

INVESTMENT STRATEGY ON RETIREMENT SAVINGS:

An analysis of the experience of fund members

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We dedicate this paper to our beautiful friend Maria who was such a very important part of our research team. We benefitted in so many ways from working with Maria. Her enthusiasm, her intellectual input, and her dedication to our projects will be greatly missed. Maria will be remembered, not least of all, as a respected colleague and as an inspirational friend. We will keep her in our hearts always.

This paper examines the extent to which demographic and social factors are associated with changes to individual wealth accumulation trajectories in retirement savings. Specifically, we investigate member-initiated investment changes to their superannuation accounts, distinguishing between investment changes to future contributions and the accumulated balance. Our findings indicate large gender differences across both types of investment changes and that members with higher balances, larger contributions and greater time in the fund are more likely to make changes.¹

Individuals confront a considerable array of choices in terms of the occupation they pursue and the employer they select. These choices are constrained, however, by individual characteristics including education, age and skill, as well as external factors such as the state of the economy. These choices are important as they are pivotal in setting the individual's consumption and wealth accumulation trajectory over their life cycle. Prior to the introduction of the Superannuation Guarantee (SG), the choice of employment carried with it different entitlements to retirement savings or superannuation, which was primarily a feature of white-collar employment.

Since 1992, while the level of entitlement has varied by occupation,² all Australian employees have been entitled to a minimum level of employer contributions to a complying superannuation fund. From this common base individuals can choose to alter their retirement savings trajectory and, ultimately, their retirement standard of living through choices they make, most notably through additional savings and the investment strategy applied to these savings in superannuation. Changes in investment strategy carry risk in terms of the asset allocation choice and timing. This paper focuses on the incidence of changes with assessment of the associated outcomes to be investigated in future work.

Investment choice is not universal for all individuals in that the investment choices available are a feature of the particular superannuation fund they are enrolled in, and the provider of that fund. One key dimension of investment choice is whether changes to such choice are applied to future savings (contributions allocations) and/or to accumulated savings (asset rebalancing). These have previously been described as Contributions Investment Changes (CICs) and Balance Investment Changes (BICs) (Gerrans 2012). It is assumed these changes reflect the member's preferred asset allocation. However, if a member selects from across multiple options their asset allocation drifts from their initial choice. That is, if they initially choose equal proportions of a cash and equity option, the asset allocation changes in line with the performance of each option, hence may not be of equal proportion at the end of the period. Agnew et al. (2003) label CICs and BICs as reflecting the 'desired' and 'actual' allocations, respectively, and they note that these only coincide if a member subsequently chooses to rebalance these options.

Those with small balances in the first few years of opening an account, with higher incomes and therefore higher contributions, are expected to be more likely to be concerned with investment changes to future savings or contributions. Those with large balances, with longer account memberships, and older members are expected to be more likely interested in the investment strategy applying to their accumulated savings. Given this, we identify these two types of choices that are available to members, using the neutral labels CICs and BICs rather than desired and actual.

We investigate investment activity by examining an administrative database provided by a large superannuation fund which includes a large national cross-section of employers and employees from a variety of industries. Our analysis is particularly relevant to fund trustees as well as policy makers and regulators interested in overall engagement in retirement savings investment behaviours and the differences attributable to member and plan characteristics.

Background and choice literature

Australian retirement savings system

The Australian superannuation system contains a heterogeneous mix of retirement savers who may have had more than a decade accumulating retirement savings at a rate of 9 per cent or more, and some with two decades of accumulation at the lower and higher rates. Since the inception of the superannuation system it has been assumed that member choices would play a central role in driving efficiency and, by extension, beneficial outcomes for members both directly and indirectly.

Individuals face two important choices in terms of their retirement savings: whether to make additional savings beyond the employer contributions (whether it be the compulsory level or higher); and whether to change from the default investment strategy for those contributions. However, these choices are often not exercised. The contributions choice has been examined using the current dataset by Feng and Gerrans (2014a) who document a significant decline in voluntary contribution participation over time. The majority of superannuation fund members rely on SG as their main contribution, with only a minority making additional savings (Feng and Gerrans 2014b).

The ability to make an investment strategy choice is available within 68 per cent of Australian superannuation funds which account for 98 per cent of industry assets (APRA 2014). Again, however, a large proportion of assets remains in the default investment option. Such a pattern may have significant consequences in the retirement benefit members can expect at retirement as the default investment option may not align to a member's life cycle stages and risk preference. As noted above, investment strategy choice can be applicable to future contributions (CICs) and/or the accumulated balance (BICs). Data is not obtainable on the availability of investment choice at this level across the industry. Within the administrative database used in the current study, members can make both CICs and BICs with few limitations or direct cost. We examine the incidence of these choices and the explanatory role of a rich set of individual and social (including sub-plan level) characteristics which may serve to nudge members into making such choices.

