Dynamic Investment Solutions

Lifecycle Strategies | QIC

ACFS Academic and Policy Research Workshop

Target Date and Lifecycle Strategies – converting theory to practice

presentation to

ACFS-Finsia
Consumer Finance Symposium 2010

3 August 2010

Disclaimer

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Outline

- The rise of the accidental investor
- The fiduciary challenge
- Issues with 1st generation target date funds
- The portfolio size effect
- Converting theory into practice
- The QIC Lifecycle Strategies approach

The rise of the accidental investor

- Sea-change in retirement savings responsibility
- Most members admit that they are not well equipped to make investment decisions:
  - Member disengagement
  - Ill-informed switching
- Is there a better solution? We know the limitations of current practice where trustees hope that the default option suits 'most of the members, most of the time'…

Two in five Australians say they will have to delay retirement. Of these, one in five will be deferring retirement by a staggering six years.
Source: Mercer 2009

Post-GFC, there is now a one in two chance that a 65 year old in a balanced super fund will run out of money by the time they are 85.
Source: Milliman, 'Risk in retirement: impact of the market downturn and implications for retirees and product providers', September 2008

The Fiduciary Challenge

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- Trustees are focussing increasingly on default solutions that have the highest probability of delivering an acceptable 'real' income replacement level for their members
- Rather than offer a line-up of investment choices from which trustees hope members will select wisely (target risk), trustees are implementing strategies that are informed by the lifecourse of the member
- Lifecycle strategies not only offer the surface-level-simplicity that members desire, but also the behind-the-scenes complexity to manage retirement savings using the most advanced techniques and asset classes

A primer on lifecycle funds

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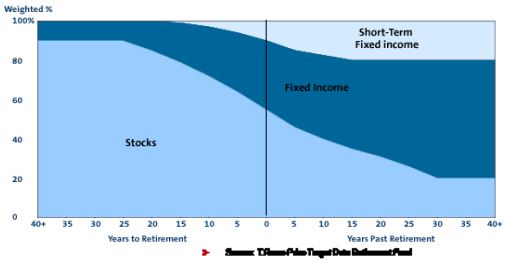
- **Popular in the US, lifecycle (also known as target date) funds auto-enrol members into a default option informed solely by their expected year of retirement**
- **For instance, if the member's expected retirement date was in or near 2030, they would be defaulted into the 'XYZ 2030 Fund'**
- **As the diagram below illustrates, the 'XYZ 2030 Fund' automatically adjusts the member's asset allocation as retirement approaches and through the retirement phase**



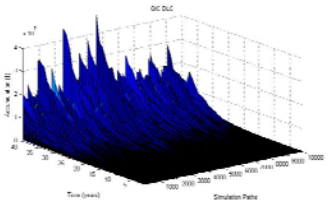
- **This is in sharp contrast to current Australian practice, where the default option is 'target risk' (as distinct from 'target date') in nature**

Issues with 1st generation target date funds

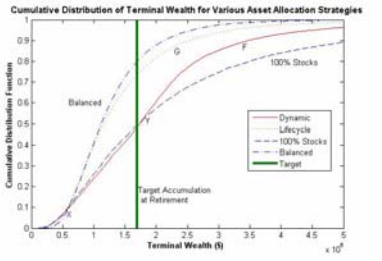
- The proponents of first generation target date strategies cite the convenience to members of putting their investing activities on autopilot
- However, the GFC has reminded us that:
  - What's safe and what's risky changes as you move through life
  - Sequencing risk impacts differently in savings years versus spending years
  - Negative compounding matters!
- Unlike the 'auto-pilot' or static approach, QIC's approach to lifecycle investing is dynamic:
  - The riskiness (or otherwise) of the glidepath is informed by the extent to which the members' retirement wealth accumulation objective has been achieved

The portfolio size effect

- It's what you do when the largest amount of money is at risk that matters
- The growing portfolio size in later years is important from the asset allocation perspective. Due to this size effect, final investment outcomes of members become more sensitive to choice of asset allocation in later years relative to early years
- Switching to less volatile assets before retirement can lessen the impact of severe stock market downturns. However, this move to preserve accumulated wealth can be justified only when the accumulation at the point of switch exceeds the target set by the participants

