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Is there a need for reverse mortgages in Germany? Empirical evidence and policy implications

Florian Bartsch, Florian Buhlmann, Karolin Kirschenmann, Carolin Schmidt[1]

Abstract

Building up sufficient capital for old-age provision often is a challenge for private households. For homeowners, one way to generate old-age income from illiquid housing wealth is the use of equity release products such as home reversion plans or reverse mortgages. However, in Germany the market for reverse mortgages is quasi non-existent. In this policy brief, we provide evidence on the demand- and supply-side reasons for the absence of a reverse mortgage market in Germany, estimate the potential size of and discuss ways how to establish such a market. Using data from financial market expert and household surveys and information from extensive telephone interviews with (former) suppliers of equity release products, we find that uncertainty relating to the homeowner's longevity, moral hazard and adverse selection are the strongest deterrents to reverse mortgage supply. At the same time, the demand-side deterrents are manifold, ranging from product complexity to trust issues and a strong emotional attachment to the home. Estimated market size is very small, but our results suggest that it might grow in the medium term. From a political economy point of view, it might also be worthwhile stimulating the growth of a reverse mortgage market in Germany because it could particularly benefit cash-poor but house-rich households, decreasing old-age poverty.

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Introduction

The challenges accompanying demographic change have led many European economies to fundamentally reform their pension systems by increasingly moving away from pay-as-you-go pension plans toward private, capital-funded old-age provision. For private households, however, building up sufficient capital for their old-age provision may pose a challenge. One possible solution is to purchase real estate. Yet, real estate wealth is difficult to use for one's day-to-day non-housing consumption due to its illiquidity, but a sale of the house and relocation into a cheaper home or rental unit is often not desired by homeowners and causes transaction costs (e.g. housing transaction tax). To generate old-age income from illiquid housing wealth, equity release products can be used. For instance, reverse mortgages are used in a couple of countries worldwide, most prominently in the US and UK. However, this is not the case in Germany: in 2015, there were only 200 reverse mortgages in Germany (Ben-Shlomo 2015) and currently no major supplier of reverse mortgages exists.

Equity release products are financial instruments that allow older homeowners to convert illiquid wealth tied up in their real estate into a regular stream of payments or a lump sum. With a reverse mortgage, the retiree takes out a loan from a bank which is paid out on a monthly basis or as a lump sum. The home of the borrower serves as a security. However, in contrast to a classic mortgage, the loan is only repaid when the borrower dies or moves out for good. Borrowers remain responsible for maintenance.[2]

In this paper, we provide evidence on the demand- and supply-side reasons for the absence of a reverse mortgage market in Germany and estimate the potential size of such a market. To this end, we provide and synthesize evidence from four data sources. First, we conduct a survey among 192 German financial market experts as part of the monthly Financial Market Survey administered by ZEW – Leibniz Centre for European Economic Research. This special survey module asks participants to assess the market potential for reverse mortgages in Germany as well as impediments on the demand and supply side to the development of a German reverse mortgage market. Second, we conduct expert interviews with (former) suppliers of equity release products to gain more in-depth knowledge about the supply side of the market and the experiences that our interview partners have made when they offer(ed) their product. Lastly, we use two representative household datasets – the German part of the 2015 wave of the Survey of Health, Ageing and Retirement in Europe (SHARE) and the 2017 wave of the German Socio Economic Panel (SOEP) – to calculate the size of a potential market for reverse mortgages using typical application criteria relating to the household age and home value that had been used by former suppliers of the product. We further complement this analysis by exploiting specific relevant questions, e.g. on concerns about future pension levels, from both household surveys and discuss additional factors that may boost the market size.

The breadth of our datasets allows for a comprehensive analysis of both sides of the market. On the supply side, uncertainty relating to the homeowner's longevity, moral hazard and adverse selection are the strongest deterrents to reverse mortgage supply. On the demand side, the deterrents are manifold, ranging from product complexity to trust issues and a strong emotional attachment to the home, to name just a few. Our analysis suggests a relatively small market size of around 100,000 households when we apply the strictest criteria and only include households that are likely to be struggling with their incomes. Moreover, roughly half of our financial market experts do not expect reverse mortgages to grow significantly in importance in the future. However, a better-tailored

[2] Another common equity release product is the home reversion plan. Here, pensioners sell their home in exchange for a lifelong right of residency and either a lifelong or limited monthly payment.

marketing of the product, i.e. advertising its potential as a financial management tool for older homeowners, may raise product demand.

Despite the relatively small market size, our results suggest that it may nevertheless be worthwhile to stimulate the growth of a reverse mortgage market in Germany. Our analysis of the SHARE data reveals that among owner-occupying households in the age group 65+, the net financial and real assets amount to €338,600. For the same group of households, the home value is on average €266,100, representing 79% of total household net wealth. Under the assumption that older households prefer to "age in place", this fraction of total household wealth cannot be accessed to pay for expenses for health and aged care services or other consumption. In such cases, reverse mortgages could take some of the illiquidity burden off the shoulders of older households. In addition, calculations using the SOEP show that homeowners in the age group 65+ with an income below the poverty line could substantially benefit from a reverse mortgage even if it provided just an extra €100 per month.

While our analysis focuses on Germany, its implications and policy conclusions should be equally relevant for other European countries. Demographic change due to population aging is a concern for all European countries, albeit at different levels of urgency. At the same time, several countries have considerably higher homeownership rates and less generous public pension systems. The potential to use reverse mortgages as a means to increase monthly income, especially for the cash-poor and house-rich households, or as a financial management tool during retirement should thus equally be of interest for older households, suppliers and policy makers in these countries.

Equity release products in Germany

In this section, we provide an overview of two major equity release products: reverse mortgages, which are currently quasi non-existent in Germany, and home reversion plans. If not indicated otherwise, the information in this section comes from Ben-Shlomo (2015) and from three extensive telephone interviews, one with a former supplier of reverse mortgages and two with current suppliers of home reversion plans (Deutsche Leibrenten Grundbesitz AG and Stiftung Liebenau).

Starting with reverse mortgages, although a number of providers has sought to establish the product, all major undertakings have failed so far. Attempts to offer reverse mortgages date back to as early as 2006 when the German Savings Banks Association (DSGV) and the Association of German Public Banks (VÖB) contemplated the idea but ultimately opted against it.

In 2009, Deutsche Kredit Bank (DKB) in cooperation with Immokasse was first in offering a reverse mortgage product on a national level. Its product came with a number of conditions and restrictions. Borrowers had to be at least 65 years old. The maximum level of a loan was capped at 35% of the current market value of the property. Interest was fixed at 6.9%. Rather than monthly payments, borrowers received a one off lump sum loan. A successively rising fee based on the loan bypassed the legal prohibition of compound interest in Germany. However, DKB protected borrowers from over-indebtedness with a no-recourse clause that limited the maximum amount to be repaid to the current market value of the property. Immokasse filed for insolvency in 2013 and DKB left the market after only selling an estimated number of 100 reverse mortgage contracts.

Investitionsbank Schleswig-Holstein, a public bank, began offering reverse mortgages quite similar to DKB's in 2010. However, there were some important differences. First and foremost, there was no no-recourse clause for borrowers. Thus, borrowers were liable for repayment not just with their property. Borrowers could receive the loan either as a lump sum, a monthly payment up to their statistical life expectancy, or a combination of the two forms. Five years after surpassing the statistical life expectancy, borrowers had to repay the loan. However, retirees had access to another loan that would not have to be repaid either before death or reaching an age of 110. Ben-Shlomo (2015) reports that this particular product was perceived as very expensive with an effective interest rate of around 10%. Until exiting the market in 2013, the bank sold 44 reverse mortgages.

