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Wharton Pension Research Council
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Session 5 - Model Risk

- ***The Securitization of Longevity Risk and Its Implications for Retirement Security***

- ***Stress Testing Monte Carlo Assumptions***

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MARSH & McLENNAN COMPANIES

* Views expressed are solely those of the author

Summary & key takeaways

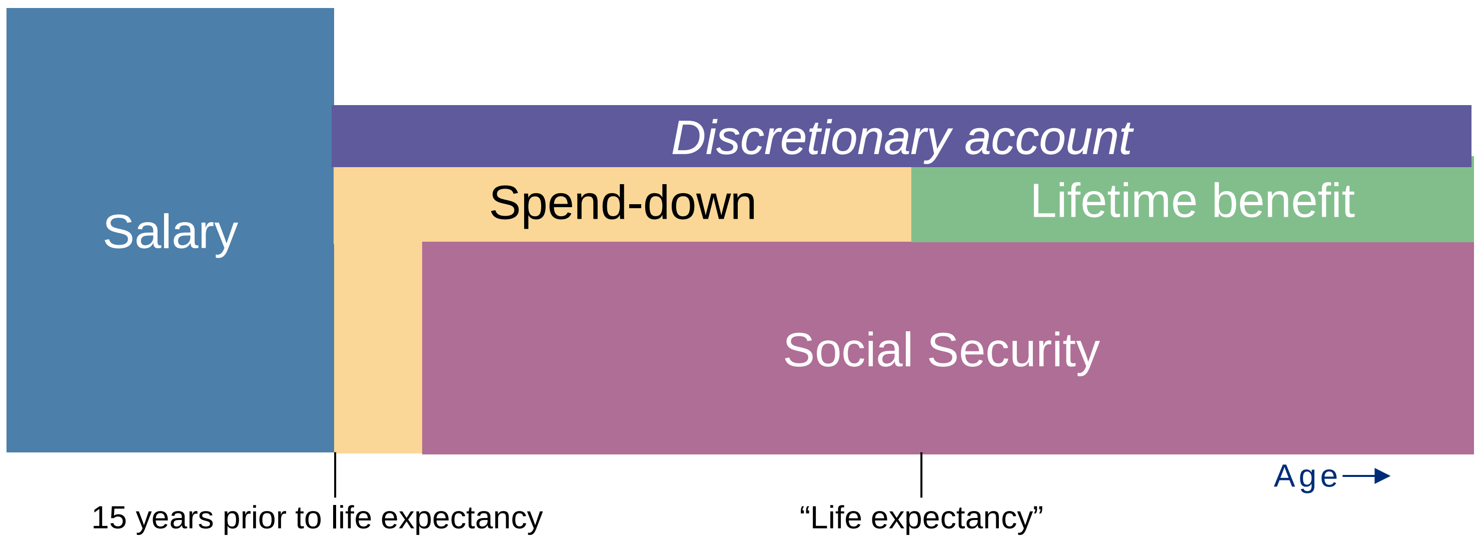
- Stress Testing Monte Carlo Assumptions
  - MC very useful forecast tool to construct distribution of wealth outcomes; construct risk/return frontier to evaluate retirement options
  - MC often utilizes simplifying assumptions; investment returns are normally distributed, constant over time and parameters are known
  - Whilst “appear to be good enough approximations”, gold swans offset black swans, these assumptions and limitations should be understood, use MC as a directional guide

- The Securitization of Longevity Risk and Its Implications for Retirement Security
  - Longevity risk = general trend+ idiosyncratic risk (risk outlive assets)
  - Individuals can hedge idiosyncratic risk but at cost, loss of flexibility
  - Retiree from DC plan faces longevity risk (i.e. may outlive assets), market “crashes” result in assets depleted well before life expectancy
  - DB plan excess risk strategy (longevity swap) transfers longevity risk but liabilities and other risks remain (e.g. assets)
  - DB plan ground-up hedging strategy (buy-out) transfers liabilities and assets and is therefore likely to reduce risk more than longevity swap

