

## IML White Paper – Sequencing Risk: Pre- and Post-Retiree Dilemma

March 2014

**Welcome to the IML's first White Paper exploring Sequencing Risk. 'Sequencing risk' is the risk of experiencing poor investment performance at the wrong time, typically when the portfolio balance is at its greatest. The author is our Portfolio Manager of the IML Equity Income Fund, Jason Teh. He has written an insightful piece on the risks of capital loss during the later part of the accumulation phase, particularly pertinent to Pre and Post Retirees.**

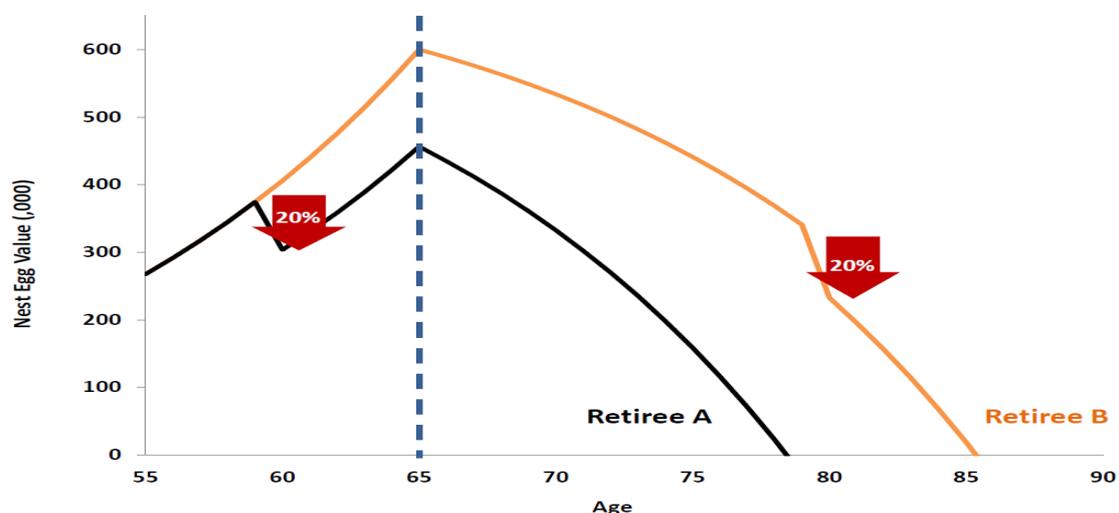
### Sequencing Risk

Our superannuation system is based on Australians building up a nest egg during our working life and then drawing down on it in our retirement. For early accumulators, when the level of savings is small, maximising returns matter the most as you are able to weather market volatility in the long term. However, as your savings grow larger and as you approach retirement, there is a greater focus on the short-term because un-favourable market conditions may lead to catastrophic retirement. If you experience poor investment returns around your retirement **your portfolio may not have enough time to recover** even if the market does eventually rebound. The risk of experiencing poor investment returns at the wrong time is called sequencing risk.

Sequencing risk is one of the biggest financial risks faced by retirees because it is a major cause of longevity risk: the risk of outliving one's savings. If this risk is not managed properly it may lead to dramatically different retirement outcomes even if two investors are exposed to the same average return.

Consider two retirees A and B who both contribute \$5,000 annually to their nest egg before retirement and then withdraw \$50,000 annually when they retire from 65 years of age. Both are exposed to investment returns of 7% per annum, however, the only difference is that retiree A experiences an unexpected 20% loss five years before retirement (60 years old) while retiree B experiences the same percentage loss fifteen years after retirement (80 years old).

