

Reverse Mortgages, Financial Inclusion, and Economic Development

Potential Benefit and Risks

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Abstract

This paper examines the state of reverse mortgage markets in selected countries around the world and considers the potential benefits and risks of these products from a financial inclusion and economic benefit standpoint. Despite potentially increasing demand from aging societies—combined with limited pension income—a series of market failures constrain supply and demand. The paper discusses a series of market failures on the supply side, such as adverse selection, moral hazard, and the costly regulation established to address these problems, leading to only a small number of providers, even in developed markets. Demand-side

constraints are equally relevant, in particular high non-interest costs, abuse concerns, and the inability of reverse mortgages to cover key risks facing the elderly, particularly health and elder care. In developing countries, constraints are likely to be even higher than in advanced economies, due to high transaction costs and lack of consumer knowledge and protection. The enabling conditions for such markets to develop are outlined, along with examples of regulatory oversight. The paper concludes that these still seem to be largely products of last resort rather than well-considered purchases as part of good retirement planning.

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Reverse Mortgages, Financial Inclusion, and Economic Development: Potential Benefit and Risks

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1. Introduction - summary

Pension systems around the world are facing serious, multidimensional challenges. Policy makers are grappling with the demographic phenomenon of aging societies, a low-interest financial environment that provides insufficient returns on pension savings, and policy legacy issues such as low contribution rates, generous retirement age and early withdrawal rules. All these issues affect the replacement rate of pensions and raise the risk of old-age poverty.

Policy makers in many developing countries must take additional factors into account. Higher rates of informality and greater fluctuation in the labor market lead to relatively low contribution density, and a considerable portion of society is not covered by public pension systems at all. In addition, the risk of old-age poverty is rising as urbanization and demographic changes lead to an erosion of traditional family support systems.

The academic literature on the topic suggests that reverse mortgages (RM) can be a welfare-enhancing tool to supplement pension income, or as a form of insurance. In particular, low-income senior homeowners may tap into their accumulated housing wealth to smooth consumption and increase their resilience against financial shocks. The welfare-enhancing potential of this instrument has been modeled in academic studies using data from a variety of jurisdictions. While estimates of potential benefits vary widely by location and model calibration, RM are estimated to be especially beneficial for the very elderly, women (due to higher longevity and lower pensions on average), and “house-rich, cash poor” households. They might also serve to prevent financial exclusion of retirees who can no longer meet the income requirements of a common mortgage.

However, this brief lays out market failures and risk factors that act as constraints on the supply side of the RM market. The risk that housing equity falls below the outstanding loan balance, adverse selection, moral hazard, the high cost of insurance based on imperfect actuarial models, the absence of risk pooling mechanisms that reduce the economic viability of RM for lenders, regulatory disincentives in some countries and market barriers. The combination of these factors may help explain why some banks, both in rich and developing countries, have exited the RM market in recent years, and why only a small subset of financial intermediaries chose to enter it in the first place.

The literature consulted identifies additional factors that constrain demand. RM are relatively complex financial products that are difficult to understand, especially for the elderly. The reputation of RM is tainted by well-publicized cases of mis-selling and fraud. Maybe most importantly, RM do not address key concerns for the elderly, such as precocious dis-saving, longevity risk, and financial stability after moving to a nursing home. It may even jeopardize the existing financial safety net for seniors by affecting their eligibility for social insurance. Cultural factors, including bequest motives, and high non-interest fees further reduce demand. The low penetration rate of the RM market even in advanced economies lends credibility to the relevance of these demand constraints.

In developing countries, these costs and risks are likely to be even higher than in advanced economies. RM could potentially offer a solution in countries where homeownership is relatively high, but pension coverage rates and /or benefit levels are relatively low – for example in the Eastern European region, or in some countries in the Latin America and Southeast Asia regions. However, RM pose particular challenges for developing markets. Transaction costs can be expected to be higher due to legal certainty issues (e.g. around land titles) in the housing market and reduced data availability, further reducing both supply and demand. Moreover, the potential for fraud and mis-selling is considerable in jurisdictions where elderly financial consumers have less effective access to protection and redress for grievances. Thus, the risks and costs associated with RM may equal or even outweigh their benefits in many developing countries.

This paper examines the state of reverse mortgage (RM) markets in selected countries around the world and considers both the potential benefits and risks of these products from both a financial inclusion and economic benefit standpoint. The following section provides an overview of RM products. Section 3 looks at their potential development benefits. Section 4 outlines international experience. Section 5 considers risks and the regulation of these products and Section 6 concludes.

2. What are reverse mortgages and how do they function?

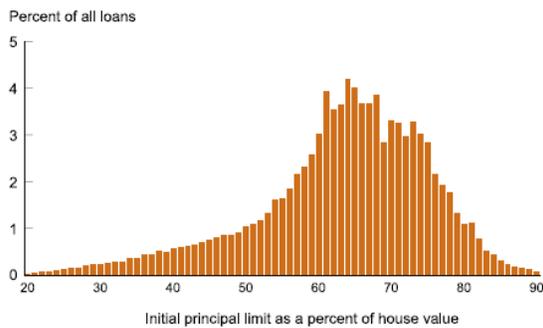
Reverse mortgages allow elderly homeowners to consume their housing wealth without having to sell or move out of their homes. The target group for RM are “house rich, cash poor” elderly people who want to turn their relatively illiquid housing equity into cash. Because the borrower can remain in the mortgaged house until they move out or die, this financial instrument provides homeowners with an attractive alternative to selling the house and moving to a smaller or rental property.

RM origination follows guidelines that are different from that of common mortgages. Unlike typical mortgages that are repaid in recurring installments, the outstanding loan balance on an RM is repaid once, at termination. This means that the usual assessments of willingness and ability to pay are not necessary. The value of the house borrowers pledge as collateral is the only asset of relevance in the mortgage assessment. RM are nonrecourse loans, that means borrowers are not liable to repayment of more than the house they own, and neither are their spouses nor descendants.