In 2011, the insurance company R+V began offering a reverse mortgage. The loan itself was split up into multiple streams of payments. Part of it went directly to the borrower. The rest was used to finance two pension savings accounts and a bad debt insurance. Upon reaching a lending threshold, the payments from the loan were to cease and the first pension account would resume the payments. Some years later, the second pension account was meant to cover the accruing interest payments to avoid an ever increasing loan amount that might surpass the property value at some point. In any case, borrowers were guaranteed a lifelong stream of payments. Access to a reverse mortgage by R+V was restricted. Potential borrowers had to be between 65 and 80 years of age and own debt-free property worth at least €250,000 at current market prices. These restrictions were necessary to ensure a non-trivial monthly rent. Despite nominally offering the product nationwide, it was therefore almost exclusively available to people living in metropolitan regions. Citing lack of demand, R+V permanently withdrew its product from the market (Versicherungsbote 2016). As of today, no major provider of reverse mortgages exists.[3]

The lack of a functioning market for reverse mortgages is in contrast with the growing market for home reversion plans in Germany. However, it has to be noted that the overall number of sold home reversion plans is also still very small at between 500 and 1,000 (own estimates based on industry news and information from industry representatives). In 2004, Stiftung Liebenau, a non-profit foundation, was first in successfully launching a home reversion plan: pensioners sell their home in exchange for a lifelong right of residency and either a lifelong or limited monthly payment. The property must have a minimum current market value of €200,000 in an attractive region, and clients must be at least 65 years old. In 2013, what is now known as Deutsche Leibrenten Grundbesitz AG began offering a home reversion plan. Deutsche Leibrenten has quickly grown to become Germany's largest provider owning around 400 objects in 2020.[4] Deutsche Leibrenten does not mandate a minimum market value but has a higher minimum age of at least 70. One expert attributes the comparative success of home reversion plans to their much simpler structure. Rather than offering a bundle of insurance and loan products, providers are able to offer one simple package. However, those older homeowners who do not want to give up their ownership rights, cannot be served with a home reversion plan. Thus, home reversion plans are an alternative but not a substitute for reverse mortgages (Capital 2019).

Reasons for the absence of a reverse mortgage market

To assess the reasons for the quasi absence of a reverse mortgage market in Germany, we provide and synthesize evidence from (i) the existing literature, (ii) responses of financial market experts to ZEW's Financial Market Survey and (iii) telephone interviews with previous and current providers of equity release products. As a starting point, we summarize the main results from the existing literature focusing on both demand and supply aspects. In the same vein, we assess demand and supply aspects

[3] Some reverse mortgage contracts are sold via financial brokers but neither official numbers nor information about the originating financial institution(s) exist. Stiftung Warentest (2020) reports that there is one savings bank that currently supplies reverse mortgages across the country.

[4] See https://www.presseportal.de/pm/119738/4504193.

based on the survey data and interview information, but it is important to note that also the demand aspects are evaluated by suppliers.[5]

Literature review

In general, the supply of reverse mortgages is affected by the risks associated with the product (see, e.g., Miceli and Sirmans 1994, Davidoff and Welke 2007, Alai et al. 2014, Pu et al. 2014, Shao et al. 2015 and Merton and Lai 2016). Such risks may, for instance, arise due to information asymmetries. With regard to reverse mortgages, the home owner is usually better informed about his/her health and the quality of the property than the financial institution. Consequently, adverse selection may occur because people with an above-average life expectancy or with property of below-average quality request reverse mortgages. Moral hazard may occur if the home owner invests too little into maintenance which, in turn, lowers the selling price of the property. Overall, financial institutions face the following major risks: longevity risk (the difficulty in estimating longevity and the risk of adverse selection), property value risk (unknown development of property values and maintenance risk), interest rate risk and market entry risks (reputational risk and merchandising risk).

For Germany in particular, Reifner et al. (2009b) highlight that legal barriers present a significant challenge for the market for reverse mortgages. In a study for the European Commission, Al-Umary et al. (2017) investigate the market for equity release products across the EU. For Germany they find that longevity risks and uncertainty surrounding the development of property prices are among the chief obstacles on the supply side. Furthermore, Germany's comparatively low property ownership rate, among other factors, leads Hennecke et al. (2017) to conclude that market conditions in Germany are unfavorable. Ben-Shlomo (2015) provides a detailed account of the German market for reverse mortgages and its shortcomings deeming the market for reverse mortgages moderately developed with high potential due to a growing number of older homeowners and an increasing risk of old-age poverty.

As for the demand side, the theoretical literature posits that older households should enjoy utility gains from reverse mortgages (e.g., Davidoff 2009, Davidoff 2015, Hanewald et al. 2016, Nakajima and Telyukova 2017) as they help them smooth their consumption (Artle and Varaiya 1978). Yet, these products are not strongly demanded, even in countries where reverse mortgages are secured by government agencies such as in the U.S. There is thus a growing body of studies trying to identify the demand deterrents (e.g., Begley and Lambie-Hanson 2015, Davidoff 2015, Fornero et al. 2016, Davidoff et al. 2017, Dillingh et al. 2017, Haurin and Moulton 2017, Jefferson et al. 2017, Moulton et al. 2017, Nakajima and Telyukova 2017, Cocco and Lopes 2019, and Hanewald et al. 2019). Impediments commonly found in the demand-side literature are bequest motives, the wish to spend less on maintenance than required by the issuer of the reverse mortgage as well as other cost-related reasons, product complexity and poor product knowledge and debt aversion. Lastly, some households may simply not need reverse mortgages because they already have enough liquidity or other ways to meet their financial needs (e.g., Davidoff et al. 2017 and Moulton et al. 2017). The demand for reverse mortgages then depends on the number of house-rich and cash-poor households (see Angelini et al. 2014).

Evidence from ZEW's Financial Market Survey

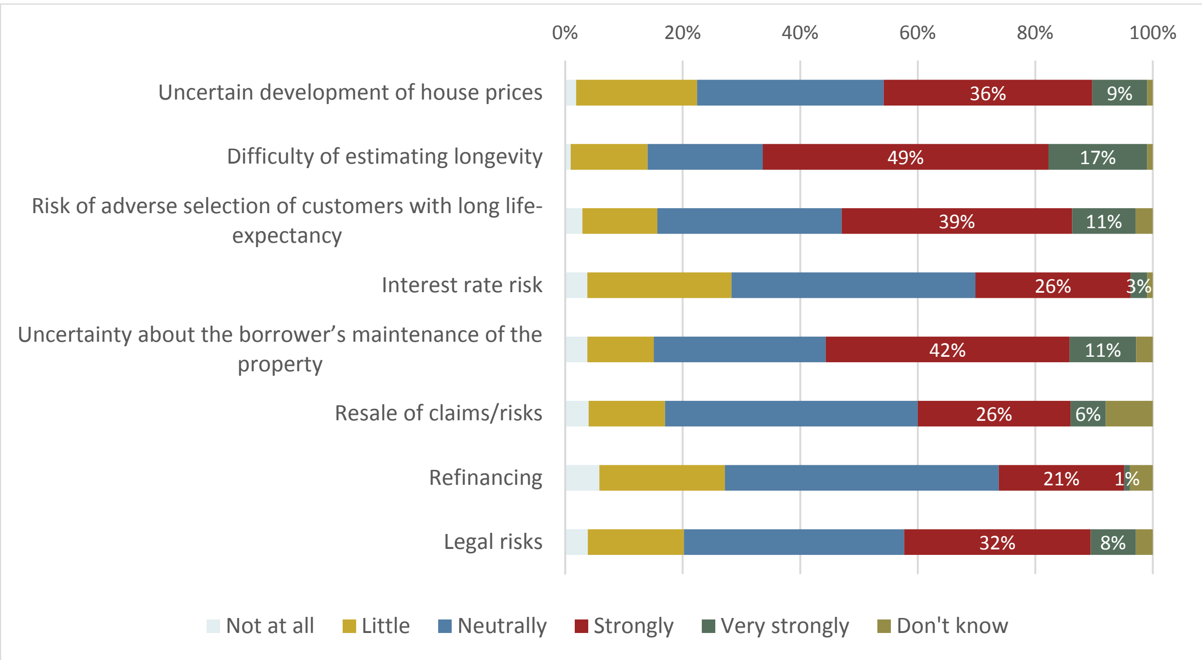
To better understand the current attitude of potential suppliers of reverse mortgages towards the product's market potential and inherent risks, we conduct a survey among 192 financial market experts using the special survey section of the ZEW Financial Market Survey in June 2019 (published in July

[5] We are currently designing a survey experiment among a representative sample of German households to elicit households' preferences for reverse mortgages vs. home reversion plans and to understand the drivers of their decisions.

