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Abstract

The greying of society has become a significant problem in Singapore and many parts of Asia, putting great financial pressure on various aspects of the economy, including the insurance and pension markets. In this article, we generally examine certain key aspect of legal infrastructure in Singapore to see if insurance law and financial regulations in Singapore is well equipped to cope with potential problems from an aging society in the near future. In addition to conventional insurance products, we also explore other ways to hedge the so-called 'longevity risk' by alternative risk management products in both the wholesale and retail markets. In short, we suggest that Singapore has offered a solid framework to allow the market to develop new insurance or derivative products to address longevity risk. However, there remains some legal uncertainties to new financial products and Singapore's insurance contract law could be more consumer-friendly to help customers to claim money in the future.

I. Introduction

Population aging, caused partly by the lengthening of human lifespans (i.e., longevity risk[1]), has become a global issue.[2] In Singapore, Asia's richest country in terms of GDP per capita, the population will reach a turning point in 2012, with over a quarter of the current population entering its silver years by 2030 and the number of work-age citizens set to decline from 2020.[3] This is also a problem in many East Asian countries. For example, it has long existed in Japan, Asia's second biggest economy also shows a similar trend.[4] Even in China, it is estimated that by 2050 more than a quarter of the population will be over 65 years old.[5] This is also an issue in some developed countries, such as the US.[6]

An aging society may bring great costs. At the micro level, people may need more financial resources to maintain a longer post-retirement life and health at an age when productivity is generally lower, such that their labour or pension income at older ages may be insufficient to meet their material needs.[7] Health deterioration that often comes with old age may also be impoverishing,[8] putting pressure on pensions, insurance and the social welfare system.

At the macro level, an aging society may create inter-generational issues that affect the support ratio (i.e., the number of workers per retiree), with profound implications for various aspects of policymaking (e.g., public housing, public health care, etc.).[9] A UK report estimates that the annual cost of age-related spending will rise from 21.3% to 26.3% of GDP between

[1] The International Monetary Fund (IMF) defines 'longevity risk' as 'the risk that actual life spans of individuals or of whole populations will exceed expectations'. See IMF, *The Financial Impact of Longevity Risk* of the Global Financial Stability Report (2012), 3, http://www.imf.org/External/Pubs/FT/GFSR/2012/01/pdf/c4.pdf. It may also be defined as the risk of people outliving their retirement savings. See Jonathan B Forman, 'Supporting the Oldest Old: The Role of Social Insurance, Pensions, and Financial Products' (2014) 21 Elder LJ, 375, 377.

[2] See generally Ronald Lee, Andrew Mason and Daniel Cotlear, 'Some Economic Consequences of Global Aging: A Discussion Note for the World Bank' (2010), http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/SomeEconomicConsequencesOfGlobalAging.pdf.

[3] A Sustainable Population for a Dynamic Singapore - Population White Paper, Executive Summary, http://population.sg/whitepaper/resource-files/population-white-paper.pdf.

[4] See e.g. Isabel Reynolds, *Japan's Population Shrinks for Third Year as Aging Increases*, Bloomberg (16 April 2014), http://www.bloomberg.com/news/articles/2014-04-15/japan-s-population-shrinks-for-third-year-as-ranks-of-aged-grow.

[5] *Aging China: Changes and Challenges*, BBC (19 September 2012), http://www.bbc.com/news/world-asia-19630110.

[6] Forman (n 1) 379-385.

[7] Lee (n 2) 6.

[8] *Id*.

[9] *Id*. at 7.

2016/17 and 2060/61 in the UK and from 25% to 29.1% of GDP in the EU between 2010 and 2060.[10]

While there could be a range of issues arising from an aging society, this article focuses on one particular area: legal challenges to establishing a functional insurance and alternative risk management market to help individuals, companies or states manage the financial effects of the longevity risk. In short, our question is whether existing legal framework is sufficient to create a market environment to facilitate a market for insurance or other risk management products to meet the demands in the future.

Amid the efforts of both the private insurance and the public sectors, we suggest that there should be room for alternative risk management products to help individuals, companies and the state to hedge the risks and financial consequences flowing from an aging society. As the market grows, multiple legal issues will surface that policymakers and the market must face in the future. On this basis, we briefly examine Singapore's current regime for some of these issues. We suggest that Singapore's current insurance regulatory structure is flexible enough to accommodate new financial products, though there could be some improvements to current insurance contract law to ensure that consumers have suitable and valid insurance or alternative risk management (ARM) protection throughout the contract cycle.

In the remainder of this article, we first consider the general influence of the longevity risk, the need to insure or hedge this risk and various hedging instruments on the market, before introducing some longevity derivatives as alternative risk management tools. We also explore some of the challenges to the insurance market in Singapore. In Part III, we consider the legal issues facing both the supply and demand sides of the insurance market and alternative risk management instruments to address the inevitable aging of society, including issues of financial regulation, misselling and moral hazard. Part IV concludes this article.

[10] Silcock D and Sinclair D, 'The Cost of Our Ageing Society' (2012), http://www.ilcuk.org.uk/index.php/publications/publication_details/the_cost_of_our_ageing_society1.

II. The Aging of Society and Risk Management

A. The Demand for Hedging

In general, hedging aims to help people manage future risk exposure and prepare for future losses or expenses. In theory, a future uncertainty is a risk if the probability of this event is known but the exact time and location of its occurrence is unknown.[11] Thus, based on the probability, financial engineers may create financial products that help a person to hedge a particular risk, if there is a viable market for them.

The need to hedge an aging society may arise at several levels. At the individual level, there will be a financial effect on future living expenses, long-term care and medical costs. Retirees will need sufficient income to finance their daily living. In theory, 'the elderly can rely on assets … to fund the gap between what they consume and what they produce through their labour' through dis-saving and reliance on asset income.[12] Nonetheless, depending on the person's wealth, such a strategy may not be sustainable in the long term. Moreover, it is also obvious that 'population aging tends to raise the demand for long term care.'[13] The elderly normally require more medical attention and care, raising long-term care costs and medical expenses.

These costs will further burden both private institutions and ultimately the state. For example, in places with employer-sponsored pension plans, an aging society may increase the costs to pension operators and employers if lifespans continue to increase.[14] This would also affect annuity providers and health insurers. The International Monetary Fund (IMF) estimates that the 'already large costs of aging could increase by another 50 percent, representing an additional cost of 50 percent of 2010 GDP in advanced economies and 25 percent of 2010 GDP

[11] Nicholas Rescher, Risk: A Philosophical Introduction to the Theory of Risk Evaluation and Management 1 (1983). *See also* Anthony Giddens, *Risk and Responsibility*, 62(1) MLR 1 (1999).
[12] Lee (n 2) 8.
[13] Lee (n 2) 19.
[14] See IMF (n 1) 13-15.

in emerging economies' if individuals live three years longer than expected.[15] Thus, the presence of longevity risk may have a significant effect on the fiscal sustainability of governments.[16]

These burdens are imminent for those about to enter retirement in the next decade, and the working class and even younger generation will share these costs (whether via tax or social welfare contributions). It does not help that the fertility rate in most developed countries has slowed. For example, according to the World Bank, the total fertility rate in the more developed Asian economies such as Hong Kong, Singapore, Japan and South Korea was around 1.2–1.4% in 2012 (with China at 1.7%).[17] This figure is comparable to that of Germany (1.4%) but lower than that of the US, UK (both 1.9%) and France (2.0%).[18] This means that the pool sharing the costs is shrinking just as the baby boomers gradually enter retirement.

