USING HOUSING WEALTH to FUND LONG TERM CARE

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Abstract

A report published by the Institute and Faculty of Actuaries in November 2011 entitled Responding to the Dilnot Commission: Information Gathering Regarding Long Term Care in Ten Countries presents a chart comparing the extent of funding of long term care (LTC) for the ten countries reviewed. At one extreme is Norway, with a comprehensive system financed by the state from taxation. At the other end of the spectrum is Germany, which uses a compulsory funded national insurance system to deliver a comprehensive system of universal care. The remaining countries lie in between these two extremes, with a combination of state provision, self-funding and private insurance. If implemented, the recommendations of the Dilnot Commission, which apply to England, would remove some of the uncertainty associated with the expenses an individual could be expected to self-fund. There would be a lifetime cap on the amount that an individual could pay for care expenses and an annual limit on the contribution an individual would be required to pay for general living costs. Moreover, eligible expenses would be well defined.

Various reports have recommended that England provide a better organised system of LTC provision, but they have not been implemented because they have been judged too costly, among reasons given. Moreover, there is considerable housing wealth held by the population, especially those age 55 and up. Issues of inter-generational fairness have been raised against expanding state provision for LTC, instead of requiring this generation to use some of its housing wealth.

This paper outlines how housing wealth might be released to help fund LTC costs, while the LTC recipients were able to remain living in their own homes. It will refer to previous work on home-equity release by the author and to a discussion paper by the International Longevity Centre – UK entitled A National Care Fund for Long-Term Care that incorporates property wealth in the financing of LTC.

This research paper outlines the public-private partnership (PPP) model developed for the GAVI Alliance (GAVI) and its financing through the International Finance Facility for Immunisation (IFFIm) and suggests how elements of that model might be incorporated in a PPP approach to LTC. Whereas the IFFIm approach securitises government commitments to provide cash for immunisations, this paper shows how property of those requiring LTC could be securitised to unlock home equity and support their LTC requirements. The Dilnot recommendations would provide a useful framework to facilitate such an approach. Moreover, just as the securities created by the IFFIm are able to be sold at a lower yield because of their socially responsible characteristics, so might the securities described herein be considered socially responsible and sold at a lower yield. A longevity swap might further enhance the product.

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1.0 INTRODUCTION

In developing countries, population aging is increasing the interest in long term care (LTC) provision. Various reports (e.g., Sutherland, 1999) have recommended that England provide a better organised system of LTC provision, but their recommendations have not been implemented fully because they have been judged too costly, among reasons given. England's most recent commission on LTC provision, the Commission on Funding of Care and Support referred to as the Dilnot Commission, issued its report in July 2011 (Dilnot et al., 2011). The Institute and Faculty of Actuaries (IFoA) commissioned research regarding the nature of LTC provision in 10 countries to enable the IFoA to take a full part in the detailed work that will be needed to deliver whatever solution is proposed and finally implemented. The IFoA released the report on this research in November 2011. This report presents a chart comparing the extent of funding of LTC for the ten countries reviewed (Andrews and Power, 2011). At one extreme is Norway, with a comprehensive system financed by the state from taxation. At the other end of the spectrum is Germany, which uses a compulsory funded national insurance system to deliver a comprehensive system of universal care. The remaining countries lie in between these two extremes, with a combination of state provision, self-funding and private insurance. A further discussion of the IFoA's report and certain recommendations of the Dilnot Commission are presented in the Section 2.0.

England is one of the countries that lies in between the LTC funding extremes. It has a National Health Service, which pays for medically necessary expenses, but for care costs it uses a self-funding model, with limits. The responsibility for care costs rests primarily with individuals and their families, until assets fall below a threshold of £23,250 as determined by a means-test, at which point the state provides some subsidies for care provision.

If implemented, the recommendations of the Dilnot Commission, which apply to England, would remove some of the uncertainty associated with the expenses an individual could be expected to self-fund. There would be a lifetime cap on the amount that an individual could pay for care expenses and an annual limit on the contribution an individual would be required to pay for general living costs. Moreover, eligible expenses would be well defined.

There is considerable housing wealth held by the population, especially those age 55 and up. However, the take-up of home-equity release plans has been limited. The market associated with the provision of the No Negative Equity Guarantee (NNEG) exhibits signs of failure. Information regarding the extent of home equity among seniors and home-equity-release products is presented in Section 3.0, which also discusses the pricing of the NNEG.

The GAVI Alliance (GAVI) is a public-private-partnership (PPP). Working with the International Finance Facility for Immunisation (IFFIm) it has developed an unusual and successful approach to financing. Section 4.0 describes this approach.

In Section 5.0, a proposal for England is described under which the NNEG would be provided by a PPP. Such an arrangement should create a competitive market in home-equity-release products that should lead to the pricing of products on a basis more attractive to

consumers. Such a PPP might garner some of the yield advantages that IFFIm has been able to obtain. An innovative longevity swap is described. Section 6.0 identifies areas for further research and concludes.

2.0 INSTITUTE and FACULTY of ACTUARIES' RESEARCH

The IFoA report (Andrews and Power, 2011) gathered information from publicly available sources regarding LTC provision in ten countries. The ten countries are Canada, France, Germany, Ireland, Japan, the Netherlands, Norway, Singapore, the United Kingdom (primarily England), and the United States. For each country it summarised key economic, demographic and care provision statistics, the role of the state in care provision, private financial services solutions for care provision. It provided references for further information. It also identified gaps in the publicly available English literature and gaps in coverage with respect to the countries researched.