**Figure 1. Sequencing Risk may lead to Portfolio Ruin**



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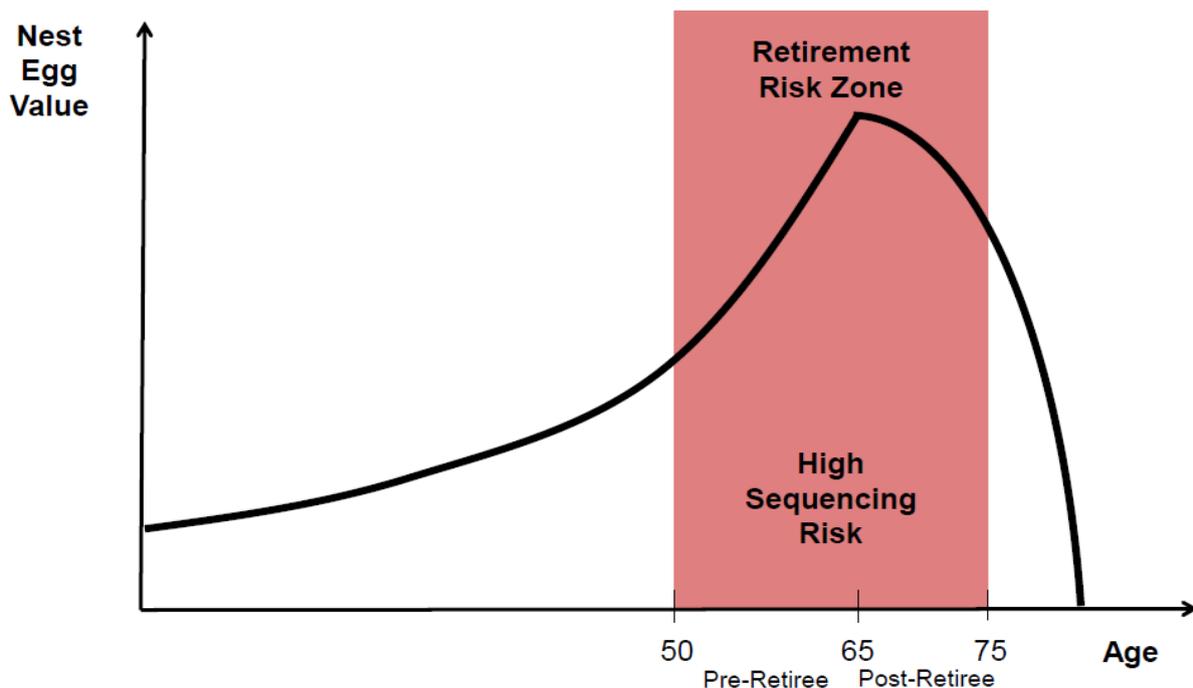
The above chart shows that if you experience a significant loss when the nest egg is large it may wipe out several years of your retirement savings. Retiree A experienced a large loss before retirement and consequently increased the probability of outliving their savings. On the other hand, Retiree B did not experience portfolio ruin because the significant loss occurred later in retirement. Doran, Drew and Walk (2012) investigated how sequencing risk affects retirement savings and comment:

“... a poorly timed negative return event (of around -20 per cent) can raise the probability of ruin from 33 percent to 50 per cent.”

### Retirement Risk Zone

Sequencing risk increases when there is more capital at risk when you approach retirement. An investment loss occurring when the nest egg is large will have a disproportionate impact on how long your savings will last. So, it is not surprising that sequencing risk affects both pre-retirees in the accumulation phase as well as post-retirees in the drawdown phase. This phase of the savings life cycle is commonly called the ‘Retirement Risk Zone’. Research by Milevsky and Salisbury (2006) and Doran, Drew and Walk (2012) show that this zone spans from about 15 years before you retire to about 10 years after you retire.