Eventually, the costs will be borne by the state. The effects of an aging society on the tax and social welfare system is obvious: a smaller pool of people contributing to the pension, tax and social welfare system to support an increasing number of elderly people. Thus, financial stress is expected in some countries within the next few decades. The inter-generational imbalance may also have great macroeconomic effects that governments will have to manage.

From this perspective, there should be a demand to hedge the financial exposure arising from longevity risk and an aging society. The IMF has suggested that 'the effects of a longevity shock on the economy and markets are similar to the effects of aging—they propagate through the size and composition of the labour force, public finances, corporate balance sheets, private saving and investment, and potential growth.'[19] The IMF also notes that 'risk should be appropriately shared between individuals, pension plan sponsors, and the government.'[20] Therefore, 'risk transfers in capital markets from pension plans to those that are better able to manage the risk' are also important.[21]

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[15] IMF (n 1) 1.
[16] IMF (n 1) 9.
[17] World Bank, Fertility rate, total (births per woman), on World Bank website: http://data.worldbank.org/indicator/SP.DYN.TFRT.IN.
[18] *Id*.
[19] IMF (n 1) 9.
[20] IMF (n 1) 1.
[21] *Id*.

Thus, identifying the optimal mix of social insurance, pension and financial products will become an important issue for current governments.[22] This question is beyond the scope of this paper. Instead, we will focus on risk management instruments available for market participants from individuals to private institutions and the state to manage financial consequences of longevity risk, if we recognise that there is a demand to hedge an aging society. On this basis, the next two sections briefly explain the current products available in the market and their limitations in addressing longevity risk.

B. Insurance Products

Apart from social welfare run by the state, we rely mainly on the private insurance sector to manage longevity risk. For example, people commonly purchase pension plans or life assurance policies to finance their life after retirement. Retirees may also count on long-term health insurance to cover additional medical costs.

However, there are limits to the insurance industry's ability to absorb financial consequences of an aging society. First, insurers offer insurance products only where there is sufficient risk pooling to spread the risk. This becomes a challenge in an aging society. [23] For example, long-term care insurance normally attracts those who may not be able to afford such care at their own expense, that is, more high-risk low-income clients. If this is the case, the insurance pool may be heavily biased.[24] In addition, as Singapore is clearly becoming an aging society, the overall pool will gradually comprise more high-risk insured than younger people paying premiums. Those factors creates an imbalance in risk pooling, which affects the possibility of an insurer offering suitable products to the market.

Second, insurers are under economic and regulatory pressure to stay solvent and profitable. On the assumption that the primary goal of insurance regulation is to maintain the solvency of the insurers, the state cannot force private insurance sector to offer unlimited and unbiased insurance coverage to counter the financial effects of an aging society. Forcing insurers to issue policies against their own risk consideration or a policy decision to relax insurance

[22] See Forman (n 1), a general discussion of systems to support the elderly in the US in the wake of the longevity risk.
[23] Lee (n 2) 19.
[24] Edward A Zelinsky, 'The Defined Contribution Paradigm' (2004) 114 Yale LJ 451, 463.

regulations simply for the sake of incentivising insurers to provide more insurance products may be against the idea of prudential regulation for insurers and may endanger the health of the financial system in the long run.

Third, while there are indeed long-term care insurance products available in the market, whether they are sufficient to meet the demand may be questionable. State involvement in offering long-term care insurance or services may also distort the market. For example, the UK once announced a plan to cap a person's lifetime social care spending at £72,000, with the expectation that the insurance industry would offer products to help people insure long-term care up to that threshold. Unfortunately, two years after the announcement, insurers seem not to have warmed to the idea.[25]

Fourth, it is hard to predict long-term expenses. Even insurers, who are required to hire highly qualified actuaries to evaluate risks, face many uncertainties in dealing with long-term costs. For example, an expensive new drug that cures Alzheimer's disease or a technological breakthrough that lowers certain medical costs could appear in future. However, whether and when such new drug will appear as well as the costs is unknown. This makes it challenging for insurers (as well as customers) to estimate precisely future medical costs at the time of issuing the policy so as to calculate premiums. Imposing a payout cap can help insurers manage risk and therefore incentivise them to develop new insurance products (as expected in the UK[26]). Nonetheless, this would also mean that extra costs remain uninsured. For ordinary individuals the task is even more daunting.

Moreover, there are further challenges pertinent to Singapore's insurance market. First, on the retail market, Singaporeans are generally underinsured. As the Monetary Authority of Singapore (MAS) once noted, the 'lack of retirement planning and underinsurance among Singaporeans is a major concern in an aging society.'[27] Another poll by an insurer showed that 9

[25] Sarah Neville and Alistair Gray, *UK insurers unenthusiastic about covering social care costs*, Financial Times (19 January 2015) in http://www.ft.com/cms/s/0/bf042c5c-9a88-11e4-86c2-00144feabdc0.html?siteedition=intl#axzz3RKgVLQAq.
[26] *Id*.
[27] *S'poreans underinsured, underprepared: MAS*, The New Paper (7 July 2013), http://news.asiaone.com/News/Latest+News/Singapore/Story/A1Story20130705-434906.html.

out of 10 Singaporeans are underinsured and would be forced to downgrade their living standards should anything happen.[28]

According to Swiss Re, Singapore's total premium value was ranked only 26th globally (and 6th in Asia) in 2014,[29] reaching US$27 billion compared to Hong Kong's US$41 billion.[30] Comparing life premiums only, Singapore still ranked 25th globally (US$ 15 billion), while Hong Kong ranked 16th (US$ 36,856 billion).[31] In insurance density, the insurance spending per capita in 2014 was US$ 3,759 in Singapore,[32] comparable to Japan's US$ 3,778 but far below Hong Kong's US$ 5,647 and Taiwan's US$ 4,072.[33] In insurance penetration, premiums in Singapore amounted to only 5.8% of GDP (ranked 21st globally), while Taiwan and Hong Kong occupied the top two spots in the world with 18.9% and 14.2%, respectively.[34] One could thus argue that insurance penetration needs to improve to lessen the financial burdens of an aging society.

In contrast, Singapore insurers seem to be generally capable of meeting increasing demands for insurance products. In general, Singaporean insurers are safe and sound. The average capital adequacy ratio (CAR) for Singapore life insurance funds (whether participating, non-participating or investment-linked) was over 200% of their annual returns in 2013,[35] while the regulatory warning threshold is 120%.[36] This means that insurers' financial resources are more than double the total risk requirement (including insurance and investment risks). This should be a good indicator of insurer capacity in Singapore. However, the development of the local consumer market is capped by the size of the country and the limited pool of insureds in Singapore. This is an issue policymakers need to consider if the government intends to improve insurance capacity to absorb the financial effects of an aging society.

