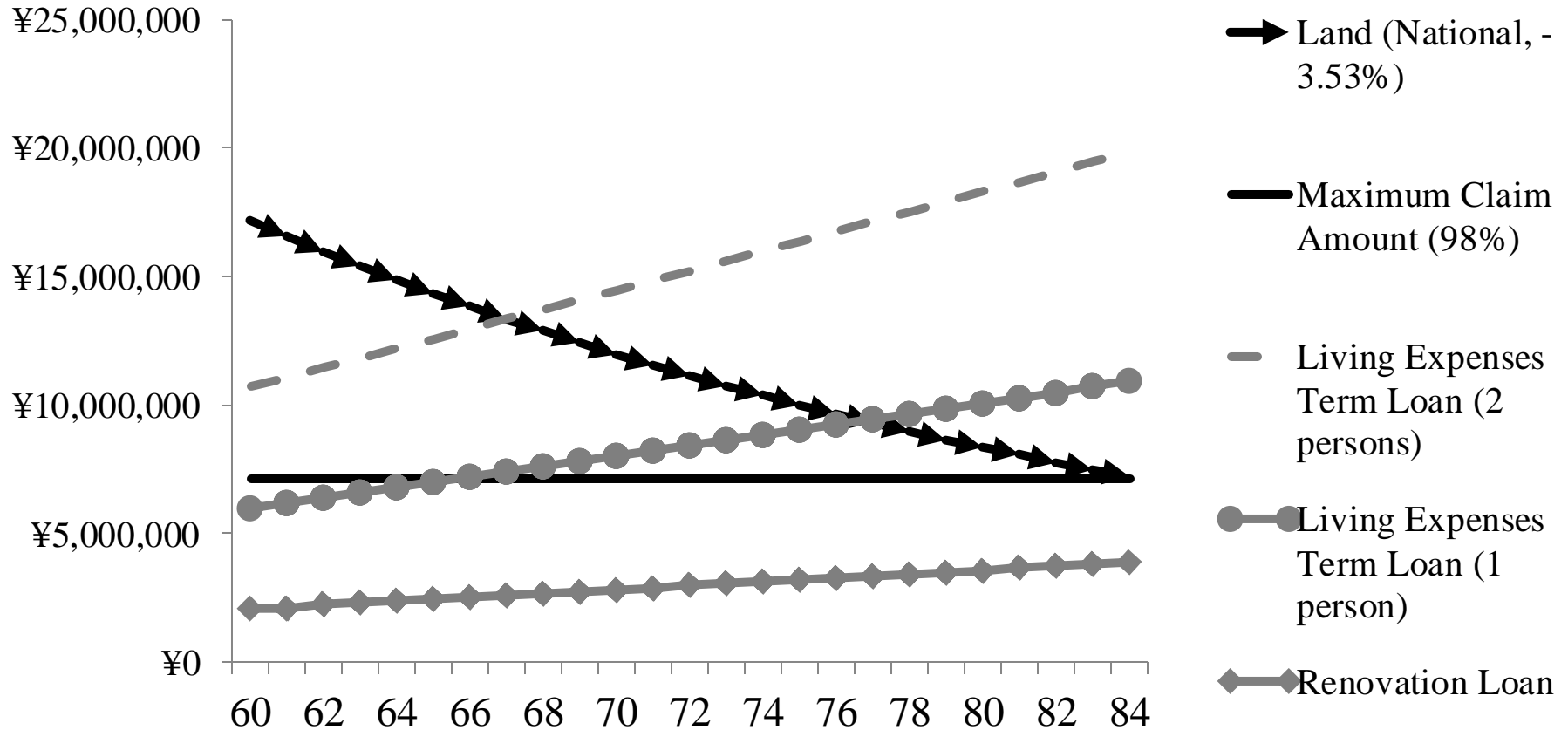


Source: MLIT, 2016b



Reverse mortgages only function for renovation loan for crossover risk

Crossover Risk for Multipurpose Reverse Mortgages in National Land Market



Source: MLIT, 2016b



CONCLUSION



There are several areas for Japan to consider to strengthen reverse mortgage development