Loan size is determined a combination of house price, borrower age, loan costs, and estimated asset price movements. Because maximum return on the mortgage is capped at the value of the house, lenders must consider different factors in determining loan size. Lenders must estimate the current and future value of home equity, and interest rate fluctuations. Since interest on the outstanding loan balance accrues every year and the loan comes due only when the owner leaves the house (dead or alive), lenders use actuarial models to estimate loan duration based on life expectancy. The lower the interest rate and the older the borrowers are, the higher the Initial Principal Limit, that is the share of housing wealth they can access. Other loan costs such as origination fees, insurance premiums, appraisal fees, and the payments necessary to close pre-existing mortgages are usually incorporated in the RM rather than paid separately. The resulting Net Principal Limit is equivalent to 60%-70% of the house price for the average borrower, but subject to regulatory caps in some jurisdictions (see Figure 1).

Figure 1: Distribution of Initial Principal Limit in the United States

Distribution of Initial Principal Limit of HECM Loans, 2003 - 2007



Source: Shan (2011)

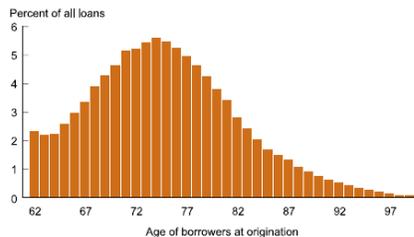
RM are designed specifically for elderly homeowners. Regulatory measures differ across jurisdictions, but it is usually only citizens in retirement age that are eligible for RM. In the United States, the

minimum age is 62, and the average RM borrower is 73 years old. Over the last two decades, the average borrower age is declining as demand among younger retirees is rising (see Figure 2).

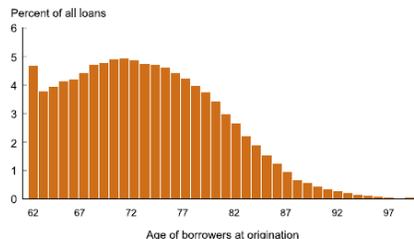
Figure 2: Age Distribution of Reverse Mortgage Borrowers

Age Distribution of Reverse Mortgage Borrowers

Early Loans (1989 - 2002)



Recent Loans (2003 - 2007)



RM come due at one of several possible “maturity events”. As mentioned above, homeowners can live in the house they mortgaged until the end of their lives without the threat of foreclosure (see Section 4 below on US exceptions to this rule). The mortgage must be repaid when the borrower leaves the house for more than a specified period. If this so-called “maturity event” happens during the borrower’s lifetime, the owner can either sell the house to repay the RM (and keep the remaining proceeds) or hand the house over to the lender. If the owner passes away, the heirs have three options: (1) settle the mortgage with their own funds and keep the house, (2) sell the house and use the proceeds to settle the mortgage, or (3) relinquish the house to the bank, i.e. foreclosure. As mentioned above, heirs do not incur financial responsibilities in case the outstanding loan balance exceeds the value of the house.¹

RM offer a variety of disbursement options, from lump sum to annuities. Depending on the jurisdiction, RM lenders offer a lump sum payment or a line of credit, which the borrower can draw on whenever needed. Tenure payments are the disbursement option equivalent to pension annuities, where the

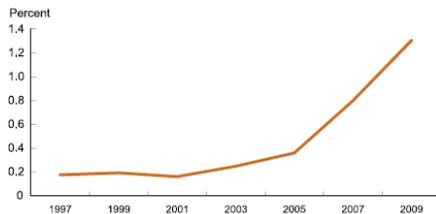
¹ This is also the case in Australia under the ‘no negative equity guarantee.’

borrower receives monthly payments for the remaining life time. Borrowers can also choose to receive term payments, that is monthly payments that are made for a fixed period of time as determined by the borrower. In the United States, the large majority of RM clients (87%) opt for a lump sum or line of credit whereas 13% choose monthly disbursements (Shan, 2011).

RM have commonalities and differences with home equity lines of credit (HELOC). Both financial products rely on housing equity as collateral. But unlike RM, HELOC are repaid in recurring installments. That requires potential clients to undergo a credit assessment of their willingness and ability to pay. Many retirees fail to meet income requirements and are thus not eligible for a HELOC. In the United States, HELOC tend to be more popular in the general population, while many elderly people seeking credit may have no option other than an RM (see Figure 3).

Figure 3: Homeowners with Reverse Mortgage Loan vs HELOC

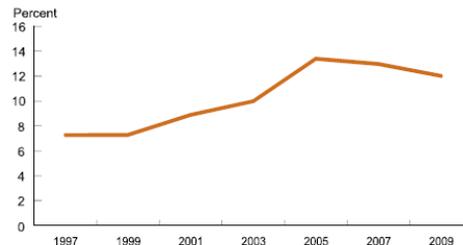
Percentage of Older Households with RMLs



Data Source: American Housing Survey, various years

Note: Both public and private reverse mortgage loans are included.

Percentage of Households with HELOCs



Data Source: American Housing Survey, various years

Source: Nakajima (2012)

3. Potential development benefits

New policies and financial tools are needed to address the “lifetime savings puzzle”. Policy makers both in advanced and developing economies seek to facilitate optimal household savings behavior throughout the life cycle as state-sponsored pension and intergenerational family support systems are incomplete or waning. In advanced economies, many employer-sponsored retirement plans have shifted from a defined benefit to a defined contribution system, raising the risk of inadequate post-retirement

income. In many developing countries, urbanization and the rise of the nuclear family tend to erode the traditional financial support network for the elderly. Providing citizens with the tools and incentives to find an optimal balance between pre-retirement income and savings, post-retirement income, and access to liquidity to withstand financial shocks is thus of increasing importance (Stewart, Jain, & Sandbrook, 2019).