The purpose of the research was to enable the IFoA to prepare itself to participate fully in the consideration and implementation of the Dilnot Commission's report, should it be implemented.

2.1 Certain Dilnot Commission Recommendations

The Dilnot Commission's report contained a number of recommendations, which if adopted, would fundamentally change the risk exposure of individuals in England with respect to care costs. The report makes a distinction between adult social care costs, which are costs directly related to personal care including certain costs related to being in a care facility, and general living costs, which are costs related to food, accommodation and general living expenses that would be incurred regardless of whether the individual is in a care facility. Three specific recommendations in this regard are the following:

1. To protect people from extreme care costs, the lifetime contribution to adult social care costs that any individual needs to make be capped between £25,000 and £50,000. The report proposes £35,000 as an appropriate and fair figure.
2. Means-tested support should continue for those of lower means, and the asset threshold for those in residential care beyond which no means-tested help is given should increase from £23,250 to £100,000.
3. People should contribute a standard amount to cover their general living costs, such as food and accommodation, in residential care. The report states a figure in the range of £7,000 to £10,000 a year is reasonable (Dilnot et al., 2011).

2.2 Implications for England

If adopted in the form proposed, the first recommendation would limit the amount an individual would pay for care costs. The third recommendation would limit the annual amount that an individual would pay in respect of general living costs. This recommendation recognises that some of the expenses incurred living in a care institution will be in respect of general living and it is reasonable that the individual continue to bear such expenses, up to some specified level. The consultation regarding this point suggests that there is some lack of

clarity regarding what might be included in this category, so the wording of the report is stated, without expansion.

The research commissioned by the IFoA provides information regarding the way in which the responsibilities for funding of LTC costs are shared by the state, private sector, and individuals, in ten countries. As mentioned, England defines medical expenses that are the responsibility of the state, but relies on self-funding of care expenses except for those of limited means. As such, it lies between the extremes of a comprehensive system financed by the state from taxation, such as in Norway, and a compulsory funded national insurance system to deliver a comprehensive system of universal care, such as in Germany. Adoption of the recommendations of the Dilnot Commission, listed above, would limit the individual's (and his or her family's) liability to bear care expenses. This would shift a greater burden for LTC expenses to the state; although, the essence of the approach would remain self-funded (but with lower limits).

3.0 HOUSING WEALTH and EQUITY RELEASE

In England, many seniors live in their own homes. Typically seniors prefer to stay in the family home as long as they are able. There has been significant house price growth in the United Kingdom since 1970, which has exceeded the rate of growth in GDP (Hosty et. al., 2007). This has resulted in considerable growth in home equity. The home equity represents a significant portion of seniors' net worth; however, this asset is largely illiquid. There are equity release programmes available in England. Where such programmes contain a NNEG the pricing of such programmes typically uses conservative pricing assumptions in order to protect the financial position of the institution providing the NNEG. As such, seniors often find such arrangements unattractive.

Information regarding home ownership for the United Kingdom based on 2005 data in the British Household Panel Survey cited by Boreham and Lloyd (2007) quantifies the extent to which the home represents a large proportion of total assets. More than 80 per cent of household reference persons (HRP) of age 55 and over live in an owned home. This percentage declines with increasing age, but still exceeds 65 per cent for HRP at age 75 and older. Due to significant increases in property values in the United Kingdom, the mean illiquid assets for HRP of 55 and over exceeded £150,000, declining to over £100,000 for HRP of age 75 and older. Most of the illiquid assets are in respect of property.

3.1 Equity Release Products

Safe Home Income Plan (SHIP) is the trade body in the UK, established in 1991, to promote safe plans of home equity release and to safeguard the interests of consumers via a code of conduct for SHIP's members. SHIP's members comprise the majority of major home equity release providers in the UK (SHIP, 2012). SHIP has established a number of principles with which its members are expected to comply, including the provision of a NNEG. Applicants for equity release may deal with any institution they choose. According to the SHIP website (2012), an applicant might expect to receive a loan in the range of 35 per cent to 60 per cent

of the market value of the home, depending on the ages of the applicant and the applicant's partner.

There are three main types of equity-release plans: lifetime mortgage, home reversion, and sale and leaseback agreement. A lifetime mortgage is a loan for the individual's lifetime, or until the home is vacated as the applicant's residence. Interest may be accumulated and paid off when the debt is settled, or the loan can be issued on an interest-only basis, so interest is paid on an on-going basis. Funds may be advanced on a lump sum basis or may provide regular income. In a home reversion plan, the funds are granted in respect of the transfer of all or a share of ownership in the home to the lender. When the home is eventually sold, the lender receives its share of the sale price. A sale and leaseback agreement provides that the home is sold but that the purchaser agrees to lease it back to the seller on set terms. This typically ensures a quick sale but usually at a substantial discount to market value. At present, sale and leaseback arrangements are not regulated by the Financial Services Authority and do not fall under SHIP (SHIP, 2012).

Although equity-release plans have been available in the UK for many years, they have not received as much take-up as might be expected. In a 2011 press release, Andrea Rozario of SHIP states that it is estimated that there is £250 billion of equity that could be released immediately, yet the market is just under £1 billion a year (SHIP, 2012).