Some Challenges and Opportunities for Reverse Mortgages in Japan

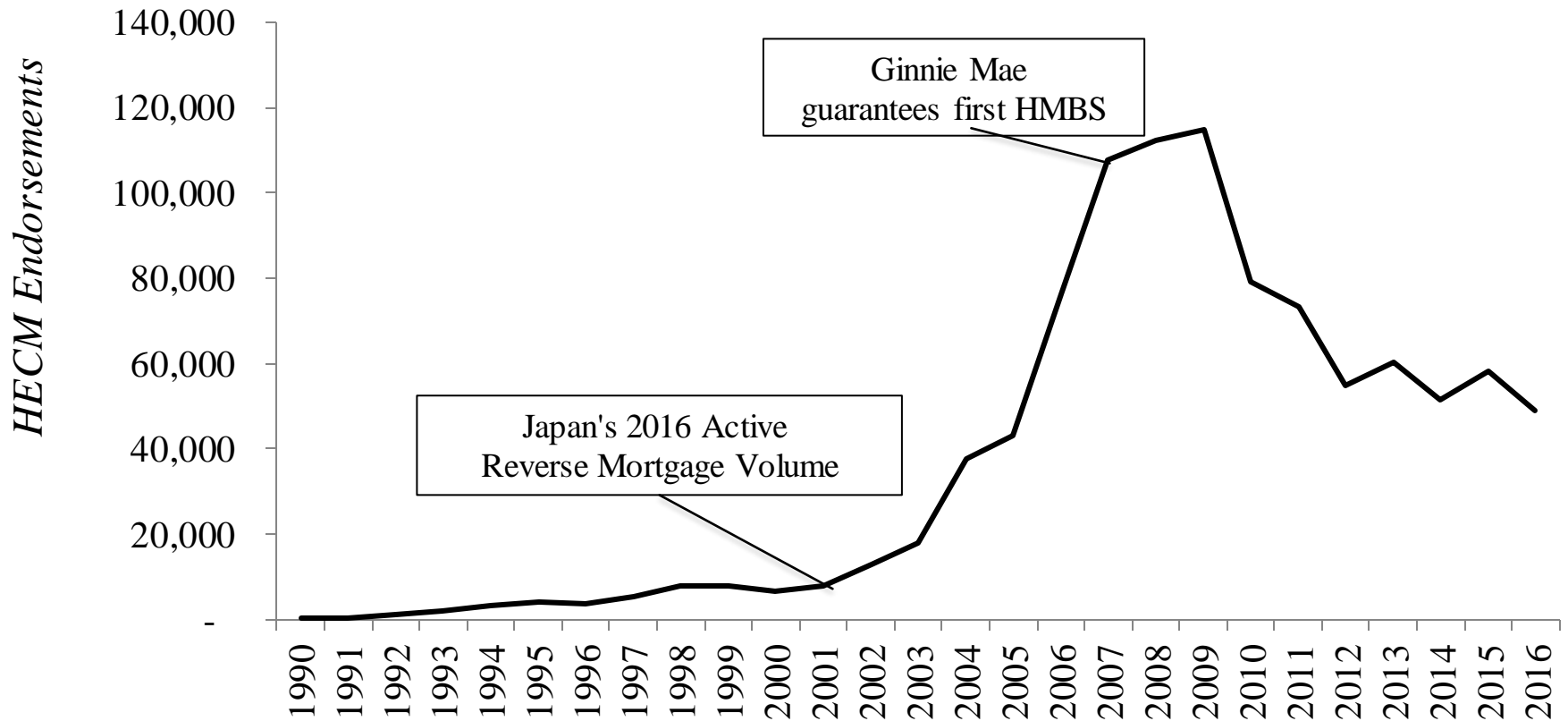
Challenges	Opportunities
Capital gains tax on reverse mortgage proceeds	Update tax code for reverse mortgage exemption
Constrained lender funding	Enhance profitability of the program
Cultural preference for savings versus debt	Reallocation from home equity to increased savings
Fiscal risk of losses on insured loans	Active management of crossover risk, possible consideration for MCA and PLF measures
Interest rate risk	Strengthen floating rate loans and restrict fixed-rate disbursements
Lesser financing terms for condominiums	Guarantee condominium lending



Sources: Kobayashi et al., 2017b; Mitchell and Piggot, 2011

Comparatively, Japan has potential for primary mortgage strengthening and secondary market development

HECM Endorsements, HMBS Securitization and Japanese Volume, 1990-2016



Source: FHA, 2017



Japan has strong potential to strengthen its reverse mortgage market development through JHF mortgage insurance, similar to the FHA experience in the United States.

While there are challenges, smaller reverse mortgage balances for one-person consumption expenditures and renovations loans can function given substantial crossover risks.



Japan and the United States have much to learn from one another on the theme of housing, urban development and senior citizens. Housing finance is no exception, especially for reverse mortgages.





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