2019). The ZEW Financial Market Survey has been carried out on a monthly basis since December 1991. Analysts from banks, insurance companies and large industrial corporations regularly take part in the survey. These analysts work in the respective companies' departments of finance, research, and macroeconomics, as well as in the departments of investment and securities. The survey consists of two parts: one fixed survey part on the German financial experts' expectations on the development of six important international financial markets and special surveys on current issues.

We find that less than 30% of the respondents think that the importance of reverse mortgages as an instrument for old-age provisioning will increase (very) much, while around 45% of the respondents see no or little increase in importance. Only less than 10% of the financial institutions in which the financial market experts work are currently discussing the launch of a reverse mortgage product. At the same time, the financial market experts identify three main impediments on the supply side (see Figure 1): the difficulty in estimating longevity (66%), uncertainty about the borrower's maintenance of the property, i.e. moral hazard, (53%) and the risk of adverse selection of customers with long life-expectancy (50%).

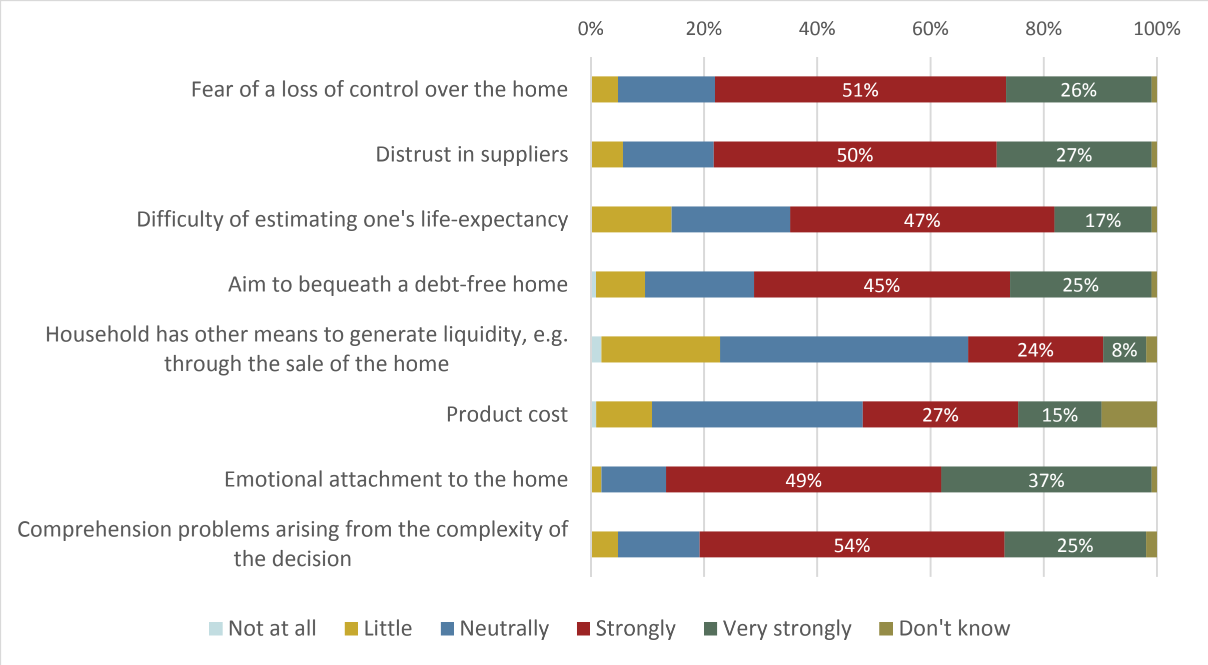
Figure 1: Correlates of reverse mortgage supply



Source: ZEW Financial Market Survey, July 2019. The survey was conducted in June 2019 with 192 participants.

The impediments on the demand side (Figure 2), as perceived by the financial market experts, seem to be much bigger. As above, the assessments of the survey participants coincide with a number of factors found in the literature. Particularly, the majority of survey participants (86%) state that an emotional attachment to the home is a strong or very strong deterrent to older households' potential acceptance of reverse mortgages. Moreover, problems arising due to the high complexity of the product and the decision were mentioned as strong or very strong impediments by 79% of those surveyed. 77% indicate that households fear losing control over their home. The same share of participants consider a lack of trust in potential reverse mortgage suppliers as a deterrent to demand. Finally, two thirds of participants think that households have trouble estimating their remaining life time. Contrary to what is often found in the literature, however, product costs do not seem to matter a lot: Only 42% of the financial market experts think that households would shy away from reverse mortgage usage because of costs.

Figure 2: Correlates of reverse mortgage demand



Source: ZEW Financial Market Survey, July 2019. The survey was conducted in June 2019 with 192 participants.

Similar questions regarding the market potential and demand and supply impediments were asked in the ZEW Financial Market Survey in May 2006 (see Lang (2008) for an analysis of the data).[6] Our 2019 findings are in contrast with the 2006 findings as, in 2006, the vast majority of the financial experts expected the market to grow, though they disagreed about the extent. With regard to the impediments to the development of a market for reverse mortgages in Germany, the 2006 survey finds that the financial experts are primarily concerned with liquidating the property when the homeowner dies or moves out permanently, followed by longevity risks and the missing market to sell the risks and claims from reverse mortgages. The latter is of only minor concern for the experts in 2019. For the demand side, the experts in both survey waves agree that the difficulties pertaining to the calculation of one's remaining life time, bequest motives, and a lack of trust in potential suppliers are strong or very strong impediments to reverse mortgage demand. However, compared to the 2006 wave, a much higher fraction of those surveyed in 2019 tend to give these demand-side deterrents a strong or very strong weight. In the case of a lack of trust, for instance, the fraction of experts rating this factor as a strong or very strong deterrent was about 25 percentage points higher in 2019 than in 2006. This could be explained by the financial crisis happening between the two waves and could reflect households' distrust in the financial sector as a whole. A reason for the differing expectations of the market development in 2006 compared to 2019 might be that the first survey wave was done before the actual attempts to introduce reverse mortgages to the German market, thus financial market experts might still have been more optimistic.

[6] Note that the results with regard to the impediments on the supply and demand sides are not fully comparable to our survey results because the survey questions are not identical. We offer the respondents a broader menu of impediments to assess and we reframe some of the items to collect as precise as possible answers.

Telephone interviews

To further examine the assessments provided by the financial market experts in the ZEW Financial Market Survey and to get more detailed insights into the market for equity release products, we conduct three extensive telephone interviews, one with a former supplier of reverse mortgages and two with current suppliers of home reversion plans (Deutsche Leibrenten Grundbesitz AG and Stiftung Liebenau). The interviews corroborate that suppliers in Germany are particularly concerned with longevity and property value risks, but they also highlight that reputational and legal risks play an important role when actually launching a reverse mortgage product. The management of these risks is obviously not trivial and partially contributed to relatively complex products which, in turn, were not attractive for potential customers.