3.2 The No Negative Equity Guarantee

The NNEG provides that the homeowner borrower will not be required to repay an amount to discharge the mortgage greater than the value of the property when sold, usually after sales expenses are considered. This is an attractive provision for the borrower, since it provides certainty that the amount owed will not exceed the home equity, regardless of how long the borrower lives and irrespective of how house prices fluctuate. However, this provision creates risk for the home equity loan provider. Moreover, there is not a well-developed market to provide hedges for the risk assumed, so generally this risk is borne by the provider. The provider incorporates a charge in the home-equity-loan agreement in respect of the NNEG and typically loans a reduced fraction of the market value of the home in order to provide a further contingency margin.

Hosty et al. (2007) in a presentation to the IFoA have considered various pricing assumptions for equity release products. They consider equity release products to be expensive and list traditional explanations for this, including: lack of claims/repayment experience with the product; the levels of guarantees provided; expenses associated with issuance, maintenance and repayment; risk; and with the trend toward issuing smaller loans, higher per unit expenses. They analyse the pricing of the NNEG under various scenarios. Their results are presented in the following table. The low end of the range is with respect to a male applicant age 70 and the high end of the range is with respect to a joint application at age 65. Rates for females are higher than for males of the same age, since females are expected to live longer on average: although, the mortality differential is partly offset by higher rates of entry into LTC by females, resulting in earlier sale of homes. Joint applications are more expensive than single applications.

Table 1: Estimated Cost of NNEG on Alternative Valuation Assumptions

Valuation Assumptions	Range (based on initial loan)
0% forward rate with 11% volatility	20%-45%
1.5% forward rate with 11% volatility	12%-29%
1.5% forward rate with 14% volatility	14.6%-32.7%
1.5% forward rate with 17% volatility	17.1%-36.2%
Real world assumptions	1.8%-4.1%

Source: Hosty et al. (2007)

As can be seen there is a vast difference in pricing, if the real world assumptions are used. Briefly, the real world assumptions use 4.5 per cent for house price inflation combined with a 4.75 per cent discount rate. Also, the range of charges is very wide, depending on the pricing basis used. Hosty et al. (ibid) observe that although for the period 1970 to 2005 house price growth in the United Kingdom has exceeded GDP, there have been long sub-periods when that was not the case. The choice of endpoints for analysis impacts the results. Moreover, compared to other OECD countries studied, house price growth in the United Kingdom may be considered exceptional. Given the wide range of outcomes, the end point sensitivity, and the exceptional house price growth that may not recur, it is not surprising that providers may be concerned regarding the pricing of NNEG. This is undoubtedly one reason why the loan amount available is often significantly less than the market value of the property.

3.3 National Care Fund Proposal

Lloyd (2008) proposed the creation of a National Care Fund, which would be a social insurance fund to pay for LTC for older people. Although it would contain an auto-enrolment provision, participation would not be compulsory and individuals would retain the right to opt out. Enrolment would involve a one-off contribution fee at a level determined by an assessment of means, resulting in entitlement to a standard package of care paid for by the fund. However, older people would be given maximum flexibility in when and how they paid their contribution, including the option to defer payment until after death in the form of a charge levied on their estate.

This proposal has a number of interesting characteristics. It addresses the equity release issue by permitting people to defer paying their assessed contribution until death and then having it paid from their estate. It was proposed that if the assessed charge is not paid immediately, it would increase at some relatively low interest rate from the time of assessment until the time of payment.

Also, the proposal is designed to consider inter-generational equity. Lloyd (ibid) argues that older persons who are homeowners have enjoyed a significant transfer of wealth due to the significant rise in house prices. It would be unfair to provide them with a LTC programme that was subsidised by other younger taxpayers. This proposal would require these people to pay for their share of the costs, on a cohort basis using an insurance approach. From the perspective of inter-generational equity, this proposal is better than the approach recommended by the Dilnot Commission. Although the Dilnot Commission's approach

would improve the affordability and fairness of LTC, it would impose additional costs on taxpayers or public revenues. The National Care Fund would be self-supporting.