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[28] E.g. Lester Hio, *Most S'poreans not well insured: AIA poll*, Business Times (22 July 2011), http://www.btinvest.com.sg/insurance/life-insurance/most-sporeans-not-well-insured-aia-poll/.
[29] Swiss Re, *Sigma Report – World Insurance in 2014: Back to Life*, 36, http://media.swissre.com/documents/sigma4_2015_en.pdf.
[30] *Id*.
[31] *Id*., 38.
[32] *Id*., 41.
[33] *Id*.
[34] *Id*., 42.
[35] Data is calculated according to insurers' annual returns filed to the MAS on the MAS website: http://www.mas.gov.sg/Statistics/Insurance-Statistics/Insurance-Company-Returns.aspx.
[36] Insurance (Valuation and Capital) Regulations 2004 reg 4(6)(a).

Second, developing the wholesale and reinsurance market is equally important. In November 2013, Mr Ravi Menon, managing director of the MAS, made an important policy announcement that Singapore expects to become Asia's insurance hub by 2020.[37] To improve their capacity to insure, direct insurers need an effective means of spreading insurance losses. Thus, developing a more regional reinsurance market and other ARM tools (along with banks or the capital market) may help local insurers offer extra capacity to deal with local or offshore demands. It may potentially make Singapore a marketplace for insurers in Asia Pacific to trade longevity or other risks (such as catastrophe risk).

Third, Singapore has started to see more social welfare regimes since 2011. Traditionally, Singapore has built on its model of mandatory saving via the central provident fund (CPF) with only limited social welfare or national health insurance. This has gradually changed over the past few years since the government decided to broaden the existing Medishield regime to universal coverage for life without exclusions.[38] For the insurance industry, the interaction between private and public insurance may be worth monitoring in the future.

In sum, while there are indeed insurance products, there is an obvious limit to the private insurance sector's ability to absorb longevity risk in an aging society. There are also challenges to Singapore's current insurance market. Insurers require incentives to develop products to meet the demand, and the risk pool must be sufficiently large for a functional insurance model.

C. Derivatives and Alternative Risk Management

Financial derivatives may offer different ways to manage risk compared with traditional risk management techniques.[39] This is generally called alternative risk management (ARM) or alternative risk transfer (ART). Currently, some products do employ derivatives techniques to help individuals, companies or governments to hedge longevity risk. Applying the same techniques, financial engineers could develop other derivative instruments to address more

[37] See MAS, *Singapore as a Global Insurance Marketplace* – Keynote Address by Mr Ravi Menon, Managing Director, Monetary Authority of Singapore, at the 12th Singapore International Reinsurance Conference on 6 November 2013, http://www.mas.gov.sg/news-and-publications/speeches-and-monetary-policy-statements/speeches/2013/singapore-as-a-global-insurance-marketplace.aspx.

[38] See Ministry of Health, *All Singapore Residents to Enjoy Universal Coverage under MediShield Life, with No Exclusions*, https://www.moh.gov.sg/content/moh_web/home/pressRoom/pressRoomItemRelease/2015/all-singapore-residents-to-enjoy-universal-coverage-under-medish0.html.

[39] Satyajit Das, Structured Products Volume 2: Equity; Commodity; Credit & New Markets 1184 (3rd Ed. 2006).

specific risks and costs arising from an aging society. However, we recognise that current ARM products exist mainly at the wholesale level, and much more effort is needed to increase the consumerisation of ARM products. We consider certain legal obstacles in Part III.

For example, a longevity swap is an example where two parties are able to exchange cash flows based on the mortality rate. A pension fund will pay out more if pensioners live longer, while a life insurer could suffer from a higher payout if an insured dies before the maturity of a life policy. Thus, in theory, a life insurer and a pension fund may enter into a longevity swap under which the life insurer agrees to pay a sum (e.g., US$ 1 million per 0.1%) to a pension fund if the mortality rate is below a certain benchmark on a settlement date, while the pension fund pays a certain sum to the insurer if the mortality rate is above the benchmark.

Under this simple structure, a pension fund can offset a degree of longevity risk when pensioners live longer than expected, while a life insurer can hedge the other way round.[40] For instance, BAE Systems offloaded some pension risk relating to 31,000 pensioners to an insurer via a longevity swap.[41] We may also structure a longevity derivative as an option or forward contract. To this end, Credit Suisse has developed the Credit Suisse Longevity Index to serve as base for market participants to trade longevity risk.[42] If the market develops further, such indices will play an important role in risk pricing and market liquidity.[43]

An ARM product may also appear as a debt security (e.g., a longevity bond) to allow an insurer to tap the capital market to spread the risk over a wider range of investors.[44] In short, longevity risk can be securitised.[45] There are different ways to design longevity bonds.For example, the principal of the bonds may be at risk. For example, in 2003, Swiss Re offered a 3-year mortality-linked note based on the mortality index of the general population of the US, UK, France, Italy and Switzerland.[46] Swiss Re further issued longevity bonds worth US $50 million in 2010 through a special purpose vehicle called Kortis Capital Ltd, providing 'cover to Swiss Re

[40] *Definition of longevity swap*, Financial Times, http://lexicon.ft.com/Term?term=longevity-swap.
[41] See http://www.allenovery.com/SiteCollectionDocuments/Longevity%20Swaps.pdf.
[42] See Credit Suisse's website: http://www.csfb.com/institutional/life_finance/assets/index_commentary.pdf.
[43] Olivia S Mitchell et al., 'Financial Innovation for an Aging World', NBER Working Paper Series Working Paper 12444 (2006), 32, http://www.nber.org/papers/w12444.pdf.
[44] IMF (n 1) 20-21.
[45] See generally Yijia Lin and Samuel H Cox, 'Securitization of Mortality Risks in Life Annuities' (2005) 72(2) Journal of Risk and Insurance 227-252.
[46] *Id*., 228.

against a divergence in mortality improvements experienced between two selected populations. The bond is based on population data and would trigger in the event there is a large divergence in the mortality improvement experienced between male lives aged 75–85 in England and Wales and male lives aged 55–65 in the US.'[47] The principal of the note can be reduced if the actual mortality rate exceeds the index mortality rate by a certain percentage, but will otherwise be repaid in full.[48] This allows the issuer (a reinsurer) to hedge higher mortality risk by shifting risk exposure to noteholders via the reduction of capital. Another design may involve connecting the coupons of longevity bonds to the mortality rate or life expectancy. In this case, the coupon rate of the notes floats depending on the market interest rate (e.g., LIBOR plus 100 basis points) plus/minus the difference between the actual and the expected mortality rate.[49] Financial engineers also create 'collateralised insurance obligations' much like mortgage-backed securities.[50]

In theory, a similar structure could apply to any given index or benchmark rate. These derivative instruments may help insurers, firms or governments to manage the macroeconomic effects of longevity risk such as inflation, unemployment or other economic figures.[51] However, there are limited derivative instruments available to address concerns about medical and long-term care costs. In other words, ARM products are of less help to individuals at this stage.