Longevity risks are particularly problematic for reverse mortgages since the size of the loan grows by each monthly pay-out and interest accrued. Theoretically, this risk is manageable with securitization and reinsurance. In practice, high costs and incomplete securities markets severely impair a provider's ability to hedge (Denuit, Devolder, and Goderniaux 2007; Lang 2008). Alternatively, a provider could cap the level of total pay-outs. In this case, longevity risks would only affect the size of the loan through accruing interest but not through payments, significantly reducing the financial magnitude of longevity risks (Lang 2008). For instance, DKB resolved the risk of longevity through paying out a fixed loan rather than monthly payments. R+V's reverse mortgage, in turn, included an insurance product ensuring that longevity risks could not lead to a spiraling accumulation of outstanding interest. And Investitions-Bank Schleswig Holstein attempted to mitigate the problem by making clients liable with their entire portfolio instead of only the property itself. In any case, effectively mitigating longevity risks comes at the cost of more complex and/or more expensive products.

As reverse mortgages are (very) long-term contracts and outstanding debt levels increase over time, reverse mortgage suppliers are also concerned with property value risks. Our interviews highlight that property value risks would preferably be managed by a bad debt insurance. However, bad debt insurance only makes sense if the loan amount is capped because otherwise the final amount to be insured would remain unclear. The solution then is to (partially) invest the loan amount into an insurance which assures a life-long monthly payment stream. In the end customers receive at least three products (see also the above described structure of the R+V reverse mortgage). Thus, effectively mitigating property value risks again comes at the cost of more complex and/or more expensive products.

According to our interviews, reputational risks receive major consideration when designing and launching new financial products in general and particularly so when the products are meant for older households– such as reverse mortgages. One expert stated that nothing was worse for a company's reputation than being mentioned in the newspaper with regard to throwing older people out of their homes because some concept for a financial product had not worked out. To avoid such a situation, the reverse mortgage product needs to be designed in a way that effectively mitigates longevity and property value risks as described above. In essence, managing reputational risks also contributes to the complexity and comparatively high costs of reverse mortgages.

The complexity and the relatively high costs (Ben-Shlomo (2015) notes that the effective interest rate was around 10%) of the offered products resulting from the strategies to mitigate longevity, property value and reputational risks themselves seem to have been a further impediment to the development of a viable reverse mortgage market. For instance, R+V primarily sold its product in branches of the German cooperative banks. The loan officers in these branches are naturally familiar with the loan characteristics of reverse mortgages but have much less expertise in the field of insurance. Since the total number of enquiries about reverse mortgages was not that high, employees also had little opportunity to acquire experience and familiarity with the product. A survey done by Deutsche Leibrenten among bankers shows that the high burden of giving advice on the product and the costs to train employees are prominent reasons to refrain from acting as a broker even for the much simpler home reversion plan (Deutsche Leibrenten 2019).[7]

Legal and regulatory uncertainty are further obstacles to a functioning market for reverse mortgages. No single comprehensive piece of legislation explicitly regulates the terms of reverse mortgage contracts or the duties of providers. Instead, reverse mortgages are implicitly governed by the same laws regulating loans, property, and debt in general. The transposition of the European Mortgage Credit Directive into German law ("Wohnimmobilienkreditrichtlinie") further aggravated the situation. More specifically, it stipulates that creditors can only grant a loan if creditworthiness assessment indicates that the borrowers will comply with the loan contract. In turn, creditworthiness is to be assessed based on the complete financial situation of the loan applicant, including future streams of income (Bundesrat Drucksache 84/16 § 505a (1)). Thus, in practice the role of the value of real estate is greatly diminished and emphasis is on the repayment of the loan from regular liquidity inflows effectively locking pensioners out of the credit market. Major uncertainty also surrounds the fact that reverse mortgage clients are not meant to repay their loan before death. Therefore, it remains unclear from a legal point of view whether a reverse mortgage borrower can be said to comply with his/her contractual obligations (see, for instance, a survey among the German cooperative banks (Baden-Württembergischer Genossenschaftsverband 2016) echoing these uncertainties). Even though subsequent reform seems to have alleviated the situation for pensioners more generally and has explicitly clarified that equity release products are not governed by the new law, the latter still appears to have put the final nail in the coffin for the small and fragile reverse mortgage market. Our interviews further highlight that the topic does not seem to be high on the political agenda, neither in Germany nor at the EU-level.

In a nutshell, there are factors on both the supply and demand sides which potentially impede that a market for reverse mortgages can develop: most notably, these are house price risk and informational problems such as adverse selection and moral hazard on the supply side, and bequest motives, distrust in suppliers as well as emotional aspects on the demand side. Lastly, because reverse mortgages are not a standard product, comprehension problems, the difficulty in estimating a household's remaining time of homeownership and missing regulation make reverse mortgages hard to use for both sides.

The case for reverse mortgages in Germany: estimating the potential market size

Empirical approach and data

In this section, representative household data for Germany are used to give an overview of the financial situation of the older owner-occupying households and estimate a potential market size. In particular, we analyze the portfolio composition for different age groups of German seniors to evaluate the relative importance of housing and non-housing wealth. In the next step, we design different scenarios describing various combinations of age and home value requirements to estimate the size of a potential market for reverse mortgages. We complement this estimation with analyses of homeowners' ability to make ends meet and their income satisfaction. Then, we turn to further factors that may impact the market size. Specifically, we focus on the various purposes reverse mortgages can

[7] Our interviews further highlight that the administrative screening and monitoring costs are comparatively high because the reverse mortgage supplier needs to carefully screen the property before the contract is signed and periodically monitor the home owner's maintenance efforts. At the same time, the return for the supplier only materializes in the far future when the property can be sold.

serve, analyze whether reverse mortgages have the potential to decrease old-age poverty and shed light on the potential future development of a reverse mortgage market by drawing on a question asking households that are just nearing retirement how concerned they are about their old-age provision.

We use two different representative household datasets.[8] The first one is SHARE (Survey of Health, Ageing and Retirement in Europe), a household dataset which contains micro data on households aged 50 and older since 2004. With an aim to provide information on wealth and income, health and health care, retirement and social networks of seniors, the dataset includes data from interviews with a total of around 140,000 individuals in 27 European countries and Israel and is representative of the older population. We use the German subsample of the 6th wave (Release 7.0.0), which was fielded in 2015, as it is the most recent wave that includes the regular questionnaire modules for all the households interviewed[9] (see Malter and Börsch-Supan (2017) and Börsch-Supan (2019) for further information on the dataset).

The second dataset that we use is the SOEP (German Socio-Economic Panel), a household dataset which collects representative micro data on German private households. The SOEP is a longitudinal data set ranging back to 1984. Among many other topics, the SOEP survey includes questions on household composition, occupational biographies, employment, earnings, health, and satisfaction indicators. We use the 2017 wave of the German SOEP because it includes a special section providing wealth information of the household, including information about housing values. It includes information from about 19,000 households with more than 30,000 grown-up individuals.