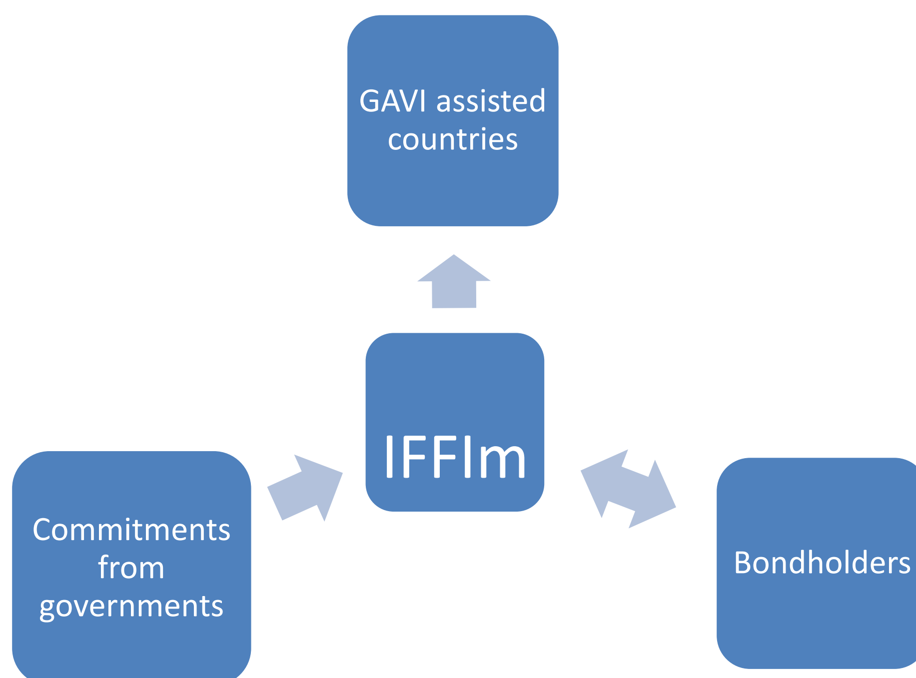
4.0 THE GAVI Alliance/IFFIm MODEL

According to its website, the GAVI Alliance (GAVI) was formed in 2000 to fund vaccines for children in the world's 70 poorest countries. Its mission is to save children's lives and protect people's health by increasing access to immunisation in the world's poorest countries. Rather than duplicating the services of the many players in the field of health and vaccines, GAVI channels its partners' specific skill sets into a single, cohesive agenda. Members contribute to GAVI through participation in strategy and policy-setting, advocacy, fundraising, vaccine development and procurement, country support and immunisation delivery. GAVI's partners include leading multilateral organisations such as WHO, UNICEF and the World Bank, civil society organisations, public health institutes, donor and implementing country governments, major private philanthropists such as the Bill and Melinda Gates Foundation and "la Caixa", vaccine industry representatives, the financial community.

The IFFIm exists to rapidly accelerate the availability and predictability of funds for immunisation. IFFIm is backed by the United Kingdom, France, the Netherlands, Sweden, Norway and South Africa who have together pledged to contribute more than US$ 5 billion over 20 years. This strong financial base enables IFFIm to have a top (triple A) credit rating. The World Bank acts as financial adviser and treasury manager to IFFIm. This combination of strong financial entities and financing for a work of a socially responsible and valuable nature has enabled IFFIm to raise funds, via the issuance of bonds backed by the contribution commitments of the participating governments, at lower than market interest rates. (The GAVI Alliance and The World Bank, 2010).

The financial framework used is an interesting one. By securitising the contribution commitments made by governments with established reputations, the IFFIm is able to issue highly rated bonds. The high credit rating permits the bonds to be issued at lower interest rates. Moreover, because the borrowing is to be used to finance socially desirable causes, i.e., the work of GAVI, even lower interest rates have been negotiated on the bonds. One might say that there is a Socially Responsible Investment (SRI) premium received by the lenders that enables them to receive less than a market rate of interest. The interest rate on borrowing is approximately one and one-half per cent less than the borrowing rate of the constituent governments. As the contributions from the commitments are received, the bondholders' loans are repaid.

Chart 1: GAVI and IFFIm Flow of Funds



5.0 MODIFYING THE IFFIm MODEL FOR HOME EQUITY RELEASE

To summarise, the context for this proposal is as follows:

- Homeowners with home equity who require care would like to have access to the equity in their home without having to sell the home immediately.
- These homeowners would like an equity release product that was priced more attractively than the current products.
- Providers of home equity release products that contain a NNEG are likely to price the product on a conservative basis for a variety of reasons, including: uncertainty regarding the risks associated with the NNEG; lack of a developed hedging market for this product.

The NNEG market may be considered to be exhibiting signs of market failure. Although, there are some financial institutions that offer the product, it tends not be priced on an attractive basis, resulting in fewer consumers than is optimal. Given there is market failure, it is appropriate for government to consider playing a role to try to make the market work more efficiently. It is proposed that a PPP be established that would provide the NNEG.

5.1 Establishment of the Public-Private-Partnership Financial Intermediary

The proposed PPP would be a joint venture among LTC facilities, pension funds and government. It would be a financial intermediary, which will be referred to as the PPPFI. Those LTC facilities and pension funds that participated in the establishment of the PPPFI would share in the ownership and distribution of any residual of the PPPFI.

The PPPFI would receive applications from homeowners requiring equity release in respect of care costs, either at home or in an institution. The PPPFI would determine the maximum loan value based on the equity in the appraised property. The PPPFI would screen potential lenders to determine the best terms for the loan. The PPPFI would provide the NNEG in connection with the loan. The PPPFI acquires the right to purchase the home; however, the homeowner would retain the right to not sell the home provided that all amounts paid on the equity release plan, including accumulated interest, administrative charges and contingency fees are paid.

To make the product attractive, it is desirable that homeowners be able to borrow approximately 80 per cent of the appraised market value of their home. To facilitate the pricing of the NNEG, it is proposed that the loan be structured as a combination of a lump-sum advance in respect of adult social care costs and an annual income in respect of general living costs. If the recommendations of the Dilnot Commission are adopted, the lump-sum advance might be £35,000 and the annual income might be in the range of £7,000 to £10,000, subject to the availability of sufficient home equity. This would provide a well-defined basis for the loan that is related to out-of-pocket expenses. It would also avoid large advances at an early stage; thus, reducing the risk that the NNEG would be triggered.