**Figure 2. Retirement Risk Zone has High Sequencing Risk**



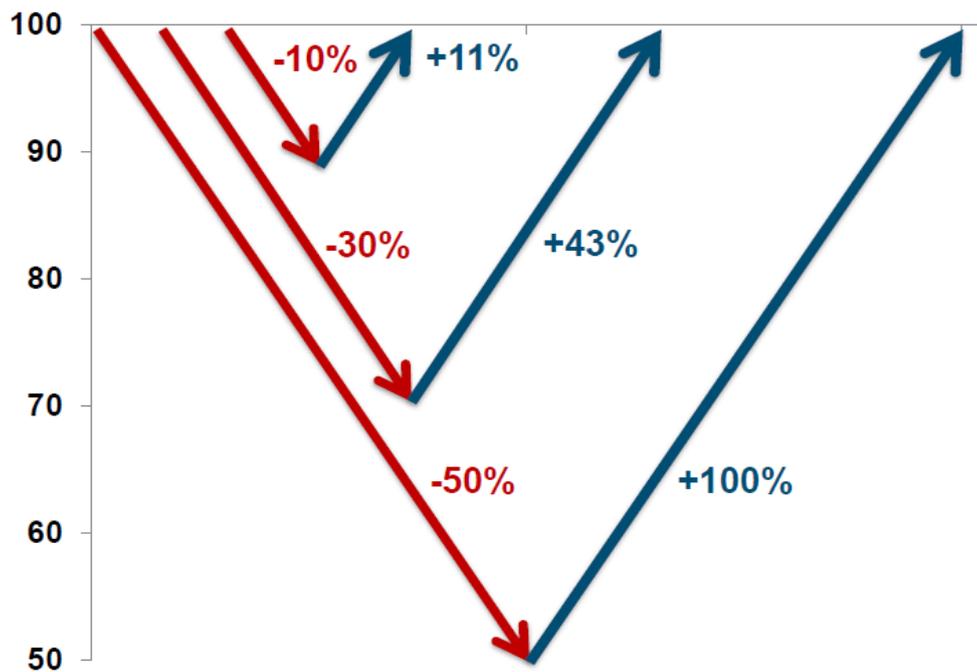
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### Volatility and Cash Flows Amplify Risk

Historically, over the long term, equities have delivered reasonable returns versus other asset classes. However, in the short term, equity returns can be highly chaotic. Market crashes or corrections occurring in the retirement risk zone may lead to tragic retirement outcomes because losses have a disproportionate impact on your capital. This is due to the fact that it requires a greater percentage gain to fully recover the losses. For example, if you lose 10% of your capital it requires an 11% return in the following period to restore the capital to its original amount. But if you were unfortunate to lose 50% of your capital it requires an extraordinary effort to deliver 100% return in the following period to restore the capital.

**Figure 3. Harder to Make Back Money Lost**



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Given that the magnitude of positive returns needs to be greater than negative returns it may take several years to fully recover the loss. If pre-retirees experience significant unexpected losses and if they cannot delay their retirement their savings will be severely impaired. This is especially evident for stock market crashes as illustrated by the following drawdown chart of the S&P/ASX300 Price Index. Five years after the Global Financial Crisis the stock market has yet to recover the capital losses.