Aging societies present challenges for policy makers in high-income countries, but these challenges are of increasing relevance for developing countries, too. The demise of defined benefit schemes in many advanced economies has called the sustainability of current public pension systems into question. Insufficient lifetime savings are a policy problem around the world. But the elderly in developing countries face additional risk of old-age poverty because the unraveling of the traditional family support system is not fully compensated by modern financial safety nets such as public and private pension schemes, long-term health care insurance, and social security. The UN reports that while 68% of the world's older population receives a pension, this figure is only 26% in Central and Southern Asia and 23% in Sub-Saharan Africa (UNDESA, 2016). Similarly, in high-income economies, 46% of adults save money for old age, against only 16% in low- and middle-income economies (WBG, 2017). This compares with relatively high levels of homeownership in some emerging markets – particularly in the Eastern Europe region, and in some countries in Latin America and Southeast Asia. For example, homeownership rates are over 80% in Lithuania and Mexico, yet these countries are at the bottom of the OECD's estimated pension replacement rates.²

In this context, reverse mortgages might be useful as an instrument for consumption smoothing over the life cycle in some countries. In order to achieve a welfare-maximizing smooth consumption curve, households should accumulate savings during their work life span and draw on their wealth upon retirement, according to the Life-Cycle Hypothesis (Feldstein, 1976; Munnell, 1974; Jappelli & Modigliani, 2006). Pension systems allow retirees to annuitize a portion of their savings. But while homeowners dedicate a considerable portion of lifetime savings to their house, the elderly have few means of tapping their accumulated housing wealth (Shan, 2011). Citizens with defined contribution pension schemes in particular may even be dissuaded from becoming homeowners in the first place

² Homeownership numbers taken from Wikipedia rankings, compiled from Eurostat and national housing data https://en.wikipedia.org/wiki/List_of_countries_by_home_ownership_rate. Pension replacement rates estimated in 'Pensions at a Glance' publication 2019 https://www.oecd-ilibrary.org/sites/b6d3dcfc-en/1/2/5/2/index.html?itemId=/content/publication/b6d3dcfc-en&csp_a8e95975da55b0299df9e90b37215621&itemIGO=oecd&itemContentType=book.

because their old-age income flow is uncertain (Murray, 2019). Reverse mortgages may help address this skewed age-saving profile by allowing elderly homeowners access to their housing equity and thus smooth consumption over the life cycle. Based on this assumption, a variety of studies find RM welfare-enhancing for elderly American homeowners (Venti & Wise, 1991; Merrill, Finkel, & Kutty, 1994; Mayer & Simons, 1994). As noted, these products could also prove beneficial in developing countries with relatively high level of housing ownership, but where pension coverage and /or incomes are more limited.

In particular, RM could benefit “house rich and cash poor” elderly households, although its potential for poverty alleviation is limited. Several studies find that low-income homeowners are most likely to benefit from this financial instrument (Chatterjee, 2016; Nakajima & Telyukova, 2017; Ong, 2008). As Davidoff & Welke (2004) put it: “Reverse mortgages let ‘house rich, cash poor’ older homeowners transfer wealth from the wealthy period after their home is sold to the impoverished period before.” At the same time, the literature does not unequivocally endorse RM as a means of poverty alleviation. In the United Kingdom, Hancock (1998a, 1998b) finds that RM have little potential to reduce poverty substantially among elderly homeowners. Reviewing studies from a variety of advanced economies, Ong (2008) concludes that the benefits of RM for low-income households are uncertain.

Women in particular may benefit from RM due to longevity, and on average having lower pension incomes than men. Despite living longer, pension coverage is lower among women than men in all regions (Arza, 2015). Even when coverage includes women, relatively lower lifetime earnings and a lower contribution density to pension systems (due to exiting the labor force for caring duties such as raising children) translates into lower entitlements upon retirement (GPFI & OECD, 2019; Ong, 2008). RM may thus be a particularly useful instrument to help homeownership women avoid old-age poverty. Indeed, in the United States, 45% of RM borrowers are single females, whereas 19% are single males, and 36% are couples (Shan, 2011). However, homeownership differentials by gender in emerging markets may exclude more women than men from this potential source of income.³

RM may be used to cover longevity risk and complement pension income. The tenure payment option of RM allows borrowers to receive monthly payments for a specified period or during their lifetime. The latter option may be especially beneficial for women who, with a longer life expectancy, face greater

³ See: <https://www.weforum.org/agenda/2017/01/women-own-less-than-20-of-the-worlds-land-its-time-to-give-them-equal-property-rights/>.

longevity risk (i.e. the risk that a person outlives their retirement savings). A tenure payment thus operates similar to a defined benefit pension scheme, allowing the elderly to secure a sufficient income in retirement (Chatterjee, 2016; Nakajima, 2012) – though the level of income which a RM can generate vs. a DB pension is likely to be considerably lower.

Greater resilience against financial shocks may be another priority for elderly households. Rather than providing additional income on a regular basis, households may want access to housing equity to cover the risk of financial distress in the case of illness, disaster, or property damage. Retirees in particular face a series of idiosyncratic risks regarding life span, health, spouse mortality, and medical expenses that are not fully covered by existing insurance products. Evidence in the United States supports the argument that the insurance motive is a strong driver for RM: 68% of clients opt for the line-of-credit options (rather than tenure payment), and 67% of Home Equity Conversion Mortgages (HECM) counseling clients reported in 2010 that they want to use an RM to reduce household debt rather than supplement their income (Reversemortgages.com, n.d.; Nakajima & Telyukova, 2017; Venti & Wise, 2004; Nakajima, 2012).

Old-age financial inclusion is a concern for policy makers. The G20 under the Japanese presidency in 2019 has elevated it to one of its policy priorities. G20 leaders may hope that financial inclusion reduces pressure on public pension schemes, improves lifetime financial planning, and helps avoid old-age poverty. Indeed, citizens who are financially included in earlier stages of their lifetime may face financial exclusion in old age due to a lack of salary income, low financial literacy, cognitive and physical decline, and low digital capability among other reasons (GPFI & OECD, 2019). Furthermore, policy makers are interested in innovative ways of approaching pension systems in ways that can address the demand for long-term investment options and housing shortages in many countries (Sing & Stewart, 2018).

RM may be of interest as an instrument of old-age financial inclusion. Homeowners are not commonly financially excluded. Many are likely to have access to a bank account, and many may have financed their home purchase with a mortgage. RM may acquire relevance as a tool for financial inclusion only in the narrow sense of old-age creditworthiness: Because most elderly people do not receive a salary, they often cannot meet income requirements for common loans. RM in turn are available to them because eligibility depends solely on age and housing equity (Caplin, 2002). Homeowners may prefer an RM over available alternatives such as downsizing or becoming renters.