Together, the two recommendations of the Dilnot Commission regarding limiting the amount of LTC expenses an individual may be required to self-fund for adult social care costs and general living costs, provide a narrower potential range of LTC expenses to which a self-funder is exposed. By narrowing the range of potential self-funded expenses, then the risk to the PPPFI of the NNEG is better defined; thus, reducing the size of any loss in the event of significant excess longevity or significant unexpected home value decline. Such an arrangement would permit the pricing of equity release arrangements to be sharpened.

The PPPFI provides the NNEG; therefore, it has the right to dispose of the home when the homeowner dies or goes into a care home on a permanent basis. The reason the word "dispose" is used is that the PPPFI might sell the home or it might place the acquired home into the social housing stock. As noted by Stone (2003) there is a need in the UK for a large amount of additional social housing.

Having removed the NNEG element from the home equity provider, the loan to the homeowner could be made by any financial institution. This would expand the market to many more financial institutions such as banks, which should lead to greater competition. Given that there is a NNEG in place, there is no risk to the financial institution providing the loan. In order to ensure competitive pricing, financial institutions would have to bid for these loans, with the PPPFI making the decision on where it is placed. Effectively the financial institutions are providing a loan which is fully secured and guaranteed to be repaid. They will earn some interest and profit from providing the loan.

Another role of the PPPFI would be the management of the property portfolio, consisting of commitments to sell a home at some uncertain future date, properties to be sold

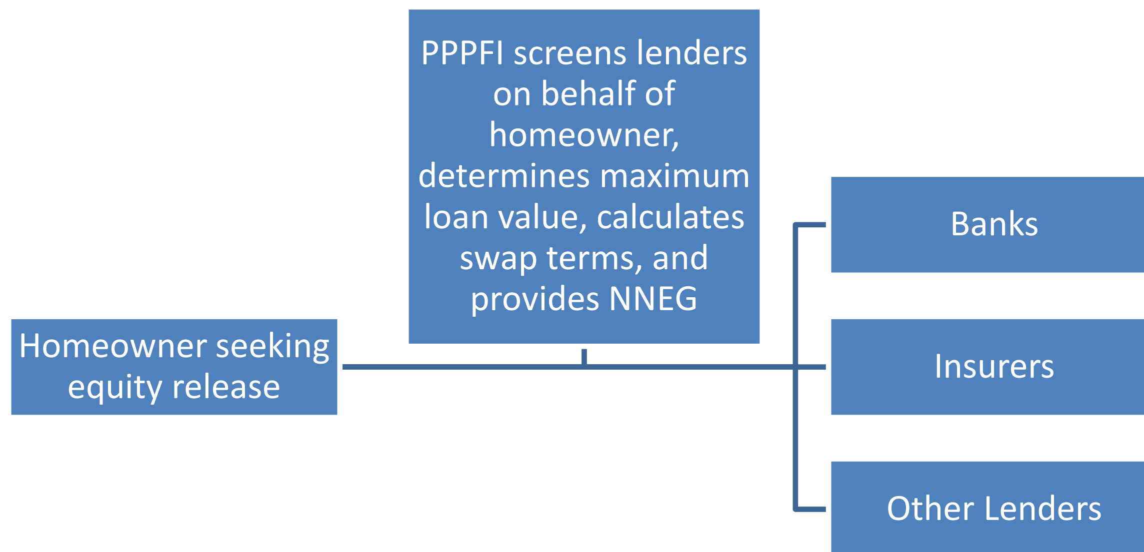
or disposed of, and funds from sales of properties. This portfolio could be securitised to provide the investors with participation in a residential real estate portfolio.

The securities would be desirable investments for pension funds, as they would tend to have long duration and provide exposure to a diversified portfolio of residential real estate investments. Because such securities have attractive characteristics for pension funds in respect of asset-liability matching and because such securities are not currently available, the pension funds may be willing to receive a lower rate of return on these securities. The pension funds may also be willing to pay a SRI premium given the socially desirable role these securities play for equity release.

It is possible that the amount of securities may exceed the investment requirements of the pension plans that share in the residual. Excess securities could be made available to other pension funds or other investors.

An important component in developing competitive pricing for a home equity release product is the pricing of the NNEG. As noted in Section 3.0, the paper by Hosty et al. (2007) indicates that there is a wide range of possible pricing outcomes depending on the assumptions made. However, when the "real world assumptions" are used the price of the NNEG is not significant, i.e., less than 5% of the initial loan value. If the loan providers did not have to concern themselves with the NNEG, i.e., because this risk is borne by the PPPFI, then the amount of the market value that could be used as security for the loan could be considerably more than the 35 per cent to 60 per cent listed on the SHIP website (2012). From a social welfare perspective, it would be desirable to have it approach 80 per cent. Following the idea of using realistic assumptions to price the NNEG, as discussed by Hosty et al. (2007), it would be ideal if the loans could be written as a spread in relation to house price inflation.

Chart 2: Role of PPPFI in Arranging Home Equity Loans



5.2 The Longevity Swap and the PPPFI Residual

As well as government, it is proposed that major LTC providers and pension plans be offered the opportunity to share in any residual generated by the PPPFI. As discussed in the previous subsection, pension funds should find the securities issued by the PPPFI attractive because of their long duration and the exposure provided to the residential equity market. First priority for access to such investments would be for those pension funds that share ownership in the residual. This would encourage a number of large pension funds to participate in the PPPFI. Although LTC providers would not be expected to invest in the securities, they do have an interest in having those requiring care have ready access to their home equity to be able to pay for care costs. It is anticipated that this would be sufficient reason for LTC providers to participate in sharing the residual. If greater encouragement were required, the PPPFI might identify the LTC providers who have participated. However, it would be desirable if such encouragement were not required.