As the IMF noted, 'the use of capital market-based longevity risk management solutions has been growing, but their use remains small.'[52]It is also not clear how far Singaporean insurers have used longevity derivatives or related products. On the retail level, the lack of consumerisation of longevity products to ordinary consumers, apart from the legal impediments discussed in Part III, may be a result of the global financial crisis, which might reduce appetite for new forms of financial product. It may also be a result of the lack of suitable hedging products for ordinary consumers. Longevity bonds may attract certain investors to benefit from a change in mortality rates; but they do not help ordinary consumers to hedge their financial

[47] See Swiss Re's website: http://www.swissre.com/media/news_releases/Swiss_Re_completes_first_longevity_trend_bond_transferring_USD_50_million_of_longevity_trend_risk_to_the_capital_markets.html.
[48] Jim Aspinwall, Geoff Chaplin and Mark Venn, Life Settlements and Longevity Structures: Pricing and Risk Management 26 (Wiley 2009).
[49] *Id*., 129.
[50] *Id*., 138.
[51] Das, *supra* note 39, 1147-1180 & 1290-1296.
[52] *Id*.

exposure in an aging society. The cost of entering into a longevity swap with a bank may also be prohibitive for ordinary consumers.

On the wholesale level, one problem is that only a few pension operators recognise longevity risk, which is often deemed less important than other financial risks.[53] This partly reflects the slow-moving nature of longevity in contrast to the volatility of interest rates and stock market prices.[54] Lack of familiarity and the limited pool of buyers of longevity risk also affect the market for alternative risk transfer.[55]

Therefore, more financial innovation may be required in the digital era to help hedge the financial costs of an aging society and address issues that contribute to an aging society (e.g., lower fertility rates and demographic changes) or result from the lengthening of human life (such as higher demand for long-term care or medical bills). For example, some have promoted the idea of 'reserve mortgages', allowing the elderly to refinance by mortgaging a property (often their most valuable asset) in return for periodic payments or a lump sum (in the form of loan) to support their living.[56] More methods have to be developed to address different aspects of longevity risk and the aging of society.

Nonetheless, we caution that there is always risk associated with hedging and risk management. Hedging is itself risky behaviour. Often one has to take some risk in order to offset another risk. For example, an insured has to take the risk that no insurance event occurs in the future if premiums paid cannot be repaid in full or in part. For a longevity swap, either long or short side has to take the risk that the mortality rate moves in the opposite direction. Whether the potential benefit of hedging is worth the cost is a problem each market participant faces. Pricing may also be a concern if financial products become too complex.[57]

In addition, a hedge is fully effective in offsetting risk exposure if it can fully match the risk exposure. However, this is not always the case in real life, making risk management a

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[53] *Id*.
[54] *Id.*
[55] *Id*., 21-22.
[56] Michael Sherris and Samuel Wills, 'Financial Innovation and the Hedging of Longevity Risk' (2007) 10, https://www.business.unsw.edu.au/About-Site/Schools-Site/risk-actuarial-site/Documents/M.%20Sherris%20and%20S.%20Wills%20-%20Financial%20Innovation%20and%20the%20Hedging%20of%20Longevity%20Risk.pdf.
[57] Sherris and Wills (n 56) 11.

complicated task. For example, if a pension operator can only hedge US$8 million of overall exposure of US$10 million, this leaves a US$2 million gap uncovered. Another form of risk mismatch is the so-called 'basis risk', which may exist 'because the pay-out in a risk transfer deal is typically linked to an index that is based on the longevity experience of a sample population, whereas actual pay-outs depend on the actual pool of retirees of the pension provider.'[58] If the basis risk occurs, a product may not provide an effective hedge.

D. Pursuing a More Active ARM Market

So far, Singapore and Asia show no indication of growth in ARM products in the wholesale or consumer market. This begs the question: should policymakers consider establishing a market for ARM products to help individuals and firms manage longevity risk and other costs of an aging society?

While this is ultimately a policy decision, this article offers some positive arguments. First, a healthy and vibrant risk management market would offer end users more variety. Giving market participants more choice may lead to a more efficient outcome for the society as a whole. The IMF also suggested that the solution to longevity risk 'therefore demands better risk sharing between the private business sector, the public sector, and the household sector (individuals).'[59]

Second, a functional ARM market may help the government reduce future reliance on tax or social welfare to address potential problems. A functional ARM market may complement the insurance market and social welfare system to redistribute and spread longevity risk and other financial consequences. As suggested by Professor Avgouleas, 'the use of structured finance techniques could lead to considerable welfare gains in the field of … poverty eradictions … and financing climate change projects [*sic*].'[60] Arguably, it may help to deal with an aging society as well.

Last, in this the digital and mobile era, the development of more 'fintech' products or services could further help manage the financial consequences of an aging society. Innovation

[58] IMF (n 1) 21.
[59] IMF (n 1) 18.
[60] Avgouleas E, *Governance of Global Financial Markets: The Law, The Economics, The Politics* 86 (Cambridge University Press 2012).

may take place within or outside existing financial institutions, such as through lending clubs or peer-to-peer lending service providers in some countries.

At present the market has plenty room for development, though the potential of fintech to address future longevity risk remains unclear. Thus, there seems no imminent demand to consider related market or legal issues. Nonetheless, this is exactly the point. We do not know exactly how financial innovation may help in future, but we are certain there will be ongoing financial technology and innovation in the smartphone era and that the aging society will soon be a reality.

Against this backdrop, this article argues that it is appropriate to proactively consider the potential legal issues associated with ARM products, and construct a healthy and functional legal environment to provide more certainty for service providers and a proper platform for government regulation. This article does not propose that we must develop a retail ARM market or give more leeway to prompt financial innovation via technology. However, a solid legal underpinning may help when the demographic trend reverses in the coming decades. In Part III, we broadly consider the potential legal issues and challenges to financial innovation in insurance and ARM markets to address longevity risk based on the laws and regulations in Singapore. Our discussion also offers lessons for other countries where the shifting demographic structure may cause problems in the next few decades.

III. Challenges to Insurance Law and Regulations

In this part, we identify four main areas for future policy consideration: increasing choice in insurance and risk management products; wholesale risk management and capacity to absorb risk; consumer protection and misselling; and moral hazard. The first two areas deal with the supply side of insurance and ARM products. Consumer protection address potential problems for the demand side of the market. The last relates to the externality of insurance and ARM products.

A. Increasing Supply

The first question is whether the existing regulatory structure would accommodate or stifle financial innovation. As reported recently, entry thresholds and regulatory capital are major

impediments facing new fintech firms who plan to break into the insurance market.[61] In this section, we will approach from three angles: entry threshold to the market, easiness to offer new products, and the impact of prudential regulations.