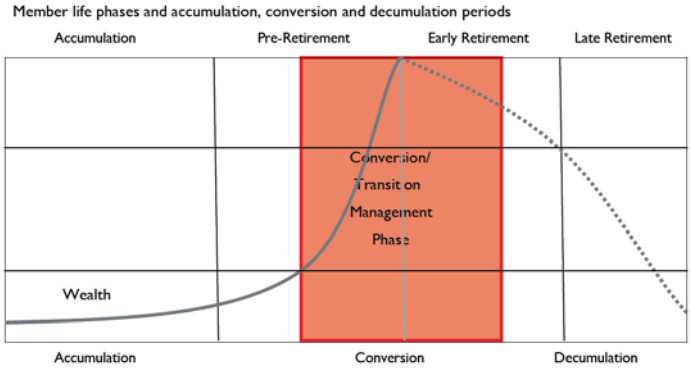


Source: Basu, A. and Drew, M.E. (2009) Portfolio Size Effect in Retirement Accounts: What Does It Imply for Lifecycle Asset Allocation Funds, *Journal of Portfolio Management*, 35:3, 61-72.



Source: Basu, A.K., Byrne, A. and Drew, M.E. (2011) Dynamic Lifecycle Strategies for Target Date Retirement Funds, *Journal of Portfolio Management*, forthcoming.

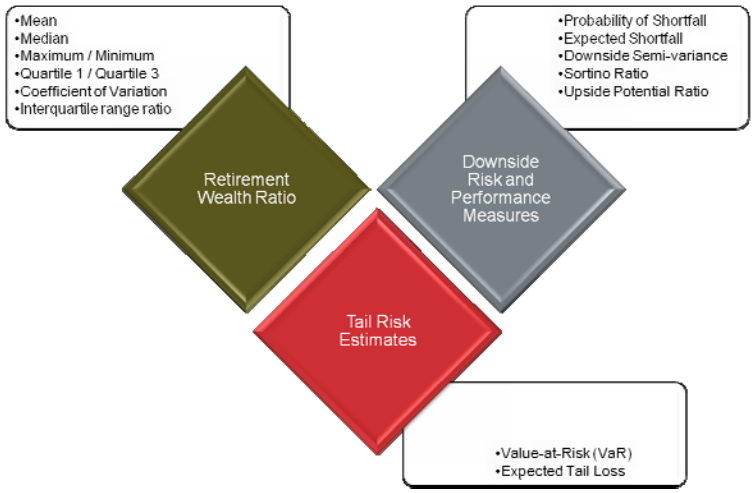
Conversion from accumulation to decumulation



- During the conversion phase (the final 15-20 years of accumulation and first 10 years of decumulation), the impact of the portfolio size effect is critical in determining the sustainability of retirement income
- Downside protection is vital for this cohort of members
- For instance, QIC modelling has shown that, for an average member, a 25% drawdown in the last 5 years of working life destroys up to 1.5 times their lifetime contributions to superannuation and reduces their annuity income by one-third. This situation was the lived experience for some super fund members in 2008/09.