Elderly people also consider RM as an insurance against health risk. Research reveals that a large medical expense shock is the predominant reason to take out an RM in the United States (Nakajima & Telyukova, 2017). The risk of out-of-pocket medical expenditure shocks is considerable for the elderly living in countries with patchy health insurance systems, such as the United States and many developing countries. Health risk concerns may trump bequest motives, that is the desire to pass on accumulated wealth (such as a house) to heirs (Ameriks, Caplin, Laufer, & Van Nieuwerburgh, 2011; De Nardi, 2004). Supporting evidence is provided by a 2012 comparison between RM holders and non-holders among 10,000 homeowners in the United States. The study finds no significant difference in the number of children or the financial planning horizon, but it shows that RM holders are more risk averse and less likely to have long-term care insurance (Chatterjee, 2016).

However, RM is a flawed health care insurance tool because it does not address elderly care risk. In accordance with regulations, RM must be repaid after the last borrower leaves the home. If deteriorating health obliges an elderly person to move to an elderly care facility, they face the risk of loan termination at a time when their health expenditures rise significantly. In this case, the affected person either needs to certify on a regular basis that they are still living in their home or face foreclosure after one year (Nakajima, 2012). In the United States, the risk of ending up in a residential facility for elder care is estimated to be above 50% (Hurd, Michaud, & Rohwedder, 2013). The failure of RM to address elderly care risk may be a key reason why demand for it is so low (see below).

RM provides insurance against a decline in house price, albeit at a cost. Borrowers are not liable if the house price drops below the outstanding loan balance. Because RM are non-recourse loans, borrowers have to repay only the smaller of the loan balance or house price, and heirs are not responsible for any outstanding balance. Lenders do not shoulder this risk either because they are insured, often as mandated by regulation. In the United States for example, the Federal Housing Agency insures lenders against this so-called crossover risk, but the (substantial) cost of this insurance is paid in full by the borrower, not the lender (see section 4 for details).

RM may help optimize intergenerational wealth transfer – but could put the elderly at risk from abuse. This function is not widely discussed in the literature, and there is scant evidence of it in practice. But Chatterjee (2016) suggests that the elderly can use a RM to pass on their housing wealth to their offspring. In the United Kingdom, a portion of asset and income-rich households report using RM to pass on an inheritance early (European Mortgage Federation, 2009). Such bequests may be welfare-enhancing because they would come at an earlier stage of children's lifespan, when the demand for

additional capital is higher. It may also serve as an instrument for tax avoidance in jurisdictions with inheritance taxes. However, the products could also pose a risk to the vulnerable elderly, if forced into products they do not fully understand and to pass on an inheritance when they still have their own financial needs to plan and care for.

4. International experience

RM have been introduced mainly in advanced economies, and RM markets there tend to be small. RM are a rather bespoke financial product that caters to elderly people only. It is thus not surprising that RM mostly exist in countries with a relatively high median age and an advanced financial market. The United States features the oldest and largest RM market to date. Smaller RM markets exist in Canada; Australia; Hong Kong SAR, China; Spain and the United Kingdom (Ong, 2008). Some European countries have introduced buy-and-lease-back agreements, where the buyer pays the seller an annuity until death to receive the home in return afterwards. The following paragraphs present the findings of a selection of studies related to RM from the United States; United Kingdom; Australia; Taiwan, China; the Republic of Korea; Singapore; and India.

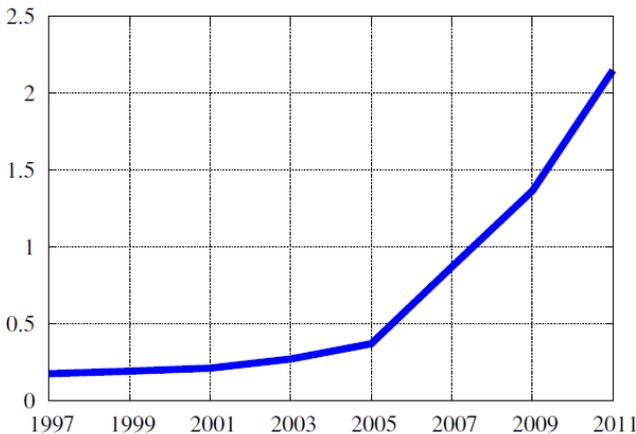
United States

The United States is home to the oldest and largest RM market. A savings and loan company in Maine reportedly originated the first RM in 1961. But it was not until the late 1980s that RM received regulatory endorsement. In 1988 The US Department of Housing and Urban Development created Home Equity Conversion Mortgages (HECM), by far the most popular product with a market share of 95% of the RM market to date. The loans are originated by banks and insured by the Federal Housing Administration.

Over the last 20 years, the RM market in the United States has grown considerably. In 1990, HECM origination was capped at 2,500. RM grew steadily over the years to reach 55,000 in 2016. Growth rates picked up in the 2000s as housing prices continued to rise. While low-income areas were over-represented in the RM market in the 1990s, residents living in high-income zip codes were equally likely to close an RM as poorer ones in the 2000s. Recent data suggest that the trend may have reverted again in the 2010s, since RM market penetration is currently much higher in the bottom income quintile than the elderly homeowner population at large (Nakajima & Telyukova, 2017). In the wake of the 2008

housing crash, the RM market has continued to expand (see Figure 4), reflecting a rise in the regulatory cap on RM as well as an increase in the number of baby boomers retiring with insufficient savings, higher medical expenditures, and negative income shocks due to the Great Recession (Shan, 2011; Chatterjee, 2016).