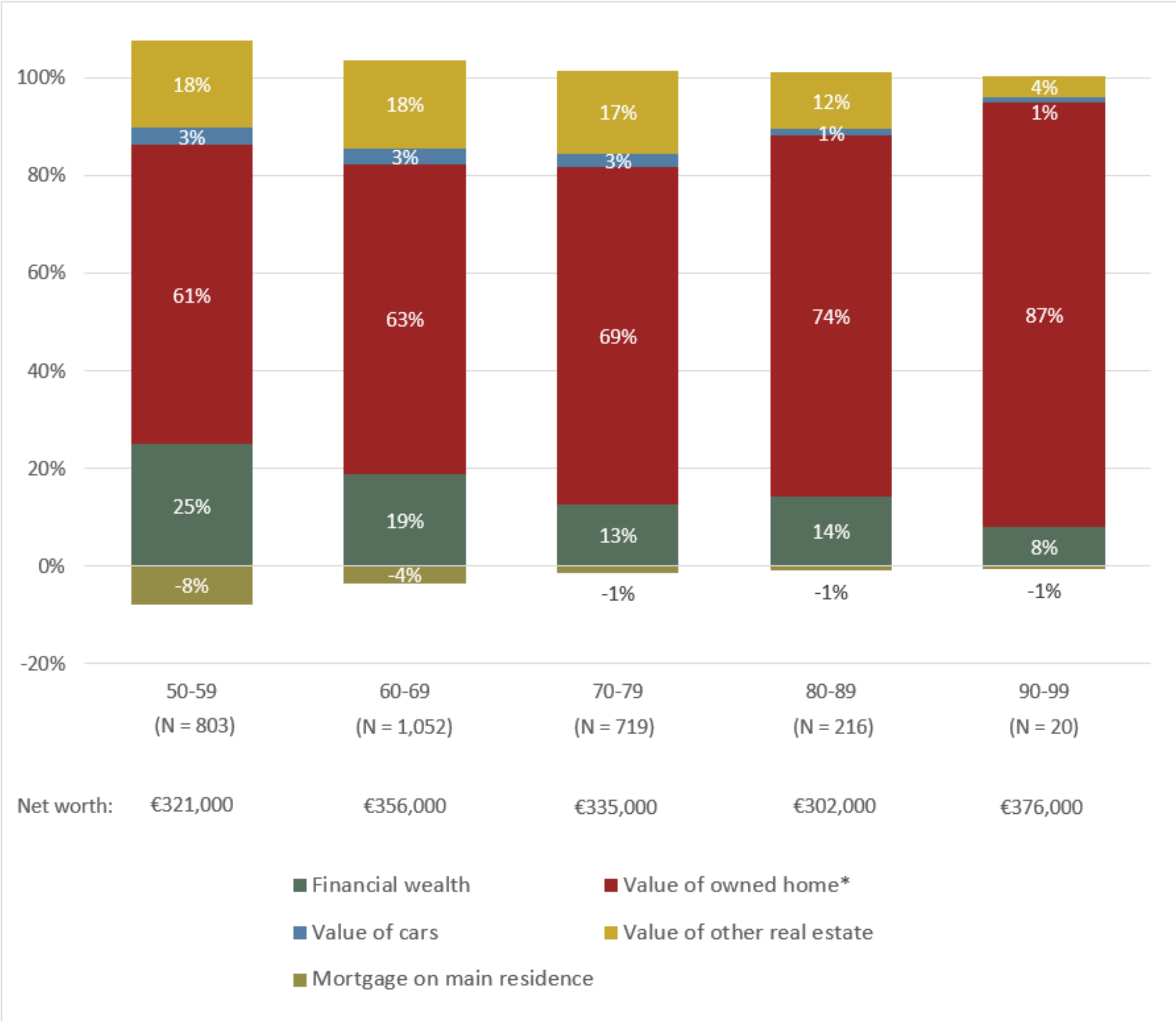
Household net worth

We first take a closer look at the financial situation of older owner-occupying households using the SHARE database. To do so, we analyze the composition of household net worth by age group, rounded to the next €1,000. We consider financial wealth (bank accounts, bonds, shares, mutual funds, and savings for long-term investments like private pension wealth or life insurances, less financial liabilities), vehicles, real estate, and mortgages on the main residence (displayed with a negative sign). The home value is calculated by multiplying the owned fraction of the home with the self-reported value of the house.

Figure 3 displays this wealth decomposition for the group of owners, where every household that has bought a home—with or without a mortgage—is considered, irrespective of the fraction of the home that the household owns effectively. German homeowners aged 60–69 have the highest net household wealth. While for older cohorts, net wealth is lower, it is highest for the oldest cohort due to very high home values in that age group. Throughout, home value is by far the largest asset on the households' balance sheets: it accounts for around two thirds of household net worth. However, the ratio between home equity and financial assets is higher for older cohorts.[10] Several factors can contribute to this finding. First it could be that older households draw down their liquid assets faster and thus, the relative weight of the house increases with age. Second, wealthier households might be more likely to stay in their own homes with a private nurse, while less wealthy households are more likely to move into nursing homes. Third, selective mortality could lead to the richest households surviving the longest.

[8] We weigh observations with cross-sectional household weights delivered by the respective data provider.
[9] Wave 7 covers fewer households because of a more complicated questionnaire structure.
[10] Note that the oldest cohort is very small and contains only 20 individuals.

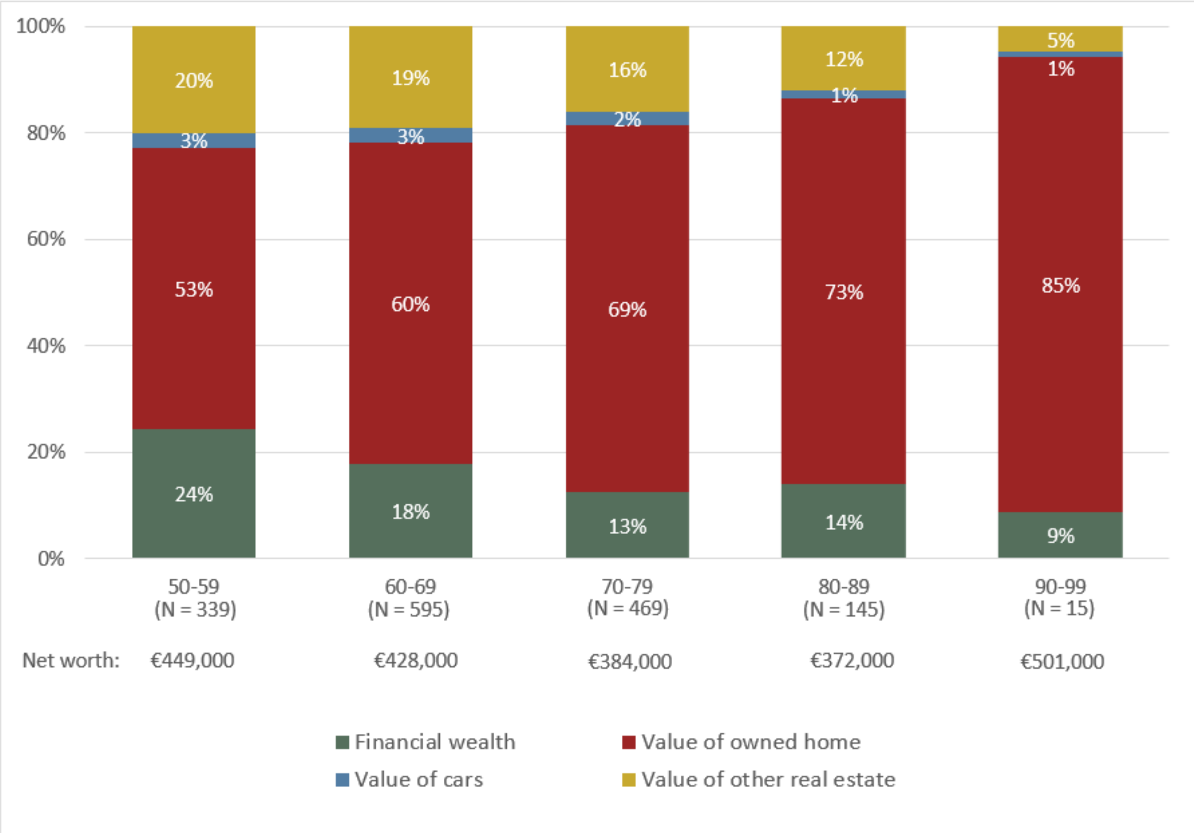
Figure 3: Asset shares in owners' household net worth



*Note: * For households with a positive mortgage balance, this is the value for the debt-free fraction of the home only.*
Source: Authors' calculations based on weighted 2015 SHARE data

Figure 4 displays the values of the net worth components and their respective shares in household net worth for only those households which have full ownership rights of their homes and no outstanding mortgage debt on the main residence. Given their full control over their debt-free homes, these households could potentially demand reverse mortgages. Compared to the owner-occupiers described in Figure 3, these households are yet better off: not only is their home equity much higher, they also own substantially more other liquid and illiquid wealth. Moving from younger to older cohorts, the share that the main residence represents of total household net worth gradually increases.