The reason for proposing these two sets of participants is that they have slightly different interests, permitting a form of longevity swap to be created. This swap is an approximate, not a perfect, hedge. The financial operation of the swap would impact the residual. The swap is described in the following paragraphs.

At the point that the PPPFI agrees to accept the homeowner who requires care and who has equity to release, an assessment would be made of the likely period that the applicant would be able to receive care in his or her own home before having to move to a care facility. This determination would form the basis of the swap.

If the applicant lived as long as expected, stayed at home for the expected period before entering a care home, and house prices increased in line with the pricing basis, then

there would not be any payments in connection with the swap. Any residual earned by the PPPFI would be available to be distributed to the participants in the PPPFI as and when it is determined that distributions be made.

However, suppose that the applicant lived as long as expected, but entered a care home sooner than expected, and house prices increased with the pricing basis. In this situation, the pension funds would be expected to pay a scheduled amount to the PPPFI, which could be used to mitigate the increased expenses borne by the LTC provider. The reason that there might be excess costs is that the Dilnot Commission's report has set an overall lifetime limit on the amount an individual may pay for care and an annual limit on the general living costs that an individual may be required to pay.

Or, suppose that the applicant lived as long as expected, but entered a care home later than expected, and house prices increased with the pricing basis. In this situation, the LTC providers would be expected to pay a scheduled amount to the PPPFI. Although, there are no additional costs to be borne, there is a reduced period of time in a care home and this saving would become part of the residual of the PPPFI.

Alternatively, if the applicant lived longer than expected and/or if house prices increased less than expected by the pricing basis, the residual in the PPPFI would be reduced. Conversely, if the applicant lived for a shorter period than expected and/or house prices increased by more than expected, this would increase the residual in the PPPFI.

One reason that a hedge market for the NNEG is underdeveloped may be that there are few financial institutions that have liabilities that make them wish to be counter-parties for the NNEG risk. The reason that LTC providers and pension funds have been selected for this swap arrangement follows.

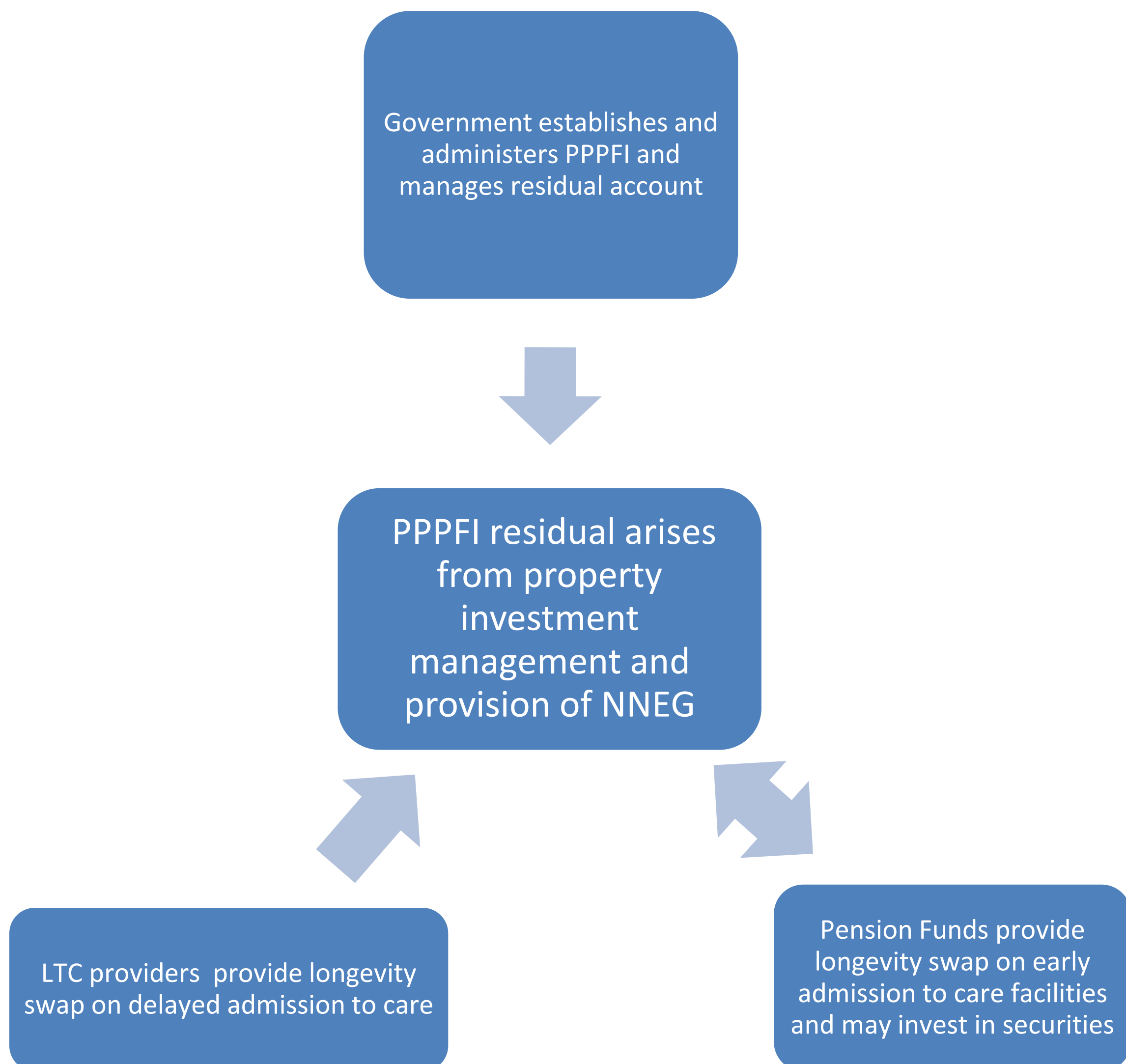
A downside risk for pension funds is that pensioners will live longer than expected. For those entering care homes, mortality rates are higher, on average, than for those not in care homes. Hence, if an individual enters a care home sooner than expected, then mortality is likely higher than expected. A pension fund should be able to make a contribution under the swap in such a situation.