Figure 4: Percentage of Older Homeowners with a Reverse Mortgage



Source: Nakajima & Telyukova (2017), American Housing Survey

Nevertheless, the RM market has always remained well below estimates of its potential in the academic literature. This review notes a significant gap between the rather optimistic accounts of the welfare-enhancing potential of this financial instrument and the rather lukewarm response of market participants in reality. Estimates of RM market potential in the United States range widely, from 9% to 80% of homeowners above age 69. Optimistic studies assume that all households with home equity above a certain threshold (e.g. \$30,000, see Rasmussen et al., 1997) would benefit from an RM, while the more conservative estimates focus on homeowners with high housing wealth and low income only (Nakajima, 2012). The real market penetration of RM remains much below even conservative estimates, at around 2% of eligible homeowners in 2011. In 2016, fewer than 49,000 RM were sold (“Financing longevity,” 2017). Davidoff & Welke (2004) argue that the RM market is mired in a vicious cycle of low demand, leading to difficulty in establishing actuarial estimates. The lack of data leads to relatively high borrowing costs, which in turn keep demand low.⁴

⁴ Section 5 of this brief lays out 11 constraints on the supply and demand sides that help explain the lack of vigor in the RM market.

Over time, US regulators have tightened the rules for the RM market in the face of financial distress. Since its creation in 1987, the Home Equity Conversion Mortgage program is administered by the Federal Housing Agency (FHA) and overseen by the US Department of Housing and Urban Development (HUD). The RM program has undergone several regulatory changes in its 30-year history. In response to customer protection concerns, regulatory authorities created fee disclosure requirements and education safeguards in 1998: potential customers are required to attend counseling by a HUD-approved third party before signing a reverse mortgage contract. Since 2015, customers have to undergo an additional suitability analysis to assess their willingness and ability to pay for property taxes and insurance (see section 5 on risks and regulations). In the wake of the Great Recession, following a surge in RM foreclosures where home equity had fallen below the outstanding loan balance, HUD tightened borrowing caps and increased the mandatory annual insurance premium (Nakajima, 2012; Reversemortgages.com, n.d.; McKim, 2017).

Some RM loans have been securitized in the 2000s, and only in the United States. Due to their unconventional cash flow pattern, RM are difficult to securitize. The first securitization trust of proprietary RM loans was created in 1999 by the now-famous derivatives specialists from Lehman Brothers. Only three other RM-based securities products have successfully entered the market and fully paid out investors by 2019. In spite of such small market size, analysts expect the RM derivatives market to grow in the future (Clow, 2019).

United Kingdom

In the United Kingdom, the RM market might be thriving after a long and troubled history.⁵ Since its inception in the 1960s, the British RM market has undergone several iterations of boom and bust, including mis-selling scandals in the 1980s and 1990s. Over the last half-decade, the RM market has recovered from a nadir in the wake of the 2008 financial crisis. The recent uptake can be attributed to three main factors: (1) the entrance of new competitors, including established banks and insurance companies, (2) competitive pressures leading to RM being offered with new drawdown options and at lower interest rates, and (3) demographic change, with an increasing pool of elderly homeowners seeking ways to use their home equity to meet financial obligations.

Tight regulation and consumer protection concerns constrain the RM market in the United Kingdom. Similar to the United States, RM holders in Britain must pay a negative equity insurance premium to the

⁵ Information on the UK market derived from interviews with FSCA representatives and market experts.

so-called Equity Release Council, a self-regulatory industry group. Moreover, the Financial Conduct Authority requires prospective clients to seek independent counseling. Even though financial advisors must be independent from market participants, advisory fees for RM are higher than for other products such as standard mortgages. While comparing different mortgage products is difficult, there is concern that independent advisors thus have a monetary incentive to prioritize counseling on RM over other credit products.

Europe

The RM market in other European countries is either small or non-existent. Many EU member states do not have the necessary legal framework for this mortgage product. In others, such as France, Germany, Sweden, Finland, and Hungary, legal and regulatory provisions are in place, but the market is relatively small and stagnant. Cultural aversion to mortgage credit, along with lower homeownership and lower home appreciation rates may account for the slow uptake. In 2009, three-quarters of transactions in the European RM market took place in the United Kingdom, according to an industry study (European Mortgage Federation, 2009).

Australia

The Australian RM market is still recovering from the global financial crisis and remains stable. Private lenders started offering RM in the early 1990s. The industry grew to meet the demand for debt consolidation, additional income, and funding for home improvement among elderly homeowners. Even though the Australian banking system was largely spared from the 2008 financial crisis, the RM market was hit and the number of lenders decreased from over 20 to 4 (Seniors First, 2019). In contrast to the recent experience in the United Kingdom, the last remaining major bank exited the RM market, allegedly due to adverse market perceptions about higher interest rates (around 2% more than normal mortgages) and higher fees.⁶ Australia's market is sizeable with ca. 20,000 RM outstanding (APRA, 2019). Total exposure to reverse mortgages increased from \$1.3 billion in March 2008 to \$2.5 billion by December 2017.

Increased consumer protection oversight has been introduced to the market in Australia. Though stringent consumer credit laws have been in place since the mid - 1990s (first in the form of state

⁶ Currently it is understood there are only 3 smaller RM providers in Australia - Heartland Seniors' Finance, IMB Bank and P&N Bank. See: <https://www.theadviser.com.au/breaking-news/38395-cba-bankwest-withdraw-from-reverse-mortgage-market-2>
<https://nationalseniors.com.au/news/latest/cba-decision-to-end-reverse-mortgages-disappoints-national-seniors>.

legislation and then federal), there were not specific rules regulating RMs until 2012, as part of the enhanced responsible lending obligations for reverse mortgages which were introduced into the *National Consumer Credit Protection Act 2009* (National Credit Act). The market regulator ASIC reviewed the market in 2018, examining data on 17,000 RMs.⁷ The review found that borrowers had a poor understanding of the risks and future costs of their loan – including the fact that depending on house prices and interest rates, they may not have enough equity remaining in the home for longer-term needs (i.e. elderly care). Under the new Code of Banking Practice, approved by ASIC in 2018, banks will be required to take extra care with customers who may be vulnerable, including those who are experiencing elderly abuse.

Countries in Asia

Estimates provide an upbeat account of the RM market potential in Taiwan, China. Using Taiwanese census data and estimation methods derived from the US market, Chan & Liu (2015) estimate that a tenure payment for 65-year old single homeowner would amount to NTD 280,000, ca. 64% of average income for this age group. The authors recommend the Taiwanese authorities to promote the introduction of RM in the country (Chan & Liu, 2015).