Case Study – Converting theory to practice

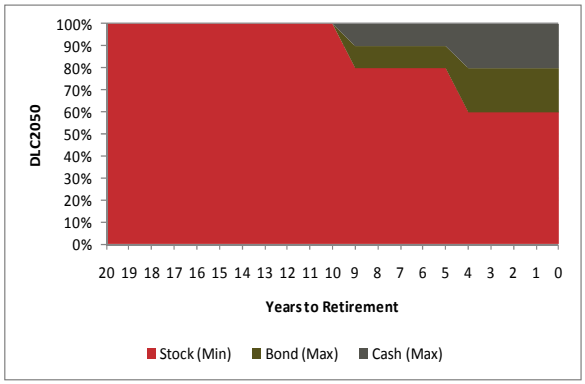
Default Option Suitability Rating



Case Study – Multi criteria decision analysis

Decision Matrix	ABC Weighting
Retirement Wealth Ratio	**45%**
• Mean	5%
• Median	18%
• Maximum	1%
• Minimum	1%
• Quartile 1	5%
• Quartile 3	5%
• Coefficient of Variation	5%
• Interquartile Range Ratio	5%
Downside Risk and Performance Measures	**40%**
• LPM_0 (Probability of Shortfall)	17%
• LPM_1 (Expected Shortfall)	20%
• LPM_2 (Downside Semi-variance)	1%
• Sortino Ratio (SR)	1%
• Upside Potential Ratio (UPR)	1%
Tail Risk Estimates	**15%**
• Value-at-Risk (VaR)	10%
• Expected Tail Loss (ETL)	5%
Default Option Suitability Rating	**(x/9)**

Case Study – Stylised dynamic glidepath



- Note: Illustrative glidepath to retirement date – we are not giving the game away

Case Study - Results

- Results comparison – accumulated balance and annuity equivalent value

Strategy	Median path	25th percentile path
DLC2050	$3,305,023	$2,179,663
TDF2050 *DLC2050 Performance vs TDF2050*	$2,613,676 *(-21%)*	$1,857,035 *(-15%)*
Balanced *DLC2050 Performance vs Balanced*	$2,586,790 *(-22%)*	$1,833,990 *(-16%)*
100% Equities *DLC2050 Performance vs 100% Equities*	$3,752,4785 *(+14%)*	$2,294,888 *(+5%)*

Strategy	Median path
DLC2050 *Income replacement percentage*	$202,900 *(106%)*
TDF2050 *Income replacement percentage*	$160,458 *(84%)*
Balanced *Income replacement percentage*	$158,807 *(83%)*
100% Equities *Income replacement percentage*	$230,370 *(120%)*

Case Study – Shortfall risk

Simulation Results Based on 1900-2009 Data					
	LPM_0	LPM_1	LPM_2	*SR*	*UPR*
Fixed Weight Strategies					
Balanced	0.15	0.26	0.65	9.13	9.45
100% Equities	0.11	0.22	0.68	21.04	21.31
Lifecycle Strategies					
TDF2050	0.15	0.24	0.60	9.78	10.10
QIC Strategies					
DLC2050	0.10	0.19	0.58	17.92	18.17

Case Study – Results comparison

- Results comparison – default option suitability rating

		Rankings (1-9)							
	Weighting	DLC2050	Weighted Score	TDF2050	Weighted Score	Balanced	Weighted Score	100% Equities	Weighted Score
Retirement Wealth Ratio									
Mean	5%	6	0.3	3	0.2	3	0.2	7	0.4
Median	18%	6	1.1	3	0.5	3	0.5	7	1.3
Maximum	1%	6	0.1	3	0.0	3	0.0	7	0.1
Minimum	1%	3	0.0	7	0.1	6	0.1	3	0.0
Quartile 1	5%	6	0.3	3	0.2	3	0.2	3	0.2
Quartile 3	5%	6	0.3	3	0.2	3	0.2	3	0.2
Coefficient of Variation	5%	3	0.2	6	0.3	6	0.3	2	0.1
Interquartile range ratio	5%	3	0.2	6	0.3	6	0.3	2	0.1
TOTAL	**45%**		**2.4**		**1.7**		**1.7**		**2.2**
Downside Risk and Performance Measures									
LPM_0 (Probability of Shortfall)	17%	6	1.0	2	0.3	2	0.3	5	0.9
LPM_1 (Expected Shortfall)	20%	7	1.4	3	0.6	2	0.4	5	1.0
LPM_2 (Downside Semi-variance)	1%	6	0.1	5	0.1	3	0.0	2	0.0
Sortino Ratio (SR)	1%	6	0.1	3	0.0	3	0.0	7	0.1
Upside Potential Ratio (UPR)	1%	6	0.1	3	0.0	3	0.0	7	0.1
TOTAL	**40%**		**2.6**		**1.1**		**0.8**		**2.0**
Tail Risk Estimates									
Value-at-Risk (VaR)	10%	8	0.8	4	0.4	3	0.3	5	0.5
Expected Tail Loss (ETL)	5%	6	0.3	7	0.4	5	0.3	2	0.1
TOTAL	**15%**		**1.1**		**0.8**		**0.6**		**0.6**
Default Option Suitability Rating*			**6.1**		**3.5**		**3.1**		**4.8**
**Maximum Score = 9.0*			DLC2050		TDF2050		Balanced		100% Equities
			Recommend						