Retirement planning and relevant characteristics

In Australia, it is suggested that only 53 per cent of couples and some 22 per cent of individuals are on track to achieve a sufficient level of retirement income (Burnett et al. 2014). Responding to this and attempting to change trajectory appears to be the exception rather than the rule. This behaviour inertia is widely reported in retirement savings across the world (Madrian and Shea 2001; Choi et al. 2002; Mitchell et al. 2006) and several potential explanations have been offered for this lack of appropriate retirement planning.

Thaler and Shefrin (1981) describe an internal struggle between planning and doing, and suggest that self-control plays a role in the theory of individual intertemporal choice. In Australia, the SG mitigates this somewhat given that at least 9.5 per cent of total salary is deposited into an individual's account for the long-term outcome. In terms of investment strategy, ageing and changed labour supply circumstances are two key factors that can create a need to adjust portfolio asset allocations, given their relationship with the capacity to tolerate risk (Merton 1969; Samuelson 1991; Samuelson 1994; Bodie 2003). Ageing also correlates positively with the size of savings, which is expected to increase the likelihood of attention to the appropriate

investment strategy given the size-of-bet effect (Clark et al. 2009). Agnew et al. (2003) report that age is associated with an increased likelihood of individuals reducing their equity exposure (and thus risk) in their 401(k) plans and rebalancing more frequently. Gerrans et al. (2010) provide Australian evidence that the reduction in equity exposure among active superannuation members occurs at a surprisingly young age (mid-30s).

Different gender propensities have been identified in various retirement savings behaviours. For example, women have been suggested to be more risk averse in terms of their investment choices compared to men (Bajtelsmit and Bernasek 1996; Bernasek and Shwiff 2001; Dwyer et al. 2002; Gerrans and Clark-Murphy 2004; McNaughton and Watson 2007). This gender difference, however, appears to be mitigated by factors such as income, knowledge and confidence (Dwyer et al. 2002; Clark et al. 2004; McNaughton and Watson 2007; Lusardi and Mitchell 2008). Gender differences in types of superannuation contributions (Feng and Gerrans 2014a, b) have been reported and it has been suggested that in later years women are more likely to accelerate their savings activity compared to that of men (Whitaker et al. 2013).

Data

Data is sourced from Mercer (Australia) and the Corporate Division of the Mercer Super Trust (MST). We analyse 177 sub-plans of the MST which represents a broad cross-section of industries and employers with a pooled membership over 258,113 individuals and up to 10 years of observed behaviour.³ While the overarching Mercer imprint is largely common across sub-plans (including investment choice menu and administrative processes for exercising investment choice) there remains variation among sub-plans.

An overview of individual members is presented in panel A of Table 1. Across the observed members the average member is 39 years old when they are last observed, has \$62,829 in accumulated contributions (in 2011–12 dollars) and has average employer contributions of some \$7,938 per year. Our sample has more men (61 per cent) than women and some 28 per cent of members make additional contributions with an average membership of 4.4 years. A comparison of a subset of characteristics aggregated at sub-plan levels is presented in panel B.

TABLE 1: Data summary

	Mean	Median	Standard Deviation
Panel A: Individual Members (n=258,113)			
Age (years)	39.08	38	11.38
Male (percentage)	61.15	Male	0.48742
Balance (2011–12 dollars)	\$62,829.50	\$25,442.49	\$115,569.10
Contributions (2011–12 dollars)	\$7,938.23	\$6,395.48	\$6,669.80
Additional Contributions (percentage)	28.11	0	44.96
Existing members (percentage)	12.77	0	33.38
Membership (years)	4.43	3.62	2.91
Postcode level: university degree (percentage)	21.82	17.77	15.52
Postcode level: income	\$62,644.81	\$57,462.64	\$17,762.30
Panel B: Sub-Plan Averages (177 sub-plans)			
Age (years)	39.08	39.54	3.23
Male	61.15	59.00	16.67
Balance (2011–12 dollars)	\$62,829.50	\$60,183.53	\$31,310.02
Contributions (2011–12 dollars)	\$7,938.23	\$7,354.45	\$2,923.18
Total Members	5302	1327	8783
Difference BIC-CIC (percentage)	-1.36	-2.88	9.37
Additional Contributions (percentage)	28.11	25.47	13.74

Member choice behaviour groups

The previously identified two types of investment strategy choices (CICs and BICs) open up four possible investment strategy choice combinations. The first is where no investment strategy change is made at all over a member's history (no CIC or BIC). The second is where a member only makes a change to their future contributions (CIC only) and the third is where they only make a change to their accumulated balance (BIC only). The final combination is where members make a change to the investment strategy for both their contributions and accumulated balance (CIC and BIC).