However, if the applicant remains outside a care home longer than expected, there is likely a longevity risk, which is negative for pension funds, but the total cost of care in care homes is likely reduced, which is positive for LTC providers. For any individual, this is not necessarily the case; however, there is evidence of a squaring of the morbidity curve as the population ages (The Association of Faculties of Medicine of Canada, 2012). Consequently, the elderly who enter a care home later than expected would not be expected to remain in a care home for as long as the average. Hence, the LTC providers should be able to make a contribution under the swap.

It is recognised that the applicants may not be participants in the pension funds participating in the PPPFI or ever be residents in the facilities of the LTC providers. Hence this is only an approximate form of hedge. However, the pension funds and LTC providers

are participating in the residual of the PPPFI. Provided the PPPFI operates efficiently and prices reasonably, both these participants should benefit from the residual.

Chart 3: PPPFI Residual Swap Commitment and Securitisation



5.3 Assessment of the Proposal

This arrangement would be desirable for those homeowners requiring LTC as it would permit them to receive LTC in their home, for as long as they desired or were able. It would also give them the possibility of paying off the amounts advanced, accumulated with interest, plus administrative and contingency fees, and retain ownership of the home. If successfully implemented it would result in higher maximum loans in respect of home equity.

A PPPFI may be a more appropriate entity to bear the NNEG risk than is a private sector provider. Through its actions, government plays a role in influencing the extent and rate of house price growth. The underlying general rate of inflation is one factor that may be affected by direct government action or by central bank decisions, which might be viewed as a type of indirect government action. But availability and location of housing stock also impact house price growth. These factors are influenced by zoning regulations, building

permit approvals, environmental requirements, etc., all of which are subject to government decisions. One might even argue that longevity, which can affect the NNEG, may be impacted by government actions concerning the accessibility and quality of medical care.

From the perspective of removing an impediment to market efficiency, the proposal would be successful if a greater number of financial institutions participate in lending, resulting in lower costs and higher maximum loan values for borrowers. This would be especially true, if the cost of borrowing can be related to house price inflation using real world assumptions.

This arrangement would also make available an innovative security that would be a desirable investment for many pension funds, due to its long duration, liability matching characteristics, and the access it provides to investment in the residential real estate market on a pooled basis. Participation in the residual of the PPPFI might make this investment even more interesting for pension funds. If the securities carry a socially responsible investment premium, this will be beneficial to those seeking home equity loans.

The recommendations of the Dilnot Commission limit the amount an individual may be expected to self-fund for care costs and general living expenses. A loan structured in accordance with those limits would significantly reduce the variability of outcomes that can affect the cost of the NNEG. Two other factors that are not controlled but impact the NNEG pricing are the loan discount rate and the rate of growth of house prices. Hosty et al. (2007) in their real world assumptions have assumed a close relationship between these two rates, i.e., 4.75 per cent per annum discount rate and 4.5 per cent annual house price inflation. If the loans could be structured so that the discount rate were calculated in relation to house price inflation, e.g., house price inflation plus 0.25 per cent this would limit variability in the pricing of the NNEG even further. A further factor is whether the individual lives longer and so retains the loan longer than expected.

The following table shows the sensitivities to changes in the rates of discount and house price inflation and to changes in life expectancy, i.e., period of loan retention. The table is based on the assumption that there is £155,000 in equity at the time of the loan application, permitting a loan of £35,000 as an immediate advance and annual payments of £7,000 for 20 years, which represents a maximum loan to initial appraised value of equity of 80 per cent. The table makes no allowance for fees. The table shows that as long as the rate of discount is close to the rate of house price growth, there is little risk of negative equity, unless the loan is retained for a significantly longer period. A 30 year holding period compared to a 20 year expected holding period is a 50 per cent variation. With appropriate loan underwriting and assessment of the condition of the applicant, the likelihood of such variation should be greatly reduced.