**Figure 4. S&P/ASX300 Price Index Drawdown (1980 – 2013)**



**Source: Morningstar**

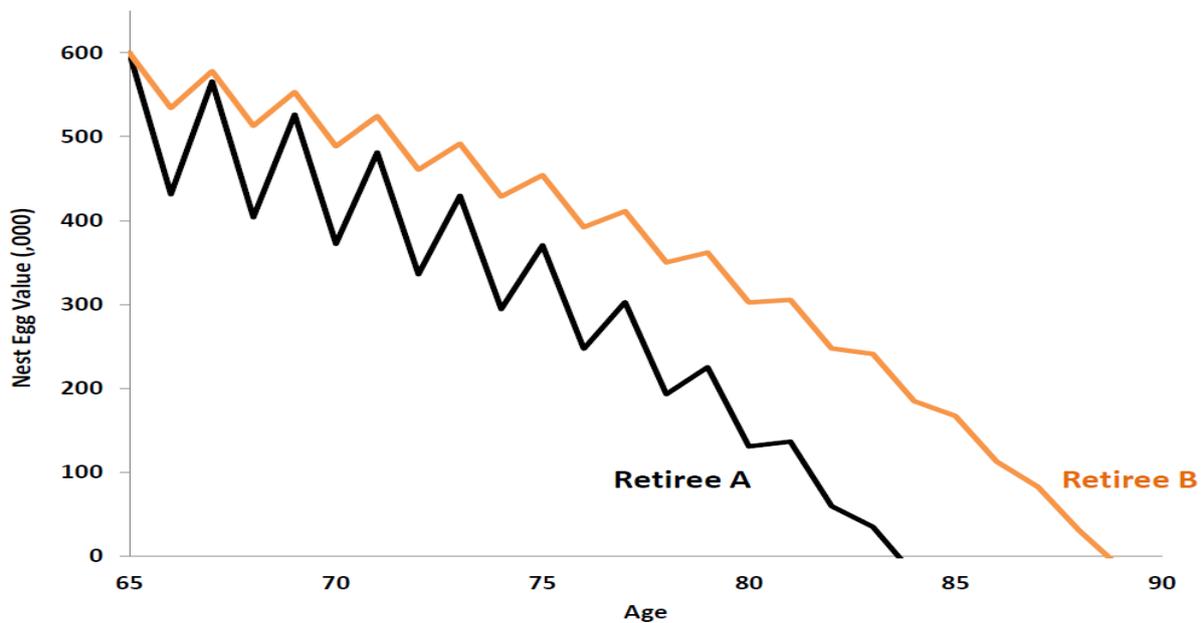
But what if you are able to wait many years and let future returns offset past losses? This situation works well for young accumulators when time is on their side and when there are no cash flow withdrawals from their savings. For post-retirees, being patient does not work because of the constant withdrawals to fund ongoing retirement expenses. Even if two retirees with the same withdrawals are exposed to the same return over the long term, different levels of volatility may again lead to dramatically different retirement outcomes.

Consider two retirees A and B who retire at 65 years of age with \$600,000 savings. Both withdraw \$50,000 annually to meet their retirement expenses and are exposed to 7% per annum return over the long term. The only difference is that retiree A experience high levels of volatility (30% per annum standard deviation; returns cycle every two years around the long term growth rate between -25% in the first year and then followed by +33% to recover the loss) while retiree B experience low levels of volatility (10% per annum standard deviation; returns cycle every two years around the long term growth rate between -10% return in the first year and then followed by +11% to recover the loss).

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**Figure 5. Volatility Increases the Chance of Portfolio Ruin**



The above illustrates that when there are constant withdrawals during times of high volatility, the capital base may never recover even if future periods have favourable market conditions. Constant withdrawals deplete the savings further in times of volatility and will make it very difficult to recover in future periods. When cash flows are taken into account, the real experience for a retiree, 'investor returns', can be totally different from 'investment returns'.

'Investment returns' measure the performance of a fund that assumes distributions are re-invested, and the client does not make any contributions or withdrawals. 'Investment returns' is the preferred industry standard because it separates investment actions by the fund manager and client activity such as contributions or withdrawals. However, these assumptions are totally unrealistic for retirees, because post-retirees generally do not re-invest their distributions and also make regular withdrawals from their savings. 'Investor returns' are more relevant to retirees because the constant withdrawals in times of market volatility may lead to portfolio ruin sooner than expected.

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### **Solutions**

Retirees can hope to retire when the markets are rising, but hope is not a strategy to a successful retirement. Various solutions have been suggested to manage sequencing risk. One strategy is that retirees can adjust their retirement spending if their savings dramatically fall in value. However, this is a reactive strategy and it is not very useful when living and medical expenses are increasing year after year. Prevention is the best cure to the problem, accordingly a proactive strategy is required for retirement savings.

Young savers should contribute more into their superannuation and build a larger nest egg to withstand any volatility when they approach retirement. However, a different strategy is required for older savers within the Retirement Risk Zone. Sequencing risk should be addressed before retirement as part of a transition strategy from the accumulation phase to the drawdown phase. Unfortunately, sequencing risk can never be eliminated because returns are unpredictable; however, its effects can be managed by minimising volatility. Returns that are less volatile will have smaller negative returns.