1. Entry Thresholds

The key question is whether a certain product or service falls within the existing regulatory framework (so that the product provider may have to apply for a licence from the financial regulator). This is in particular an issue for ARM products offered by non-financial institutions. Fewer new product providers (other than incumbent financial institutions) may enter the market if they have to meet higher entry threshold due to financial regulations. For this purpose, legal certainty is important to create a prosper market for new financial products. However, the obscure legal nature of some ARM products may enhance legal uncertainty regarding whether an ARM product is subject to financial regulation if it does not clearly fall within any known regulated activity. Even if a product provider is already a financial institution, a recharacterisation risk still exists. For example, a bank must consider whether selling a longevity-linked product to a customer is permissible under banking regulations or amounts to providing insurance[62] to avoid the bank being exposed to significant legal risk. How to accommodate new financial products (or broadly, new fintech firms) in the existing legal framework will require further policy debates.

This relates to the presence of recharacterisation risk. Under Singapore's current regulatory structure, one question is whether an ARM product is an insurance product that falls under the Insurance Act (Cap 142) or a capital market instrument under the Securities and Futures Act (Cap 289).[63] On the one hand, it is arguable whether products such as longevity swaps or longevity-linked investment products is a form of insurance if it is not offered by an insurance company. The implications are that not only may product providers be penalised for

[61] *Against the odds*, The Economist (30 January 2016), http://www.economist.com/news/finance-and-economics/21689641-going-where-few-startups-have-gone-against-odds.
[62] Banking Act (Cap 19) s 30.
[63] Securities and Futures Act Schedule 2 (Singapore). The Monetary Authority of Singapore (MAS) currently proposes to replace the term 'futures contract' with 'derivatives contract'. See MAS, *Consultation Paper on Proposed Amendments to Securities and Futures Act*, P004-2015, 2.1.4.

conducting illegal insurance business,[64] but the contract may also be subject to the doctrines of insurance contract law (e.g., the duty of utmost good faith[65]).

For a long time, derivatives were not regarded as 'insurance' because they are not tied to indemnifying a person's actual losses.[66] However, it is not impossible for an ARM product to satisfy the definition of 'insurance' if the product provider accepts money in return for payment or services on the occurrence of a certain event.[67] In this circumstance, whether such product should be regulated as an insurance product (and henceforth the product provider being an insurer) will become a contentious issue.

On the other hand, it remains questionable whether such an ARM product is a kind of security or futures[68] if it is not classified as insurance. If an ARM product is in the form a debt security (e.g. longevity bonds), a prospectus is likely required under the Securities and Futures Act (Cap 289).[69] The product provider might have to acquire a capital market licence before promoting those products.

In Singapore, there is no case addressing potential concerns over recharacterisation of longevity derivatives as contracts of insurance. While a certain degree of uncertain will exist as long as no local authority clearly deals with the issue, the risk may be under control if regulators respect the market practice to avoid structuring derivatives as a contract to indemnify actual losses. It is clear that a longevity bond is a form a debt security that would fall within the securities regulations. The biggest danger may fall upon new fintech products that do not clearly fall within existing categories of securities, insurance or derivatives.

Nonetheless, regulators cannot eliminate all recharacterisation risk. To promote an ARM market, clarifying regulatory activities and licensing requirements for existing financial institutions and non-financial institutions when a new product arises may reduce the legal risk and offer greater certainty to future suppliers. Clarifying entry and licensing thresholds may also

[64] E.g. Insurance Act (Cap 142) s 3(1).
[65] See Marine Insurance Act (Cap 387) s 17.
[66] Alastair Hudson, The Law on Financial Derivatives 345-352 (5th Ed., Sweet & Maxwell).
[67] See *Prudential Insurance Company v Commissioners of Inland Revenue* [1904] 2 KB 658, 663-665 (*per* Channell J) for a general common law definition of insurance.
[68] Securities and Futures Act Schedule 2 (Singapore). The Monetary Authority of Singapore (MAS) currently proposes to replace the term 'futures contract' with 'derivatives contract'. See MAS, *Consultation Paper on Proposed Amendments to Securities and Futures Act*, P004-2015, 2.1.4.
[69] Securities and Futures Act (Cap 289) s 240(1).

serve as a base to regulate product providers (e.g., by imposing solvency standards or business conduct rules) if regulation is necessary. It is important that regulators consider the whole financial picture rather than a single sector when making a policy decision on this matter.

2. New Product Development

New product development may matter if a firm's ability to create new products is limited, particularly for insurers. For example, a life insurer may sell life insurance products; but its ability to offer new lines of insurance products or non-insurance hedging products may be limited.

There seems to be reasonable flexibility for insurers to develop new insurance products in Singapore, except where a new product does not lie within the existing business portfolio of that insurer.[70] For example, to develop an insurance product in Singapore, an insurer needs to exercise prudential management and implement adequate control.[71] Otherwise, regulatory approval is not required. Moreover, MAS does not regulate the content of a product except for settlement options.[72] Thus, the current regulatory structure in Singapore seems to offer insurers some liberty in developing new insurance products.

Another way to develop new products is to purchase existing product or service providers. For banks or insurers, the issue will then be whether they can control a major stake in a firm (e.g. a new fintech start-up specialising in longevity products) currently unlicensed by the MAS. In Singapore, a bank may not conduct non-financial business unless approved by the regulator.[73] A bank in principle should not hold a major stake of a company without regulatory approval.[74] The rule is similar for insurers.[75]

However, with the rise of new fintech firms, regulators should keep a closer eye on this matter and remain flexible in regulatory actions. While it is still important keep banks and insurers focused, it is arguable that existing financial institutions may also benefit from

[70] MAS Notice 302, para 9.
[71] MAS Notice 302, para 7 (last revised in 2015).
[72] MAS Notice 302, para 8.
[73] Banking Act s 30(1).
[74] Banking Act s 32(1). A major stake is defined as any beneficial interests exceeding 10% of total issued shares or controlling more than 10% of voting power. Banking Act s 32(7).
[75] Insurance Act (Cap 142) s 30B.

technological breakthrough under their wings. While it is not yet an apparent issue in Singapore, how to deal with new fintech firms will invite more policy debates in the future, if they can help to alleviate financial burdens from an aging society.

3. Prudential Requirements

Once a firm is licensed, it has to meet certain prudential requirements to maintain solvency. The requirements may vary depending on the types of licence a provider acquires. This then relates to the licensing issue mentioned previously. In general, prudential regulations serve the purpose of ensuring a financial firm is solvent and can honour its obligations. This is essential for a functional insurance and risk management market. However, these requirements may also restrict the capacity of a financial institution to promote insurance or ARM products, as the need to prepare additional capital to meet future risk exposure may make it too costly for a firm to develop new products or prevent new product providers from entering the market.