Table 2: Sensitivity of Remaining Equity Under Alternative Assumptions

Longevity	Discount Rate	House Price Inflation	Accumulated Loan Cost at House sale	Value of House at Sale	House Price Less loan at Sale
20 years	4.75%	4.5%	314,000	374,000	60,000
30 years	4.75%	4.5%	586,000	581,000	-5,000
20 years	4.75%	4.0%	314,000	340,000	26,000
30 years	4.75%	4.0%	586,000	503,000	-83,000
20 years	4.75%	5.0%	314,000	412,000	98,000
30 years	4.75%	5.0%	586,000	670,000	84,000
20 years	5.25%	4.5%	335,000	374,000	39,000
30 years	5.25%	4.5%	648,000	581,000	-67,000
20 years	5.25%	4.75%	335,000	392,000	57,000
30 years	5.25%	4.75%	648,000	624,000	-24,000

6.0 CONCLUSIONS

This paper has described some key proposals of the Dilnot Commission (2011), which, if adopted, would limit the exposure of individuals in England for the self-funding of care costs. However, even at these limits, a problem for a considerable portion of the population who will require care is how to pay for care, without having to sell their home or become involved in an equity-release plan that appears expensive.

This paper suggests that one reason that home-equity-release plans appear expensive is because there is considerable variability in the potential cost of the NNEG. Accordingly private sector providers of home-equity-release plans, price such plans conservatively. The home-equity-release market exhibits signs of market failure.

Certain of the factors that affect the variability of the potential cost of home-equity-release plans, which pertain to house prices, are influenced by actions of government. In such a context, it is reasonable to consider a PPP as an appropriate facility for the provision of the NNEG. GAVI and IFFIm are used as a model for the approach proposed in this paper.

The PPP proposed would be a financial intermediary. The PPPFI would screen applications for home-equity loans and help arrange placements with lenders on appropriate terms. The ownership in its residual would be shared by participating LTC providers, pension funds and government. A type of longevity swap involving the LTC providers and the pension funds is discussed. As well as the residual there would be an investment account. This account could issue securities in respect of the portfolio of real estate and commitments. These securities would have attractive characteristics for pension fund investors.

If the proposals in this paper are implemented successfully a number of socially desirable benefits will be produced. There will be a more competitive market for home-equity-release loans, providing more favourable loan terms and higher maximum loan amounts. New securities would be created that would have attractive investment features for pension funds. By structuring equity-release loans in accordance with the self-funding

requirements proposed by the Dilnot Commission, considerable variability is removed from the NNEG, permitting it to be priced more competitively. Some additional housing may be added to the social housing stock.

6.1 Areas for Further Research

At this stage the recommendations of the Dilnot Commission (2011) have not been adopted. Once action is taken with respect to that report, it may be necessary to revise the proposals in this paper. Even if the recommendations are adopted as considered by this paper, there is still some clarity required regarding the annual limit on general living expenses that an individual may be expected to pay.

The pricing of the NNEG is still an inexact determination that would benefit from access to better data and further analysis. It would be desirable to have more accurate data by age band with respect to home equity and other assets. Even with better data, additional research regarding the factors affecting the pricing of the NNEG is warranted. House prices have experienced a substantial increase in value over the last forty years. What the future growth in prices may be is unknown. Moreover, house price growth is not uniform across the United Kingdom, but varies by region. This represents another variable for pricing the NNEG that it would be useful to have data regarding. Furthermore, the value of houses owned by seniors requiring care may not grow at the same rate as the general house market. This would be useful issue to research. On-going research to enable the forecasting of house prices accurately would enhance the ability to calculate the NNEG.

The market for securitisations of the nature contemplated by this paper is thin. The market for the type of longevity swap proposed is not known to exist. If and when such markets develop there will be an opportunity to refine the deal structure.

The creation of PPPFI will alter the structure of markets. Its creation was proposed to remove a perceived cause of market failure. How well the PPPFI facilitates more competitive markets should be monitored. Consideration could be given to how homes acquired might be used to resolve the apparent shortage of social housing. How to realise a socially responsible investment premium from the PPPFI structure should be explored.

Finally, this paper has focussed on England for a number of reasons, but primarily because the Dilnot Commission is in respect of LTC in England. However, the proposals in this paper might be extended or adapted for use in other countries.

For example in Canada, a significant proportion of elder Canadians' wealth is in the equity of their home. Information from Statistics Canada (Rea et al., 2008), based on the 2006 Canadian census, indicates that more than 70 per cent of primary household maintainers (PHM) age 55 to 74 live in an owned property. This per cent declines to slightly below 70 per cent for PHM age 75 and older. Moreover, for PHM age 55 and older, mortgage-free ownership is the most common form of tenure. There are home-equity-release programmes provided by the private sector, but take up has been low. The programmes are generally considered to be expensive. One reason that the programmes are expensive is that they include a NNEG. The NNEG is difficult to price and hedge. In Andrews (2009) an approach

involving the Canada Housing and Mortgage Corporation (CHMC) has been discussed for Canada, which would facilitate the release of home equity on a more affordable basis.

That paper proposes that if CMHC were to provide the NNEG, the equity release programmes could be priced on a more attractive basis. The CMHC is an existing public agency, so in Canada it would not be necessary to establish a PPP in order to produce a more flexible home-equity-release market.

Canada, like England, is one of the countries that falls between the LTC funding extremes represented by Norway and Germany. It has government-provided universal health care that covers medically necessary physician and hospital services. There is some subsidisation of LTC expenses, depending on assessed need and ability to pay; however, the majority of chronic LTC is self-funded.

Although that paper dealt with releasing funds to supplement retirement income, it might be extended to apply the equity release mechanism for the purpose of paying LTC expenses. Similarly, the proposals in this paper might be extended or adopted to apply in other countries.

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