Empirical research in Korea casts a more skeptical light on the benefits of RM. Koreans in their 40s and 50s start increasing their savings rate as they prepare for higher costs of children's education, home purchase, and to assume greater responsibility for their own retirement income than previous generations. In this context, RM may enhance welfare and contribute to macroeconomic growth because it allows homeowners to consume excess savings when they are older. Yoo & Koo (2008) approach the subject from a novel perspective, asking 290 children (aged between 25-35) of homeowners whether they would support their parents' RM application: only 37% of the respondents do. This lack of enthusiasm is in part explained by the economic situation of the respondents: 78% of them say they cannot afford to buy their own house, and 55% of them still live with their parents. A third of respondents explicitly admit that they desire their parents' house as an inheritance (Yoo & Koo, 2008). This research sheds light on the cultural challenges to a financial product that may be seen as

⁷ <https://asic.gov.au/about-asic/news-centre/find-a-media-release/2018-releases/18-248mr-asic-publishes-a-review-of-reverse-mortgage-lending/> See also the related infographic.

transferring wealth (in the form of an inherited property asset) from heirs to their parents who will benefit from access to the equity in the property during their lifetime.

In Hong Kong SAR, China, the RM market has failed to take off. With high property prices, an aging society, and a sophisticated business-friendly legal and regulatory environment, Hong Kong SAR, China, features promising preconditions for reverse mortgages. Several private lenders offer this financial product, and the Hong Kong Mortgage Corporation (a public entity that is part of the HK Monetary Authority) provides insurance for the lenders. The statistics it collects show that the average age of mortgagors is 69, similar to other jurisdictions. The median property is valued at ca. 680,000 USD, half of clients choose a monthly salary, and the other half opts for a lump sum payment (HKMC, 2019). But there are currently only about 3,300 RM outstanding, a minuscule market share in a jurisdiction with 2.5 million households, half of which are homeowners.

The “house rich, cash poor” phenomenon is especially salient in Singapore. The hybrid pension system of the city-state allows citizens to withdraw a significant portion of their retirement savings to fund housing purchase. This has led many to make sub-optimal savings decisions which turn them into low-income but asset-rich retirees (McCarthy, Mitchell, & Piggott, 2002; Sing & Stewart, 2018). RM would serve to address this imbalance in principle, providing Singaporeans with the option to recover their pension income from housing equity. However, none of the (few) studies consulted for this review suggests the introduction of RM.

India is one of the few developing countries where RM have been introduced – but market development has been slow. India exemplifies the kind of demographic challenges many developing economies are grappling with: urbanization goes hand in hand with the waning of traditional financial support networks in an aging society, and a significant portion of citizens are not covered by social security or health insurance. Only 10% of senior citizens, mostly government and public sector employees, enjoy a public pension. In this context, RM were introduced in India in 2007. House owners over 60 years of age are eligible, and regulations allow lenders to extend RM for a period of up to 15 years and up to 60% of the home value (Agadi & Mamdi, 2012). Unlike the United States, Indian RM do not appear to come due when the homeowner moves away, only upon death (Agadi & Mamdi), although other studies provide somewhat contradictory accounts (Gupta & Kumar, 2017, 2018; Ray & Choudhuri, 2013). Over the years, uptake of RM has been slow. Gupta and Kumar (2018) show that among eligible homeowners, the less educated, older, and people with none or a girl child are more likely to take out an RM. Interviews with Indian financial experts indicate that in addition to regulatory uncertainties and a lack of market

awareness, the cultural norm of bequeathing family wealth to the next generation also limits demand for RM.⁸

5. Risks and regulation

A combination of risks and market failures on the supply and demand side constrain the full development of the RM market. On the supply side, cross-over risk, adverse selection, moral hazard, and a lack of risk pooling options reduce lenders' incentives to provide RM. Fraud, elderly care and longevity risk, as well as regulatory uncertainty and social insurance risk represent significant constraints on the demand side. The following paragraphs will provide brief introductions of each of these risks.

Lenders are exposed to cross-over risk, that is the risk that housing equity drops below the outstanding mortgage balance. This risk category combines interest rate risk, longevity risk, property valuation and maintenance risk (Chan & Liu, 2015). The first two components represent the risk that the RM becomes more expensive than expected at origination, either due to an upward change in interest rates or longer than expected mortgage duration. Upward adjustment of the RM is impossible because the repayment is fixed (at the value of the house). The latter two components consider a fall in the value of the repayment, either because housing prices fall in the area or because the house falls into disrepair.

The RM market may be at risk of adverse selection. Borrowers with a long life who remain in their houses may enjoy an effectively interest free period of default as the lender is unable to evict them (Davidoff & Welke, 2004). This risk is commonly illustrated in the story of Jeanne Calment, the oldest human so far recorded. At age 90, she signed a so-called life estate contract on her apartment, a sign-and-leaseback agreement that operates like an RM in her native France. The buyer agreed to grant her the right of lifetime occupancy and a monthly payment of 2,500 francs (ca. 380 euro) in exchange for the apartment. What the buyer did not expect is that Calment would live until age 122. When the buyer died 30 years later (2 years before Calment), he had paid more than double the apartment's value without ever being able to occupy the property (Associated Press, 1995). Longevity risk remains even in the case of a lump sum payment because the outstanding loan accrues interest every year. There is little more than anecdotal evidence for adverse selection however. Davidoff & Welke (2004) compare single

⁸ See Reserve Bank of India (RBI) guidance <https://m.rbi.org.in/Scripts/FAQView.aspx?Id=77>.

elderly female homeowners and find that those that have taken out RM are more, not less likely than observably similar subjects to sell their house before death. Shan (2011) confirms this picture, showing that RM borrowers leave their houses at a much faster rate than comparable non-borrowers. The author argues that an underlying reason for this phenomenon is that RM are often signed for medical emergencies, which in turn reduce life expectancy. While this may be good news for lenders, it raises serious concerns on the consumer protection side.