For existing financial institutions, engaging more vigorously in longevity risk, as the IMF has recognised, may threaten their solvency.[76] For life insurers specifically, the need for more updated mortality tables remains a concern,[77] to avoid miscalculation of risk and exposure to longevity shocks in the future. This happened to the life settlement market in the 1980s after the outbreak of AIDS.[78] This should be monitored more closely by regulators. Banks may also have to prepare for longevity risk calculations to anticipate any potential economic effect on its core banking business or any ARM services they provide.

As the health of the financial market is of utmost importance, this article does not promote the relaxation of prudential requirements so that banks or insurers can prop up the market for new insurance or ARM products. However, we should recognise that prudential requirements certainly affect the design and development of the market. More researches on economic effect and risk weightings associated with ARM activities may be needed in future to offer a solid foundation for any regulatory move.

[76] IMF (n 1) 2.
[77] See IMF (n 1) 13.
[78] IMF (n 1) 7.

B. Wholesale Risk Management

A proper retail insurance or ARM market requires a functional wholesale market to allow insurers or other product providers to hedge or manage risk. In insurance terms, this means the ability to reinsure. In other words, managing the risk associated with selling ARM products will have a practical effect on the development of a market for alternative risk management.

For banks, it may affect their ability to finance the sale of an ARM product. For example, if a bank structures an ARM product as a longevity-linked deposit account, it must consider how to fund the product and connect the deposit account to longevity risk. This would probably require entering into longevity swaps or similar derivatives with other market participants, and thus the consideration of prudential requirements and the financing of such products.

For insurers, the availability of other wholesale risk management alternatives (in addition to traditional reinsurance) may affect its capacity to offer direct insurance. For example, the World Bank has recently issued more catastrophe bonds to cover losses suffered by some Caribbean islands. The same idea may apply to longevity products to enable pension operators, life insurers, reinsurance companies or governments to tap the capital market to spread longevity risk to a wider range of investors.

In this light, having an effective wholesale risk management market will be essential for both insurance and ARM market. In Singapore, the MAS generally requires that insurers trade derivatives only 'for the purposes of hedging or efficient portfolio management.'[79] An insurer must disclose in its annual statutory returns its accounting policies and derivatives exposure.[80] By definition, 'hedging' means a reduction in investment risk through engaging in a transaction for a derivative on an investment where there is a high negative correlation between change in value of the derivative and change in value of the hedged investment.[81] This does not particularly constrain insurers that use longevity derivatives to hedge their insurance or conduct 'efficient portfolio management'.[82]

[79] MAS Notice 125, para 22.
[80] MAS Notice 125, para 23.
[81] MAS Notice 125, para 6(e).
[82] MAS Notice 125, para 6(d) and 26.

In addition, the MAS issued regulations in 2008 to facilitate the management of insurance risk through securitisation via special purpose vehicles (SPVs) and special purpose reinsurance vehicles (SPRVs).[83] Nonetheless, it is unclear how Singaporean insurers have utilised the securitisation market to spread risk, though the MAS has offered a foundation for them to do so. An effective securitisation market also requires collaboration from the capital market or other financial institutions (e.g. investment banks) that possess the expertise to deal with the matter. This will require a coordinated effort from the banking, insurance and capital markets to succeed.

It also worth noting that current regulations in Singapore and other major financial centres have not yet subjected longevity derivatives to the reporting, clearing and trading requirements of over-the-counter (OTC) derivatives.[84] Thus, legal risk from OTC derivatives is minimal as long for longevity-linked products. This may be partly because the market for longevity derivatives is still at an infant stage. Therefore, there remains some flexibility for insurers or banks to trade longevity derivatives for hedging purposes without the additional costs of OTC derivatives regulation.

C. Consumer Protection

Consumer protection offers another perspective on promoting the use of insurance or ARM products to meet longevity risk. In this article, we focus on three main aspects: claim handling, misselling and the relevance of insurance contract law.

1. Claim Handling and Meeting the Payment

The purpose of hedging or insurance is defeated if the product provider refuses or delays payment to a buyer. This is a particular issue with insurance. If an insurer unreasonably delays meeting an insurance claim, it may hurt the insured when they need the money most. In other words, we need the cooperation of the insurance industry to smooth out the financial effects of the longevity risk, including making timely payments.

[83] Insurance (General Provisions and Exemptions for Special Purpose Reinsurance Vehicles) Regulations 2008.
[84] Securities and Futures (Reporting of Derivatives Contracts) Regulations 2013 (S668/2013) Second Schedule, amended in 2014 to include foreign exchange derivatives in addition to interest rate and credit derivatives.

Under English common law, an insurer owes no duty to pay a customer within a reasonable time, as decided in *Sprung v Royal Insurance (UK) Ltd.*[85] The reason is that, under English common law, a non-life policy is a contract of indemnity. The promise given by the insurer is to hold the insured harmless. This promise is broken when an insured event occurs and the insured suffers losses. The insurer's liability for the insured's insurance claim is therefore not to perform his promise, but to pay damages. Thus, there can be no damages awarded for late payment other than interest.[86]

Nonetheless, the doctrinal explanation does not change the fact that an insured can suffer if an insurer fails to meet a legitimate claim in time. The Law Commission of England and Wales once proposed an implied term approach in which, in every contract of insurance, the insurer must pay any sums due in respect of the claim within a reasonable time.[87] However, this issue has been removed from the new Insurance Act 2015 as it is controversial and therefore not suitable for the special procedures for uncontroversial Law Commission Bills.[88] Thus, this remains an unresolved issue under English law. In Singapore, the position remains unclear without any local authority on this point.

If private law cannot offer a solution, regulatory intervention is arguably a better option. For example, UK's Financial Conduct Authority (FCA) generally requires an insurer to 'handle claims promptly and fairly' and 'not unreasonably reject a claim (including by terminating or avoiding a policy)' and 'settle claims promptly once settlement terms are agreed.'[89] A breach of this rule might result in a statutory cause of action for a customer to sue for damages.[90]

In contrast, Singapore seems to rely on self-regulation to ensure that customers receive payment in time. Insurance regulations in Singapore do not offer any particular rule on claim handling, while the General Insurance Association of Singapore provides a guidance that an insurer should 'handle claims fairly and promptly', and in principle a general insurer should

[85] [1999] 1 Lloyd's Rep IR 111 (CA).
[86] Robert Merkin, 'Reforming Insurance Law: Is There a Case for Reverse Transportation?' 12, http://lawcommission.justice.gov.uk/docs/ICL_Merkin_report.pdf, accessed 22 September 2014.
[87] Law Commission, 'Insurance Contract Law: Business Disclosure; Warranties; Insurers' Remedies for Fraudulent Claims; and Late Payment – Executive Summary' (Law Com No 353, 2014) [5.6].
[88] See Law Commission website, http://lawcommission.justice.gov.uk/areas/insurance-contract-law.htm, accessed 10 September 2014.
[89] FCA Handbook, ICOBS 8.1.1R.
[90] Financial Services and Markets Act 2000 s 150.

notify a customer of its decision within 7 days after receiving all necessary information.[91] However, such self-regulation is not actionable and enforceable by the court, although it may work well if insurers are generally self-disciplined. This may still be an issue worth monitoring over time to embrace the full effects of an aging society in the future.