Areas for further discussion/research

Spend down phase for DC plans

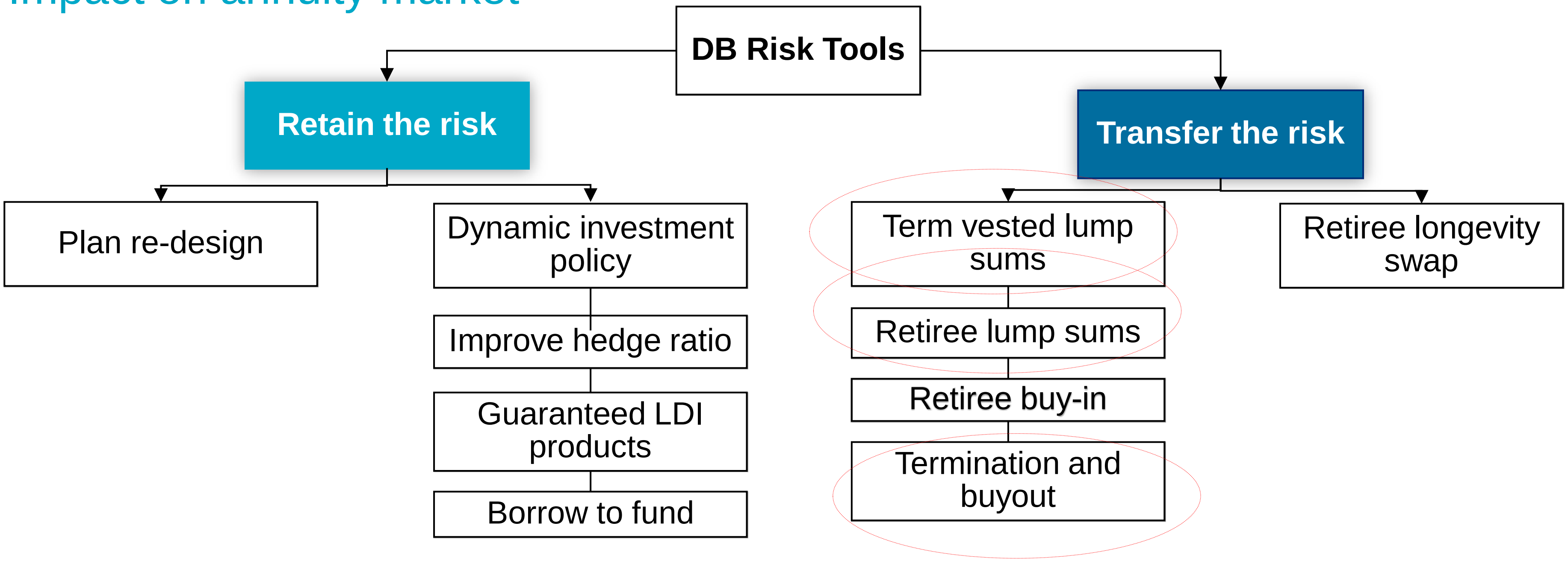
- To compare strategies/products, focus on income rather than outliving of assets
- Ideal design would have
  - Longevity protection
  - Access to funds
  - Good returns
- Spend down account + Discretionary account + Lifetime benefit account



  - Use simulation with investment, longevity, and spending scenarios to evaluate

Areas for further discussion/research

Impact on annuity market



- Many sponsors are transferring liabilities to participants via one-time lump sum offers and others are considering transferring liabilities to insurers
- These are often directed strategies, eg terminated vested often contribute disproportionately to funded status risk and have high admin costs (PBGC etc)
- An increased demand for annuities (DC + DB) may put pressures on insurers
  - Concentration of risk among small number of insurers
  - Increased cost due to non-hedgeable risks
- Quantify impact on insurers and potential benefit of longevity bonds

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