Pros and Cons of Dynamic Lifecycle Strategy

	Balanced	Age-based MIC Switch	Target Date Fund	Dynamic Lifecycle Strategy
Take account of assets outside of super	✗	✗	✗	✗
Provide adequate retirement savings if market conditions are generally bad	✗	✗	✗	✗
Age-based asset allocation	✗	✓	✓	✓
Consider both time to retirement and market conditions at the time of a change to asset allocation	✗	✗	✗	✓
Protection strategies during transition phase	✗	✗	✗	✓

Staff biographies

Michael E. Drew
Managing Director

Michael E. Drew is Managing Director, Lifecycle Strategies at QIC and Professor of Finance at the Griffith Business School, Griffith University. Prior to joining QIC in 2010, Michael held appointments with QSuper, Wilson HTM and J.B. Were & Son.

Michael's research has studied and developed new approaches to the design of the default option in superannuation funds, as well as devising winning strategies for lifecycle and target date funds. He has published more than 50 articles in academic journals, including the *Journal of Portfolio Management.*

In June 2009, Michael was invited to appear before a joint hearing of the US Department of Labor and the Securities Exchange Commission in Washington DC where he presented his research into target date funds. Michael received his Ph.D. from the University of Queensland in 2000 and is Senior Fellow of the Financial Services Association of Australasia (Finsia).

Evan M. Reedman
Director

Evan Reedman joined QIC in April 2010. He is responsible for the day to day management the Lifecycle Strategies group, the operational and implementation aspects of lifecycle portfolios and client relationships. Evan has over 20 years experience in finance, most recently as Head of Portfolio Construction at JANA Investment Advisers. Evan's responsibilities have included assisting superannuation fund trustees to set investment objectives, determining investment policy, modelling optimal asset allocation strategies, selecting investment managers and monitoring the performance of clients' funds.

Evan holds a Bachelor of Business with First Class Honours majoring in Banking and Finance from Queensland University of Technology and a Diploma of Financial Planning. Evan was awarded the QUT University Medal in 2004. Evan is Fellow of the Financial Services Association of Australasia (Finsia).

Adam N. Walk
Head of Research

Adam Walk was first employed at QIC as a consultant in October 2008, joining QIC Lifecycle Strategies in April 2010. He is responsible for the group's research, design and investment risk management activities. Adam has over 10 years professional experience in finance and risk management, most recently in QIC's Strategy group as an investment researcher, concurrent with doctoral research. Previously he was a senior investment professional at QSuper Limited where he provided investment policy and risk advice to fiduciaries overseeing more than $50 billion in DC and DB assets. Prior to that, he was a risk manager at Bank of Queensland.

He holds undergraduate degrees in political science (UNSW) and finance (QUT), and a master's degree in applied finance (Finsia) for which he was awarded the Macquarie Bank prize. He is a graduate of the Australian Defence Force Academy, a fellow of Finsia, and a CIMA® designee. Adam is currently undertaking a PhD in financial economics at Griffith University, and his primary research interests are portfolio choice and risk management.

Further information

Michael E. Drew — **Managing Director, Lifecycle Strategies**

Telephone: +617 3009 6876
Email: m.drew@qic.com
Based: Brisbane

Evan M. Reedman — **Director, Lifecycle Strategies**

Telephone: +617 3009 6862
Email: e.reedman@qic.com
Based: Brisbane