For a non-insurance ARM product, failure of the product provider to pay would be a purely contractual issue. If an ARM product is not deemed as a contract of insurance, no doctrine from insurance contract law may apply to offer any remedy. It may then fall to the regulator or self-regulator to require product providers to honour their obligations promptly if they are licensed financial regulations. If one day there is a proper ARM market, this may become an issue similar to what happens in the insurance market. Has delay in payment become an important problem in the future, regulators should weigh different options from private law solutions to regulatory intervention to address to problems.

Some forms of collateralisation (similar to derivatives or certain structured products) may also be necessary to ensure that customers get some money should something go wrong with the provider. At this stage, how the market evolves remains unclear. Nonetheless, we need to recognise that prompt payment will be an essential issue if ARM products are to be effective in reducing the financial burden of an aging society.

2. The Relevance of Insurance Contract Law

In addition to claim handling, other aspects of insurance contracts may also affect the development of the insurance market. Maintaining the fine balance between protecting insurers from moral hazard without sacrificing consumer welfare is an intricate issue. This will also matter for ARM products if they are treated as insurance contracts.

Traditionally, Singapore's insurance law closely followed English law. Since the late 19th century, English insurance law has formed part of Singaporean law via the mercantile law pursuant to the then section 5 of the Civil Law Act.[92] This situation did not greatly change after the Application of English Law Act[93] in 1993 reintroduced a number of important English statutes into Singaporean law, including the Marine Insurance Act (MIA) 1906 (into Cap 389) in

[91] General Insurance Association of Singapore*, Singapore General Insurance Code of Practice*, para 7.
[92] Cap 43, 1999 Rev Ed.
[93] Cap 7A, 1999 Rev Ed.

its entirety. English precedents also continued to dominate the citation of precedents in insurance cases in Singapore in and after 1994.[94] However, insurance law in the UK has changed in the past few years, including the introduction of the Consumer Insurance (Disclosure and Representations) Act 2012 (CIDRA) and the Insurance Act 2015 (IA 2015). Even the Law Commission of England and Wales once suggested that the harshness of English insurance contract law under the old MIA might have cost London business.[95]

It is thus natural to consider whether Singapore should change its law to catch up with new developments in the UK. One may argue that the MIA has been in force in Singapore for over a century without clear problems or excess consumer complaints. However, if we ignore potential effect on Singapore's insurance industry, there could be a strong call to reform Singapore's insurance law, at least its consumer insurance.

Regarding utmost good faith (*uberrimae fidei*), it is not clear what else this duty concerns other than the pre-contractual duty of disclosure and not filing a fraudulent claim, especially regarding the duty of insurers.[96] Thus, the application of the duty is imbalanced and the duties of the insurer need more development to promote consumer protection. In addition, the sole remedy for breach of duty, namely avoidance of a policy,[97] represents an all-or-nothing approach, which can be quite impractical at times.

There have been signs that Singapore's courts may apply the duty of utmost good faith in a broader manner. For example, in 2008, Chan Sek Keong CJ observed that 'on an *uberrima fides* basis, all material facts relating to his personal conditions and circumstances, the insurer had to also inform the insured of any unusual clause(s) in an insurance policy that might deprive the latter of his right to make a claim.'[98] This observation may shed new light on the insurer's duty of utmost good faith in the pre-contractual stage. Nonetheless, no other cases have followed up this issue.

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[94] Christopher Chen, 'Measuring the Transplantation of English Commercial Law in a Small Jurisdiction: An Empirical Study of Singapore's Insurance Judgments Between 1965 and 2012' (2014) 49(3) Texas Int'l LJ 469, 482-488.
[95] Law Commission, 'Insurance Contract Law: Misrepresentation and Non-Disclosure' (ICL Issue Paper No 1, 2006) [7.35].
[96] N Legh-Jones (ed), *MacGillivray on Insurance Law* (11th edn Sweet & Maxwell, London 2008) [17-001].
[97] *Banque Financiere de la Cite SA v Westgate Insurance Co Ltd* [1991] 2 AC 249 (HL).
[98] *Tay Eng Chuan v Ace Insurance Ltd* [2008] SGCA 26, [2008] 4 SLR(R) 95, [30].

Furthermore, the current pre-contractual duty of disclosure is unduly harsh for consumers, who may not know what a prudent insurer would want to know beyond the questions asked in the proposal form,[99] and there is no flexibility regarding remedy. Sometimes consumers are not even aware of their duty of disclosure.[100] In addition, some local insurers still use 'basis of contract' clauses,[101] which are already prohibited under the new UK law.[102]

Thus, the rules in the MIA applicable to life insurance policies, such as the duty of utmost good faith, duty of disclosure and warranties, can increase customers' legal risk, especially many years into the policy when a customer may have considerable difficulty acquiring equivalent coverage at the same price. This may reduce the reliability of using insurance to deal with an aging society.

There are already suggestions that Singapore should consider adapting the CIDRA.[103] If the purpose is to create a functional insurance and hedging market for people to manage longevity risk, these rules may need refinement, at least in the consumer context. There is no doubt that a consumer should offer genuine information to enable the insurer to value the risk insured, but current rules in the MIA could be refined to create a fair environment for balance the needs of both customers and insurers. Whether Singapore should maintain the current law (notably the MIA), adopt the CIDRA or IA 2015 or create its own insurance code as in Australia[104] is a major policy decision beyond the scope of this article.

[99] Law Commission, 'Consumer Insurance Law: Pre-contract Disclosure and Misrepresentation' (Law Com No 319, 2009) [2.10].
[100] Yeo Hwee Ying, 'Call for Consumer Reform of Insurance Law in Singapore' (2014) 26 SAcLJ 215, [11].
[101] However, it has been noted that insurers in Singapore tend to rely on material non-disclosure rather than the basis of contract clause to deny liability; and this approach has been endorsed by soft law. Yeo (n 100) [26].
[102] Insurance Act 2015 s 9.
[103] Yeo (n 100) [16].
[104] See the Insurance Contract Act 1984 (Australia). For a discussion of the difference between the English and Australian positions on insurance contract law, see Robert Merkin, 'Reforming Insurance Law: Is There a Case for Reverse Transportation?' http://lawcommission.justice.gov.uk/docs/ICL_Merkin_report.pdf, accessed 22 September 2014.

3. Misselling and Investor Protection

Misselling is an important concern for a proper insurance and ARM market. The payment protection insurance saga in the UK is a good example.[105] If we study insurance complaints filed with the Financial Industry Disputes Resolution Centre (FIDReC) in the past four annual reports from 2008/09 to 2012/13,[106] of the 1,295 disputes, a significant number were insurance related, with 669 complaints against life insurers and 626 against general insurers. A large proportion of the disputes with life insurers concerned advice or misselling (425 of 669, 63.53%) and another substantial proportion concerned the liability of life insurers (118 cases, 17.64%). In contrast, for general insurance, a large majority of the disputes concerned the liability of insurers (579 of 626, 91.85%). Thus, it is obvious that most disputes over life or long-term health insurance policies concerned misselling. For ARM products, the potential for misselling may be even higher due to its hybrid nature. The Minibonds saga in Singapore in 2008 is a vivid example.