Moral hazard is a more serious market failure that may constrain supply. Homeowners who sign an RM have less incentive to keep up their house and pay property taxes. The borrower will never have to repay more than the house value, and thus may seek to avoid expensive house repairs (Miceli & Sirmans, 1994; Shiller & Weiss, 2000; Caplin, 2002). Moreover, since RM debt cannot be passed on to the next generation, heirs who face a house value near or below the amount of funds received have little incentive to take steps to maximize the sales price, raising the risk of corruption in private house sales. Foreclosure by the lender is the most common outcome, but this procedure entails high transaction costs for the lender (Caplin, 2002). The California Reinvestment Coalition (CRC) reported that involuntary RM terminations are expected to double in 2016 compared with the previous year. And loan industry data show that about 22% of foreclosures were triggered by tax and insurance default (Miller, 2018). In order to address this moral hazard issue, since 2015 RM borrowers in the United States are required to undergo a credit assessment and pay a so-called Life Expectancy Set-Aside (LESA) to ensure property taxes and insurance are paid if their credit score is below a certain threshold.

Regulatory responses to moral hazard are available but costly. In the United States, the Federal Housing Agency (FHA) provides mandatory insurance against cross-over risk. Lenders can avoid downside risks by selling RM that are at risk of default to the FHA (overseen by the US Department of Housing and Urban Development) while continuing to benefit from upside gains (if foreclosure proceeds exceed the mortgage balance). Borrowers pay for this insurance at a rather significant premium of 2% of house value at mortgage origination and an annual 1.5% subsequently (Reversemortgages.com, n.d.). This insurance scheme was profitable during the 2000s but the US Department of Housing and Development raised the premium in 2010 and again in 2017 following a rise of foreclosures (Miller, 2018). Nakajima and Telyukova (2017) argue that abandoning this insurance scheme and passing the risk on to lenders and heirs would make RM cheaper and thus increase demand, but the authors dedicate little attention to discussing the clear downsides of this proposal.

The absence of risk pooling in the RM market keeps insurance costs high. Public pension plans benefit from the cross-subsidization of longevity risk: citizens who die early essentially support those with a longer life span. In contrast, when a mortgagor passes away, no more than the individual's outstanding loan balance has to be returned. Given these constraints on risk pooling, FHA-sponsored insurance programs may have to retain relatively high premia to be financially sustainable (Shan, 2011).

On the demand side, concerns about old-age financial literacy and consumer protection are a key constraint. Reverse mortgages are a relatively complex financial product that many young people struggle to understand. An industry survey from the 2010s reveals that of 1,000 Americans surveyed, 70% failed a 10-question quiz on RM (Reversemortgages.com, n.d.). The elderly face greater challenges in financial decision-making as their cognitive skills decline. They are more vulnerable to fraud (particularly from family and/ or caregivers) and other types of financial abuse than society overall (American Association for Justice, 2017, G20/OECD Task Force on Financial Consumer Protection 2019). One common example of RM fraud in the 1990s is that of contractors who offer house repairs without a down payment to elderly people. The contract offered turned out to be an RM with exorbitant origination and house repair fees (Caplin, 2002). Fraud opportunities and perverse incentives may be even more salient, in particular in the case of RM which are 'sale-and-leaseback agreements' where the lender has a financial interest in a short lifespan of the counterparty.

High RM adoption rates among poor elderly people make consumer protection concerns even more salient. Data from the United States suggest that over the last decade, poor elderly homeowners have become a key target group for RM lenders. Only 2% of the elderly homeowner population at large have an RM, but market penetration reaches over 5% for the lowest income quintile and even 17% for low-income households of age 90 and above (Nakajima & Telyukova, 2017). RM origination sustained its growth even during the Great Recession, a potentially worrying sign that cash-strapped homeowners signed RM in financial distress in spite of the significant drop in their housing wealth.

Non-interest fees are relatively high. In addition to interest on the RM loan, a borrower has to pay a loan origination fee, a servicing fee to the lender and/or broker, initial and monthly mortgage insurance premiums, and third-party charges (title insurance, credit report, appraisal costs). In the United States, such non-interest fees are estimated to be roughly equivalent to 6.8% of the loan (Davidoff & Welke, 2004). These fees are usually financed rather than paid in cash up front, but they reduce the loan available to the borrower significantly.

Nursing home and early move risk discourage people from signing an RM. The high costs of RM origination discourage potential borrowers who may move out of the house soon after, willingly or not. As mentioned in section 3 above, in most countries the RM comes due when a person leaves the mortgaged house for more than 12 months. Deteriorating health may make it necessary for an elderly person to leave the house for a long period of treatment, convalescence, or permanent nursing home care. Homeowners who have already depleted home equity by taking out an RM earlier face a particularly dire situation where they might struggle to pay for high medical expenses while being evicted from their old home. As Caplin (2002, p. 242) puts it: "The mere hint of this aversive future possibility may be sufficiently anxiety inducing to discourage all but the most desperate." The fundamental inability of RM to serve as an insurance against health expense shocks in the final stages of life appears to play an even more powerful role in dissuading people to opt for this financial instrument than bequest motives (Munnell, Soto, & Aubry, 2007; Nakajima & Telyukova, 2017).

Precocious dis-savings and longevity risk are concerns on the demand side, too. While lenders are insured against the longevity risk that the mortgage plus interest exceeds housing equity, borrowers face a different kind of longevity risk, namely that they outlive their savings. RM allow the relatively young elders to tap into their housing wealth, thus encouraging early dissaving that reduces the income available to them at a later stage in their retirement life. The risk of suboptimal financial planning also relates to portfolio risk: It may be unwise to mortgage your house in an economic crisis when asset prices are exceptionally low, but homeowners may do so out of financial desperation. The fact that RM origination increased during the 2007-9 Great Recession in the United States provides tentative evidence for such procyclical savings behavior (Nakajima & Telyukova, 2017; Shan, 2011).

