

Capital and finance: No, Mr Bond, I expect you to die

Despite the somewhat uninformed press on the issue – usually under the title “death bonds” and adorned with fat-cat grim reapers – the reality is that extreme mortality is both a useful hedge for life insurers, reducing their capital and thereby the cost of the product, and a highly suitable investment for pension funds. BRAVE Partners is pleased to be developing the market.

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The 1963 Bond movie, Goldfinger is a little more spy thriller and a little less comedy with a car chase than some of its successors. As usual, the eponymous villain had captured Bond. As Goldfinger left Bond to be sliced in two by a laser, Bond asks: “Do you expect me to talk?”; “No, Mr Bond, I expect you to die” answers Goldfinger. In the movie, predictably, Bond is saved. BRAVE Partners also sees the extreme mortality bond market a useful and worthwhile tool. Swiss Re has accessed it a number of times through its Vita series of bonds.

Mortality risk

Mortality risk does sound rather morbid. However, many of us buy life insurance to protect our families in the unlikely event of death. The life insurers that provide this cover do so on the basis that they expect a certain number of people to die. Year on year, death rates in large populations are usually surprisingly stable. This allows these businesses to price accurately and to hold capital that is proportionate to the risk.

These businesses, however, are highly exposed to events that drive mortality rates way above those expected.

Extreme mortality

So, what does drive mortality rates well above those expected? Terrorism and natural disasters are two possibilities, but these are usually localised events. Even 9/11 for all its horror and visual impact did not affect the population mortality rates for the whole USA. The event caused a little under 3,000 deaths, which, although emotionally devastating, is relatively small in a population of over 300 million.

Extreme mortality is pretty much solely caused by disease. The most common disease to create extreme mortality events is pandemic ‘flu. Currently the H5N1 virus looks like the greatest threat.

Death rates in developed countries are usually very stable in the short term. However, a few events can create a major shock in these rates and life insurers need to protect themselves – otherwise they would need to hold excessive amounts of capital.

'Flu seems to have been around for as long as records have been kept. The disease is well balanced – making its victims sick, but not killing them – thereby reducing the available hosts. Occasionally the disease does get this equation a little out of balance and some 'flu strains do cause a spike in mortality.

A short history of pandemic 'flu

'Flu was first described by Hippocrates at Perinthus in Northern Greece. There is some speculation that the disease had a hand in the demise of Athens in 404 BC.

The disease obtained its current name, influenza, around 1357 AD from the Italian word meaning "influence". The belief at that time was that 'flu developed under the influence of the stars.

A 'flu like "sweating sickness" is reported in Britain during 1485. The Lord Mayor of London, his successor, and six Aldermen died. The Royal Navy was also incapacitated due to sickness. It is estimated that hundreds of thousands of people were infected.

The first known global spread of 'flu occurred in 1580 when the disease swept out of Asia through Africa, Europe and even into America. Interestingly, most 'flu pandemics still originate in Asia.

There are 33 documented 'flu pandemics from 1580. The best known today is the Spanish 'flu pandemic in 1918 which was carried by the soldiers returning from war.

Pandemic cover

Pandemics are a real risk for large life insurers. These events are the equivalent of a major hurricane for a Florida homeowners' insurer. These businesses therefore seek to cover off losses from these events, just as a Florida homeowners' insurer will be catastrophe reinsurance. However, since these events are substantially less frequent than major hurricanes the pricing is substantially slimmer. To put it in perspective: the last major hurricane was Ike in 2008 and the last 'flu pandemic was 1968 – 69. Moreover in both of 2004 and 2005 there were three major hurricanes making landfall in the USA. There have never been three pandemics in a year.

Measuring a pandemic

So, the life insurers want protection against the deaths from a major pandemic. In order to provide the cover, this has to be measured. One measure of pandemic is the World Health Organisation (WHO) that has a pandemic scale. The highest rating is 6.

There are some insurance covers that BRAVE Partners has heard of that do link to the WHO pandemic scale. This, however, is not really the measure that a life insurer requires. To be a little morbid, but one needs to be to analyse the situation, the life insurer is not so concerned if large numbers of people get sick. It is deaths that the life insurer cares about. The covers that link to the WHO pandemic scale are business interruption covers where a company was concerned about the impact of an area getting locked down so that it could not transport components to and from its factories.

Mortality table

Most developed countries collect and analyse the statistics of deaths in their country. From these a central body, often the Government, produces a set of mortality tables. These tables simply estimate the number of people of a particular age that are expected to die within a year. They are the root of a favourite actuary joke: “A life actuary can tell you how many people will die each year. A Sicilian actuary can also give you their names and addresses.”

Joking aside, the life insurers work to their own adaptations of the central table. These adaptations will adjust for factors like address, occupation and social class – all of which have an impact on mortality rates.

However, regardless how it is derived, a mortality table predicts the expected number of deaths each year.

Extreme mortality

The tables give expected mortality. Say that a life insurer expects 100 deaths in its protection business (standard life cover) book. If 130 people die in the next year, then that has a major impact on the life insurer.

So an extreme mortality cover is best structured as a policy that pays out when the observed death rates in a population over a year are substantially greater, say 130%, of the deaths that the mortality tables would predict.

Pandemic investors

The beauty of extreme mortality cover is that there is a natural investor base – pension funds. Pension funds have been struggling with a number of issues – one being the increase in life expectancies of their members. Brutal to say, but the fact is that higher death rates are good for pension funds. Extreme mortality is therefore what a pension fund would describe as “right-way-round” risk.

The great mismatch in life

This commentary will leave aside the debate as to whether the mortality risks in life insurance do offset the longevity risk in pensions and annuities. These products are certainly bought by different sections of the population and these can be affected in different ways by ‘flu pandemics.

Extreme mortality risk currently tends to trade at high prices during times of high pandemic risk. BRAVE Partners is seeking to develop a more consistent market between the life insurers who naturally accumulate the risk and the pension funds who are a natural offset.

Putting it all together

Life insurers need to cover off the infrequent, but ever present risk of pandemic. The risk is a natural risk for pension funds. However, because the risk of pandemic is low, the life insurers do not wish to pay a substantial price. They will pay a fair price, but often this is below the return targets of the investors.

The extreme mortality market therefore goes in fits and starts. From time to time a dead swan washes ashore with traces of the H5N1 virus. The market panics and buys pandemic cover at a hefty price. The threat subsides and the prices for pandemic cover decline.

Building a stable market

BRAVE Partners is working on some overlay structures that will allow pension funds to take the risk of the pandemic without tying up too much of their investment cash. These will allow funds to benefit from additional investment yield due to the pandemic risk premium. However, in the event that there is a loss from the risk, it is likely that the pension's liabilities are also diminishing

BRAVE Partners services

BRAVE Partners can advise insurers and reinsurers on the capital markets' appetite for insurance risks. The firm can arrange and place such transactions, as well as provide mentoring and advice on establishing the infrastructure and a presence in the market. Such advice can include the key terms of a cat bond and the major negotiating points to consider for each.

The firm is currently actively working to develop a structure and investor base that will reliably take extreme mortality risk and a fair price for both sides. This should make the market smoother and more consistent.

Interaction

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- Transferring extreme mortality risk to the capital markets is not a new concept.
- Swiss Re has issued a number of bonds called Vita that do this.
- However, generally extreme mortality does not trade. The pricing during non-stress periods is too low to attract investors and arrangers.
- BRAVE Partners LLP is seeking to develop a structure that will make the transfer of extreme longevity risk attractive in non-stress scenarios.

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