We need not repeat how misselling can arise for insurance or ARM products. The complexity of many life insurance or structured products naturally increases the likelihood of misselling, while the long-term nature of longevity-related products makes the need to tackle misselling more pressing. As people age, it generally becomes more difficult (or expensive) to purchase a new product if the product purchased when they were younger proves unsuitable for their needs. This make the suitability of an insurance policy (even a plain health or hospitalisation policy) a potentially important challenge in the future as the society grows older. It is also important to ensure that customers know what they are buying in the first place.

For example, in *Zhu Yong Zhen v AIA Singapore Pte Ltd.*,[107] the plaintiff purchased a policy in 1993 in the wrongful belief that she only needed to pay premiums for 16 years (due to her misunderstanding the Policy Benefit Illustration). The dispute only emerged in 2008, 15 years after entering into the policy. We agree with the court's analysis of relevant terms in this case. However, this case demonstrates the risk facing the insured and the insurers of life and long-term health policies regarding the maturity of a policy.

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[105] James Titcomb, *The PPI scandal is showing no signs of coming to an end*, The Telegraph (8 November 2014), http://www.telegraph.co.uk/finance/newsbysector/banksandfinance/11217168/The-PPI-scandal-is-showing-no-signs-of-coming-to-an-end.html.

[106] See annual reports of the FIDReC, http://www.fidrec.com.sg/website/annualreports.html, accessed 8 April 2015.

[107] [2013] SGHC 37, [2013] 2 SLR 478.

Singapore has significantly improved its regulation of the advice and sale of structured products since the Minibonds saga.[108] These rules may be sufficient to cover new ARM products structured as derivatives or hybrid instruments. However, this article suggests that suitability assessment should be extended to other ordinary life insurance products. Under current regulations, a non-investment-linked life policy is an excluded investment product and therefore a financial adviser is not obliged to conduct suitability analysis of a customer.[109] Although they may be less risky, the coverage and payment of many non-investment linked life and health policies are quite complex and sophisticated. The suitability assessment process may have to be adapted not only to match the customer's risk appetite to the investment product's risk profile,[110] but also to ensure that the insurance or ARM product is functionally suitable to a customer's needs. This requires a more dynamic and holistic approach to the practice of product disclosure, know-your-customer and suitability assessment.

D. Moral Hazard

There is also a potential issue of moral hazard. Longevity products can be used to hedge risk, but also for pure speculation. As longevity products are more or less connected to a person's life expectancy, there is the potential for killing the person for the purpose of claiming money if a longevity product refers to the specific person's life.

In insurance law, this concern is partially dealt with by the doctrine of insurable interest. In the case of property insurance, an insured must have an interest (often a proprietary interest) in the property insured.[111] The indemnity principle may also prevent the abuse of insurance policies because the person must suffer actual losses. However, indemnity is not a proper safety mechanism for life assurance, which is a contract of contingency under which payment does not depend on actual losses. Therefore, for life insurance, the insurable interest is in principle determined by relationship. For example, under Singapore law, person (X) is deemed to have an insurable interest in the life of person (Y) if Y is X's spouse, child under 18 or dependent.[112]

[108] See generally Christopher Chen, 'Product Due Diligence and the Suitability of Minibonds: Taking the Benefit of Hindsight' (2011) SJLS 309; Christopher Chen, 'The Resolution of the Structured Notes Fiasco in Hong Kong, Singapore, and Taiwan' (2013) 34 Comp Law 119.
[109] Monetary Authority of Singapore, Notice on Recommendations on Investment Products (FAA-N16) para 8 and 9.
[110] Chen (n 108) 318.
[111] E.g. Marine Insurance Act (Cap 389) s 5 (Singapore).
[112] Insurance Act (Cap 142) s 57(1)(b) (Singapore).

Otherwise, X must show a pecuniary interest in Y's life at the time when the insurance is effected.[113] In requiring a connection between the insured and the subject matter of a policy, one of the purposes of insurable interest is to reduce moral hazard by preventing a person from gambling another person's property or life, although it is fair to say that the presence of insurable interest does not entirely prevent the occurrence of moral hazard and insurance fraud.

Moreover, insurance law or specific policy terms may also address the moral hazard by preventing a person from claiming insurance money if a beneficiary murders an insured or an insured commits a suicide. For example, the doctrine of fraudulent claim may prevent a fraudster from claiming insurance money by faking an accident.[114] In some countries, insurance law exempts an insurer from the payment obligation if losses are intentionally caused by the insured.[115] However, in Singapore, the law generally leaves it to the policy terms to decide whether an insurer exempts losses caused by wilful conduct.

However, insurance contract law does not apply if an ARM product is not a contract of insurance. At present, moral hazard for longevity derivatives should be limited insofar as these products tend to refer to the general mortality rate in a country or a region where the possibility of genocide or mass killings is minimal. Thus, it has not yet become a real concern. However, the chance of moral hazard may increase if longevity products are linked to the life of a particular person or a small group of people in a more limited space. In this event, lawmakers will have to prepare strategies to control moral hazard.

IV. Conclusion

In conclusion, this article recognises the need to address longevity risk by offering more insurance or alternative risk management products, and anticipates a growing demand for alternative risk management to control future expenses and even macroeconomic effects by covering financial losses that the insurance or public sector cannot afford to absorb.

[113] Insurance Act s 57(1)(a) and 57(2) (Singapore).
[114] See e.g., *Yap Chwee Khim v American Home Assurance Co* [2001] 1 SLR(R) 638, [2001] SGCA 22. In this case, the insured of eight life policies drowned in Cambodia while travelling with the ex-husband of the beneficiary of the policies, some of which were purchased just days before the travel. This raised doubts of moral hazard.
[115] E.g., Insurance Act art 29(2) (Taiwan).

As the market is not yet fully developed, this article identifies some issues facing the supply and demand sides that regulators and legislators should consider as the market for ARM products grows. On the supply side, these are the licensing of sellers, the prudential requirements for these institutions and the availability of wholesale risk management tools. On the demand side, these are financial consumer protection and moral hazard when a product is linked to human lives. Insurance contract law will also play an important role in effective insurance cover throughout a person's life.

In general, this article suggests that current Singapore law has proper regimes to handle new insurance or ARM products designed to meet the aging society. However, regulators must be vigilant to new technological developments and provide legal certainty for market participants when new issues arise, as substantial legal risk may stifle some financial innovation. In addition, Singapore's insurance contract law may need revision to create a fair market for both insureds and insurers. This article does not propose the relaxation of laws merely to allow market growth, but rather the early identification of issues under the current regulatory structure to develop a healthy market to help market participants to manage risks in the long term. As we face a gradually greying population, the state should be proactive in addressing these issues.

Reference