One strategy retirees could adopt is to increase the exposure of low risk assets such as fixed interest as you approach retirement. However, greater exposure to fixed interest products, especially when current interest rates are close to multi-decade lows, will unlikely keep pace with increasing living costs. This will result in a retiree drawing down their savings even faster than expected and consequently accelerating the risk of portfolio ruin.

From an asset allocation perspective, retirees seem to be “trapped between a rock and a hard place”. High allocation to fixed interest reduces sequencing risk, but it will unlikely match rising living costs leading to greater withdrawals from savings. High allocation to equities will provide a good inflation hedge but the extreme volatility with constant withdrawals may destroy the nest egg. Recent research by Milevsky and Salisbury (2006) suggest that an asset class diversification approach may not provide the complete solution to retirees.

Milevsky and Salisbury (2006) suggest that product allocation has the greatest influence on retiree portfolio outcomes. While their research suggest retirees should seek funds with option like features, such as a retirement collar strategy (sell call options to forego the upside and simultaneously buy put options to protect the downside), the solution to most retirees is quite obvious. The solution is low risk equity funds.

Equity funds with low risk objectives help mitigate the effects of sequencing risk while still providing a good long term hedge to inflation. Low risk equity funds have embedded option like features because by definition they will outperform in bear markets (downside is limited) and under perform

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in bull markets (upside is limited). It is important to realise that retirees aim to maximise ‘investor returns’ not ‘investment returns’, so outperforming in bear markets is far more important than under performing in bull markets. It takes more effort to regain lost capital especially when the capital is drawn down in un-favorable market environments. Further, low risk equity funds that have the additional objective of delivering higher income will dramatically increase the success rate of a retirement as it will reduce the need to drawdown the nest egg. Retirees can “have their cake and eat it too”.

Dynamic asset allocation strategies have also been proposed to minimize the effects of sequencing risk. In recent years, several researchers such as Basu, Byrne and Drew (2011), Pfau and Kitces (2013), and Ang, Chen and Sundarensan (2013) advocate increasing equity allocations if a retiree is falling short of their retirement goals. They believe that there is a greater chance of a successful retirement even if retirees experience an unfavourable market environment early, because a rising equity allocation through time will maximize their exposure when the market rebounds. Unfortunately, this dynamic asset allocation strategy requires a higher level of risk tolerance from retirees. Accordingly, using a product-centric strategy of low risk equity funds in combination with a dynamic asset allocation approach will make it more tolerable for conservative retirees.

### **Summary**

With increasing number of baby boomers entering retirement they may not be aware of one of the biggest financial risks faced by retirees: sequencing risk. The sequence of returns, in particular negative returns, may severely impair both the nest egg and the sustainability of their retirement income.

Retirees are a special class of investors who either do not have much time before they retire (pre-retirees) or who are constantly drawing down on their savings (post-retirees). They are highly sensitive to sequencing risk which peaks within the retirement risk zone when the retirement savings is at its largest on both sides of retirement. Hence, sequencing risk should be addressed early as part of a transition strategy before retirement.

Minimising exposure to volatility is the key to mitigating the effects of sequencing risk as the magnitude of negative returns will be reduced. Although we can never totally avoid adverse market environments, smaller exposure to negative returns will make it easier to recover the capital. Retirees with constant withdrawals have a greater focus on ‘investor returns’ rather than ‘investment returns’.

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The traditional asset allocation diversification approach to reduce volatility may fall short of providing a complete solution to retirees. Portfolios constructed on outcomes using a product-centric approach may be superior as it has a greater ability to lower risk outcomes for retirees while meeting rising inflation costs. Low risk equity funds should be considered as the bedrock of a retiree investment portfolio.

Do not let sequencing risk destroy a lifetime of investing and ruin a well-planned retirement. If it is not managed properly it could mean the difference between living comfortably in the golden years where the grand children are spoilt versus the harsh reality of dying in poverty.

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