Figure 4: Asset shares in household net worth of households that fully own their debt-free home



Source: Authors' calculations based on weighted 2015 SHARE data

Taken together, for owners, housing wealth is the largest asset and ties up considerable wealth that could be converted into liquid wealth using for example a reverse mortgage.

The market potential for reverse mortgages in Germany

Scenario analysis and income satisfaction

To come up with an estimate of the market potential in Germany, we calculate the number of owner-occupying senior households living in a debt-free home with a market value high enough to originate a reverse mortgage, again using SHARE data. Deciding on the relevant criteria required to be fulfilled, however, is not unambiguous: as laid out above, former suppliers used different eligibility criteria. For instance, some suppliers required households to be aged 65 years or older, while others additionally imposed an age cap of 80 years. Likewise, the home values eligible for annuitization differed substantially across suppliers, from €250,000 to around €400,000. In this exercise, we therefore opt to choose different combinations of requirements relating to the households' age and home value. In any case, we only count households that have full ownership rights and no outstanding mortgage debt on their primary residence. As the literature has found that homeowners overestimate their home value by between 5% and 10% (e.g., Benítez-Silva et al. 2015), we adjust the self-reported home values by 7.5%. Finally, we ignore other factors that are unobservable to us and which would further limit the size of the potential market. For instance, we know from our interviews that reverse mortgages were supplied preferably to households living in attractive regions. However, information on the location of the households is not available to us in great geographical detail. Additionally, from a demand-side perspective, our estimates will also include households that may have strong bequest motives which reduces their willingness to own reverse mortgages. Overall, our estimated market potential should therefore be understood as an upper bound. We will additionally use SOEP data for an alternative estimate in a later step.

Table 1 reports market potentials for different combinations of the age and minimum home value requirements. The least restrictive scenario—a minimum household age of 65 and home value of €250,000—yields a potential market size of around 2 million older households.[11] Currently, this is about a quarter of all German households aged 65 or older. The most restrictive, and more realistic[12], case considers only households aged 65–80 with a minimum home value of €400,000. This configuration reduces the number of eligible households to around 530,000. As for the two intermediate cases in which we vary only the age band or the minimum required home value at a time, it becomes evident that the home value requirement is the limiting factor for the market size: all else equal, the market potential drops from about 2 million to 0.76 million eligible households when higher home values are required. Capping the age of eligible households instead does not restrict the market as much. This is due to the low homeownership rate among households older than 80, which drops sharply for older cohorts (to 51% in the age group 80-89 and 33% for households aged 90 or older). However, this rate among the very old could arguably rise if reverse mortgages existed in Germany, especially if the older homeowners were taken care of in their own home more often.

Table 1: Potential market size in number of households

		Minimum required value of owned home	
		€250,000	€400,000
Age	At least 65	1.98 million (490 thousand)	0.76 million (131 thousand)
	65–80	1.41 million (404 thousand)	0.53 million (108 thousand)

Note: Estimates in parenthesis adjust for households' ability to make ends meet easily.
Source: Authors' calculations based on weighted 2015 SHARE data

In the next step, we take a closer look at the financial situation of the groups of households outlined in Table 1. In particular, we analyze how easily they can make ends meet and compute the yearly shortfall between the needed and the available yearly household net income for the case that they cannot get by easily at the end of every month. Total household net income includes earnings from employment or self-employment; all kinds of retirement, sickness, and disability pensions; income from rent of second homes or sublet; income from other household members; and interest and dividends.

The results are summarized in Table 2. The table shows that the vast majority of households identified as potential reverse mortgage demanders reported being able to make ends meet easily at the end of each month; between a fifth and a quarter find it fairly easy or have some, but not great difficulty to

[11] These households have a household net worth of €514,000 at the median and €695,000 at the mean. The least wealthy percentile of those households still owns substantial net worth of €302,000. The top percentile owns more than ten times as much.

[12] This scenario is more realistic inasmuch as it takes into account that reverse mortgages become more attractive with increasing home values because higher payments can be generated. At the same time, higher home values can be seen as a proxy for attractive housing markets – another parameter that our interviewees indicated to be an important factor in making the decision as to whether a household can be offered a reverse mortgage or not.

do so.[13] These analyses imply that only a fraction of the estimates reported in Table 1, i.e. between 404 and 490 thousand households in the least restrictive case and between 108 and 131 thousand households in the most restrictive case, would result in a more realistic market size.

Table 2: Difficulty of making ends meet for households that are part of the market potential

	Households satisfying certain home value and age requirements			
Household is able to make ends meet…	€250,000; at least 65	€400,000; at least 65	€250,000; 65–80	€400,000; 65–80
…with some difficulty	5.33%	2.80%	4.32%	1.34%
…fairly easily	15.40%	17.62%	20.18%	23.39%
…easily	79.27%	79.58%	75.50%	75.27%
Median shortfall*:	€4,280	€4,200	€4,272	€4,200

*Note: * The shortfall value is computed as the median over all individuals who indicated that they are able to make ends meet with at least some difficulty or fairly easily.*
Source: Authors' calculations based on weighted 2015 SHARE data

For the market potential based on the least restrictive scenario, those households that do not find it easy to get by report a yearly shortfall of around €4,300 at the median that would be needed to make ends meet easily. For the most restrictive case, the median shortfall is of about the same magnitude; €4,200 per year. In both cases, the additional income needed to have a comfortable life is modest. Additionally, it must be noted that the mean household reports having an income *exceeding* the amount needed to make ends meet easily.