RM reduce the scope for intergenerational capital accumulation. In essence, an RM represents a wealth transfer from the heirs of a home to their parents (and the lender). This might make it a useful instrument to address old-age poverty in aging societies. But many studies find that bequest motives by the elderly constrain demand for RM (Caplin, 2002; Nakajima, 2012; Ong, 2008). From a development perspective, it is unclear whether RM are more or less beneficial than bequests: does inheritance promote capital accumulation that helps heirs escape intergenerational poverty cycles, or does it merely lead to further wealth inequality (De Nardi, 2004) in ways that undermine shared prosperity?

Regulatory and tax uncertainty along with social insurance risk act as additional constraints on demand. Tax authorities need to be clear about whether an RM constitutes a loan or a (taxable) house sale. Tenure disbursement may be considered income, which again is taxable, whereas a lump sum transfer

may not be. In the United States, RM were subject to somewhat incoherent regulations at the state level until recently. Moreover, elderly homeowners risk losing their access to need-based assistance like Medicaid, depending on the RM disbursement method and eligibility criteria of social services (Caplin, 2002; Chatterjee, 2016). In some countries (e.g. Australia) where pensions are asset or means tested, there could also be a risk of losing entitlement to social security benefits.

Many of the supply-side constraints mentioned above are particularly salient in developing countries. Lenders may face legal uncertainties regarding property ownership, which raises the transaction costs of mortgage origination, foreclosure, and adds to cross-over risk. Patchy housing registry and valuation data represents another impediment to RM market development. Moreover, actuarial information may be limited in many developing countries, making it harder for lenders to correctly assess and price longevity risk. Insurance markets are also less deep than in advanced economies, which exacerbates the risk-pooling constraints inherent in the RM market in rich countries. It is indicative that lenders in Singapore and South Africa have exited the market in the 2000s because they considered RM economically unviable.

Developing countries are also facing greater constraints on the demand side. Financial literacy and consumer protection are already major concerns in advanced economies, they are even more likely to operate against the development of a healthy RM market in middle and low-income countries. Creating an RM market in an environment of relatively weak consumer protection regulation and oversight may open a new door to fraudsters and financial criminals. In addition, non-interest fees for RM origination are likely to be even higher than in rich countries. Anecdotal evidence suggests that upfront fees for the closing of an RM in South Africa amount to about 15% of home equity, roughly twice as much as in the United States (Fisher-French, 2018). Moreover, bequest motives and the desire for inter-generational capital accumulation may be stronger in many developing countries, further constraining demand for RM.

High transaction costs and interest rates cast the value of RM as an instrument to fight poverty into doubt. Independent of jurisdiction, RM target not the poor but cash-strapped people with housing wealth. Due to higher transaction costs and interest rates in developing countries, the minimum home equity required to make an RM attractive may be so high that only upper income brackets of the population would benefit. In other words, RM would serve as another financial tool for the already financially included, wealthier parts of society rather than as an instrument of poverty alleviation.

6. Conclusion

Aging societies pose challenges for policy makers who seek to balance savings, income, and liquidity before and after retirement. In the context of demographic changes, a low-interest financial environment, and low contribution rates, the replacement rate of public pensions is under threat in many jurisdictions. New financial instruments and policies may be needed to approach an optimal level of savings and liquidity before and after retirement in ways that address old-age poverty and intergenerational fairness.

Even though reverse mortgages hold promise as a policy tool to address inadequate pension savings and longevity risk, a series of market failures and risks constrain both supply and demand. This brief notes a considerable gap between the optimistic accounts of the welfare-enhancing potential of this instrument in the literature, and small and shallow RM markets in reality. It discusses a series of market failures on the supply side, such as adverse selection, moral hazard, and the costly regulation established to address these problems – leading to only a small number of providers, even in developed markets. Demand-side constraints are equally relevant, in particular high non-interest costs, abuse concerns, and the inability of RM to cover key risks facing the elderly – particularly health and elder care.

In developing countries, supply and demand constraints are likely to be even higher than in advanced economies. Transaction costs are higher due to legal certainty issues (such as land titling) in the housing market and reduced data availability, among other factors. As a result, non-interest fees can be expected to be higher in developing countries. Moreover, because RM are a relatively new and complex financial product, financial literacy and consumer protection are major concerns. Cultural barriers to these products may also be more challenging.

As a result, the market for RM in developing countries can be expected to be shallow and of limited use to address old-age poverty concerns. Some emerging markets may have an enabling environment to support an RM market – i.e. high levels of homeownership, with limited pension coverage and /or low pension income levels. However, given high non-interest costs, only citizens with housing equity above a considerably high threshold may find RM beneficial in developing countries. In this case, RM represent more of a wealth management tool for the better-off than an instrument to address old-age poverty. In many developing economies, basic market conditions (such as homeownership rates, financial market development) are not in place for these products to be offered.

For RM to work, factors such as the following need to be in place:

- Homeownership levels / amount of equity held in homes at sufficient levels;
- Ability of homeowners to prove title to land on which home is built;
- Population demographics;
- Sufficient competition/ number of providers – with limited barriers to entry;
- Understanding of, and trust in, RM products by consumers;
- RM product design which meet consumer needs;
- Proportionate regulation from both prudential (e.g. capital adequacy/ risk weight rules) and RM consumer protection perspectives;
- Lack of alternatives to RMs which might be used by house – rich / cash – poor elderly

Regulators have been improving the oversight of these products – but they still seem to be largely ‘products of last resort’ rather well considered purchases as part of good retirement planning.

Improved consumer protection regulations have taken the form of requiring lenders to inquire about the future needs of borrowers as part of a suitability analysis; improving product disclosure and requiring actual product education/ training; or limiting enforcement rights for minor defaults. However, most purchases still seem to be by those with little other options open to them and taken in times of need/ distress. That said, developments in the UK market suggest that, with better oversight, RMs could play a more balanced role in retirement planning overall.

Policy makers can consider alternative options to address the welfare of senior citizens. Well-designed hybrid pension systems for example may nudge citizens towards an optimal savings rate over the lifecycle. Furthermore, policies that involve risk-pooling, such as long-term care insurance schemes may be considered to address the development challenges of aging societies around the world.

Further research on this topic is warranted – including extending the analysis to more countries and providing more updated data.

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