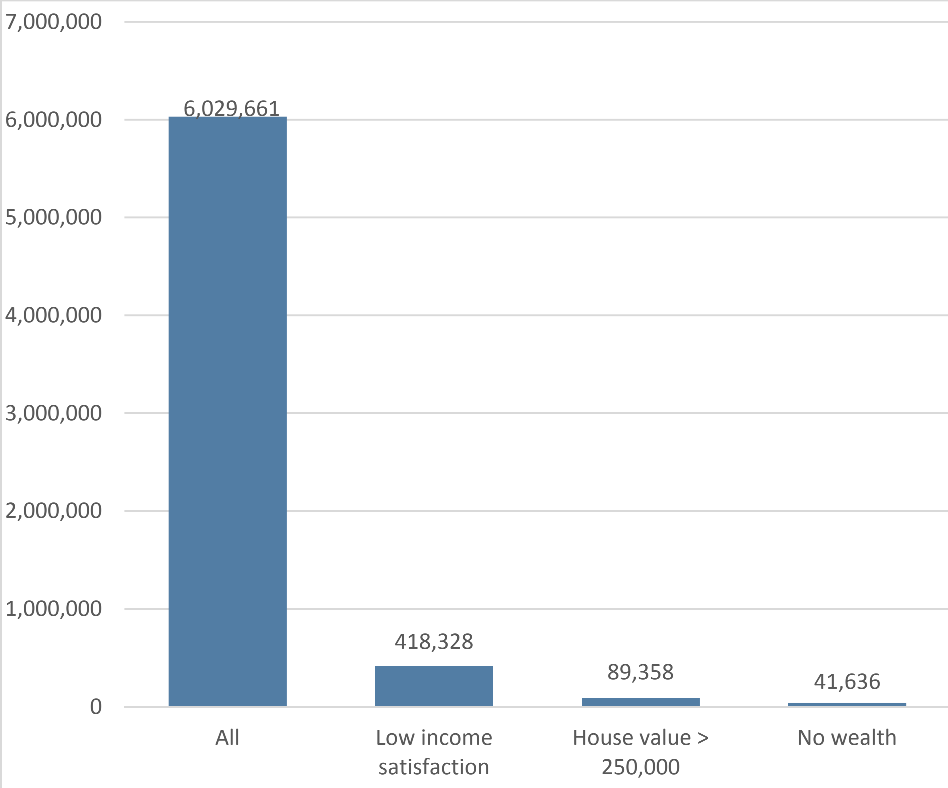
To assess the potential market size for reverse mortgages in Germany from a different angle, we additionally use data from the 2017 wave of the SOEP (see SOEP (2019) for further details on the dataset). Here we can link detailed information on income, housing values and financial assets with questions about income satisfaction and pension provision concerns.

We start with the market potential in its broadest definition, i.e. all households aged 65 and above that own a debt-free home. Figure 5 shows that these are about 6 million households. If a household is satisfied with its financial situation, there seems no need to take up a reverse mortgage.[14] If we therefore only consider households with a low income satisfaction, the market potential shrinks to 420,000 households. Equivalence weighted[15] disposable income of households with a low income satisfaction is about €2,000 lower on average than for households which are moderately satisfied. This suggests that perceived income satisfaction could be improved by a rather small reverse mortgage. When we additionally apply the requirement of some previous providers of reverse mortgages to have housing values of more than €250,000, a market potential of only 90,000 households remains. Of these 90,000 households only 41,636 have no financial wealth which they could use instead of loading a mortgage on their home. Thus, when taking income satisfaction and financial wealth into

[13] The menu of answer options also included "With great difficulty"; however, none of the households identified in this analysis chose that option.
[14] Whether a household is satisfied with its disposable income generally correlates with the amount of income. However, even in the group with the lowest income (€0-10,000) nearly 80 percent of older homeowners are at least moderately satisfied with their income.
[15] For equivalence weighting we use the modified OECD scale. The first person in the household gets a weight of 1 and every other person older than 14 gets a weight of 0.5. Children younger than 14 get a weight of 0.3.

consideration, both of which should make the take-up of a reverse mortgage considerably less likely, the estimated market potential is very low.

Figure 5: Potential market size in number of households with increasing minimum requirements



Source: Authors' calculations based on weighted 2017 SOEP data (v34)

Financial management tool

So far, we have focused on reverse mortgages being used to provide a monthly income stream to top up the available income of pensioners. However, and importantly, seniors could use reverse mortgages to manage their finances and to fine-tune the timing of bequests (e.g., Dillingh et al. 2017). If older households want to stay in their home and retain their ownership rights, they could use reverse mortgages, for instance, to transfer money to their children to assist them in building their own home, founding a company or funding their education. This is especially relevant for very wealthy homeowners who want to benefit from the allowances granted by the gift tax. But it seems also relevant for older homeowners in general given that children often do not live close to their parents nor will ever move back to their childhood home, but might be in need of larger sums of money long before their parents pass away. The possibility to use reverse mortgages as a financial management tool for older homeowners might not be largely known and would thus need adequate advertising. However, it has the potential to increase market size in the future.

Potential to decrease old-age poverty

Even though a large fraction of eligible homeowners are wealthy, there are some households who could benefit from an additional income. In particular, the SOEP data shows that there are more than 200,000 households aged 65 and above with a debt-free home that have incomes below the poverty threshold.[16] Their home value is on average €176,000, which is substantial but below the eligibility thresholds requested by former suppliers of reverse mortgages in Germany. This offers scope for using

[16] In Germany a household is considered as poor if its equivalence weighted income is below €13,200 per year which is 60 percent of the median income.

a reverse mortgage. Access to a reverse mortgage of €100 per month would increase the average income of these households, which is €11,260 p.a., in a non-negligible manner by 9.3 percent[17] on average. This would lift about one third of the households out of poverty.

Concerns about decreasing pension levels

Since the pension level decreases over time, income satisfaction might also decrease and, as a result, increase the demand for reverse mortgages. Therefore, in the next step, we use the SOEP data to study households which are in an age group just below the pension age, i.e. households where the youngest member is above 55 and below 65. In this group, 2.7 million households own a debt-free home. To shed some light on the future market potential resulting from that group we analyze a SOEP question which asks survey participants how concerned they feel about their old-age provision.[18]

We present the results in Table 3. While households with an age above 65 are mostly not concerned with their pension, this is not the case for households just below the pension age. About 12 percent of the households in the latter group are very concerned with their pension provision and around 51 percent are moderately concerned. In total, there are 1.7 million households which are at least somewhat concerned about their old-age provision. Among these about 135,000 households have no financial wealth and housing values above €250,000. Thus, market potential might increase considerably in the near future.

Table 3: Concerns about own pension - households that are part of current or future market potential

Concerns about own provision for old age	Age of youngest household member			
	55–64		at least 65	
	N	Percent	N	Percent
Not concerned	1,021,024	37.34	3,322,586	55.10
Moderately concerned	1,384,416	50.63	2,393,414	39.69
Very concerned	327,843	11.99	292,620	4.85
No answer	959.03	0.04	21,041	0.35

Source: Authors' calculations based on weighted 2017 SOEP data (v34)

We will summarize and discuss these results in the next section, before showing several ways to establish a market for reverse mortgages based on the experiences in the US and the UK.

How could a German market for reverse mortgages evolve?

Is there a potential market for reverse mortgages?

According to the results of our financial market survey, the telephone interviews and the literature, the absence of a functioning market for reverse mortgages can primarily be attributed to the products being too expensive and too complex. The fact that multiple providers failed to design a simpler and

[17] After equivalence scaling the €100.

[18] To estimate the future potential we use this question instead of the question about income satisfaction because when retiring household income might drop considerably and this might change income satisfaction in the future.

crucially cheaper product suggests that the business and social environment in a much broader sense impedes the emergence of a market on its own. Plausibly, some form of governmental intervention could alleviate the situation, but this begs the question whether Germany needs a market for reverse mortgages in the first place.

To begin with, the market itself would probably be quite small. Although Conrad (2007) estimates market potential around one million possible customers, it is hard to see that uptake would be anything close if only the factors analyzed above are taken into account.[19] Using SHARE data, in our least restrictive scenario, we estimate a market potential of around two million older German households. A more realistic scenario that caters better to former suppliers' age and home value requirements yields a market size of around 530,000 households. However, it is unlikely that even the lower of these numbers would ever be fully realized: even in the US, where homeowners are better aware and make much more use of home equity release products than in Germany, only 2% of eligible households own reverse mortgages (Nakajima and Telyukova 2017). When we take into account the wealth situation and how easily households find it to make ends meet, we see that most of the eligible households are well off and report having a high-enough income to cover basic needs. In that case, we obtain a market size of between 108 and 131 thousand households. Estimating potential market size using the SOEP data, we find an even smaller market potential of less than 100,000 households.[20]

Having said this, our results also highlight that there is potential for the market to grow in the medium term. First, the possibility to use reverse mortgages as a financial management tool for older homeowners seems to be little known, but might be of (increasing) interest once the information has spread. Second, we find that there are about 200,000 households older than 65 with substantial housing values and incomes below the poverty thresholds which could benefit a lot by receiving even a small reverse mortgage. Third, we show that more than half of the households with their youngest member being in the age group between 55 and 64 are at least moderately concerned about their old-age provision. The significance of the possibility to use one's home to actively manage old-age provisions with the help of reverse mortgages may therefore increase over the coming years due to a combination of demographic change, a falling level of public pensions and, not least, the lasting low-interest environment that renders many interest-based saving products unattractive.

Eventually, the potential market size will be influenced by existing similar products. The most notable alternative product to turn illiquid housing wealth into a stream of payments or a lump sum, while keeping the right to stay in the own home, is the home reversion plan. The product is gaining traction, but the overall market size is still very small. And above all, for older homeowners who do not want to give up their ownership rights, home reversion plans are not an option. Thus, home reversion plans and reverse mortgages are alternative products but not necessarily substitutes.

[19] There are other factors that we could not analyze because of a lack of data. E.g., subjective life expectancy might influence the demand to take up a reverse mortgage. Davidoff et al. (2017) find that homeowners overestimate their life expectancy relative to the objective life expectancy. Correcting this misperception would result in a decrease in the demand for reverse mortgages. Also, the literature has found that seniors with a bequest motive are less likely to show interest in purchasing a reverse mortgage (e.g., Cocco and Lopes 2020), even though an equity release product would, in principle, allow them to bequeath money. In addition, older households could liquidate part of their housing value to finance consumption by simply reducing maintenance payments.

[20] We attribute the gap between our two estimates to the different questions that we use to filter the data: while the SOEP questionnaire asks explicitly for the households' satisfaction with their income, SHARE asks how easily they can make ends meet. Under the additional but reasonable assumption that households can have enough income to make ends meet but at the same time be unsatisfied with this income, the market estimate using the SHARE data could shrink and come closer to the SOEP-based estimate.

Irrespective of the market potential, it is important to understand how strongly reverse mortgages could ultimately benefit older households: even though the theoretical literature posits that they should enjoy utility gains from reverse mortgages (e.g., Davidoff 2009, Davidoff 2015, Hanewald et al. 2016, Nakajima and Telyukova 2017), Moscarola et al. (2015) argue that even in the case of pensioners converting 100% of their house value into an annuity payment, reverse mortgages would only reduce vulnerability, defined as earning less than 60 percent of the median disposable income, of those aged 65 and above by 5.7% to 3.0%. And a more realistic 70% conversion rate would alleviate vulnerability by between 4.4% and 2.5%. Our findings complement this view: most of the households that could be part of the market potential report not having a lot of difficulty making ends meet at the end of the month. Thus, the potential for enhancing welfare through public intervention might best be focused on specific target groups.

Ways to move forward

In the USA, the thriving market for reverse mortgages relative to other equity release products is largely due to extensive public guarantees (Hanewald et al. 2016). The federal government insures the lender against losses resulting from non-repayment of the loan. If the loan is terminated at a balance greater than the value of the security, lenders can apply for insurance claims up to a certain limit, the maximum claim amount (MCA), consisting of the security's minimum appraised value and the Federal Housing Administration's (FHA) Home Equity Conversion Mortgage loan limit at origin. In practice, lenders frequently file such a claim once the loan balance exceeds 98% of the MCA. The FHA then simply pays out the balance of the loan to the lender and becomes the new holder of the mortgage note, continuing to service the loan and eventually trying to recover the loan balance (FFE Group 2015). In exchange for its insurance, the FHA charges guarantee fees to cover its cost. Thus, the service should theoretically not create any additional liabilities for the taxpayer. In reality, the federal government is confronted with significant costs. For example, in 2017 the FHA recorded a negative cash flow of 14.2 billion dollars (Pinnacle Actuarial Resources 2017). While such a general public commitment could certainly lead to the emergence of a market for reverse mortgages in Germany, its desirability is questionable as the costs could significantly outweigh the benefits. However, if only those households with substantial housing values and incomes below the poverty thresholds benefited from public guarantees, the benefits could outweigh the cost. From a political economy point of view, it therefore could make sense to give public guarantees only for reverse mortgages of low-income households to avoid that primarily those with high incomes and substantial, albeit illiquid, wealth benefit.

The British experience might be somewhat more palatable. The market for reverse mortgages is entirely private in the UK. There are no subsidies or government guarantees, demonstrating that private provision of reverse mortgages is indeed a viable strategy. Crucially, the UK has developed a strong legal framework for reverse mortgages. In particular, the sale of reverse mortgages is highly regulated through the Financial Conduct Authority. Industry associations such as the Equity Release Council also assist in providing consumer protection and industry standards. Despite the absence of government insurance, reverse mortgages are covered by a type of social insurance through the financial services compensation scheme. Again, this ensures that borrowers continue to receive payments even in the case of borrower bankruptcy. A no-negative-equity guarantee ensures that borrowers cannot accumulate debt above the value of their home. However, Overton and Fox O'Mahoney (2015) note that not all providers appreciate the resulting increase in security. In fact, they find some providers voicing concerns about limited product flexibility unnecessarily raising costs, in particular for smaller loans.

While there certainly are administrative costs, introducing regulation to create an environment in which a reverse mortgage market can develop appears to be a much cheaper and more feasible option. To some extent, the required infrastructure already exists at the German Financial Conduct Authority

(BaFin) and the Bundesbank. By creating a clear legal framework for home equity release products in general and reverse mortgages in particular, lawmakers could significantly improve market conditions with little effort but without entering into any substantial financial commitments. Admittedly, legislation alone would not guarantee the emergence of a thriving market for reverse mortgages. Still, given its low cost it would be a step in the right direction. It would lay the foundation for a private market as in the UK rather than a publicly backed market like the US one, avoiding the substantial financial costs the US system brings with it. The downside of merely creating a reliable legal framework instead of more extensive public support is that any market is likely to emerge and grow rather slowly.

On top of the legal framework needed for a market to evolve, households must be aware of and accept that homes are not merely a consumption but also an investment good (e.g. Reifner et al. 2009a). A study using qualitative in-depth interviews with households in Germany and the UK (Jones et al. 2012) points out that most of the interviewees owning or aspiring to own a home did so to live rent-free during retirement. Yet, extracting equity from their homes was neither a reason nor an option for most of those interviewed. While the literature is somewhat ambiguous on the question whether both housing wealth and financial wealth are used to finance consumption during retirement (Suari-Andreu et al. 2019), one of our interview partners argued that Germans may treat their old-age provisioning and housing investment as two separate financial decisions made independently from one another. If this is the case, financial education tailored to informing households about drawing down housing wealth and using reverse mortgages as a financial management tool as well as marketing campaigns may help the market to evolve and grow.

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EconPol Europe

EconPol Europe - The European Network for Economic and Fiscal Policy Research is a unique collaboration of policy-oriented university and non-university research institutes that will contribute their scientific expertise to the discussion of the future design of the European Union. In spring 2017, the network was founded by the ifo Institute together with eight other renowned European research institutes as a new voice for research in Europe. A further five associate partners were added to the network in January 2019.

The mission of EconPol Europe is to contribute its research findings to help solve the pressing economic and fiscal policy issues facing the European Union, and thus to anchor more deeply the European idea in the member states. Its tasks consist of joint interdisciplinary research in the following areas

1) sustainable growth and 'best practice',

2) reform of EU policies and the EU budget,

3) capital markets and the regulation of the financial sector and

4) governance and macroeconomic policy in the European Monetary Union.

Its task is also to transfer its research results to the relevant target groups in government, business and research as well as to the general public.