An important caveat to our analysis is that we do not examine the intensity of investment activity (i.e. how many times a member makes a CIC or a BIC), only the fact that a member has made a change over their membership. Intensity is limited to whether a member makes both a CIC and a BIC. We also note that administrative changes are not counted within member-initiated activity. For example, the closure of an investment option or change in sub-plan default results in an investment transaction but we do not count this as member investment activity. Some other activity falls in between being strictly a member initiated investment change and a sub-plan administration change. For example, when a member rolls in funds from another superannuation fund, an investment strategy selection is required for the balance. If that investment strategy is different to the default we count it as member initiated activity though, in some cases, the transaction results from an employer's decision to select MST as their complying super fund.

Analysis and results

Any CIC or any BIC activity

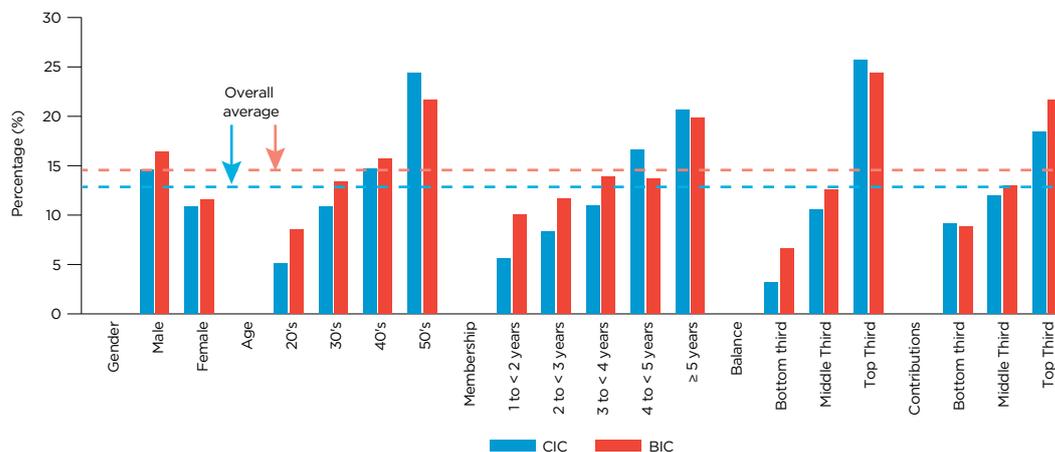
Overall, the unconditional incidence of a member having made either a CIC or BIC in the sample is 18.9 per cent. A first breakdown of investment choice activity examines whether a member made a CIC, and separately whether they made a BIC at any point over their observed membership. This does not consider whether they made both choices or either choice by itself. These results are presented in the first two columns of Table 2 and presented graphically in the Figure 1.

TABLE 2: Choice group activity overall

	CIC	BIC	CIC only	BIC only	BIC & CIC	n
Overall	13.15%	14.51%	5.71%	4.34%	8.81%	258,113
Gender						
Male	14.60%	16.40%	6.00%	4.20%	10.40%	100,288
Female	10.87%	11.54%	5.24%	4.57%	6.30%	157,825
Age						
20s	5.09%	8.57%	5.58%	2.11%	2.99%	60,635
30s	10.90%	13.40%	6.40%	3.81%	7.09%	83,876
40s	14.69%	15.70%	5.86%	4.80%	9.88%	61,624
50s	24.36%	21.65%	4.55%	7.26%	17.10%	51,978
Membership						
1 to < 2 years	5.65%	10.00%	6.48%	2.13%	3.53%	62,693
2 to < 3 years	8.29%	11.64%	6.19%	2.83%	5.45%	44,311
3 to < 4 years	11.00%	13.87%	5.82%	2.96%	8.05%	32,691
4 to < 5 years	16.65%	13.68%	5.55%	8.53%	8.13%	32,137
≥ 5 years	20.61%	19.83%	4.92%	5.70%	14.91%	86,281
Balance						
Bottom third	3.17%	6.64%	5.19%	1.72%	1.45%	86,038
Middle third	10.60%	12.52%	6.41%	4.49%	6.11%	86,038
Top third	25.68%	24.38%	5.52%	6.82%	18.86%	86,037
Contributions						
Bottom third	9.10%	8.85%	4.44%	4.69%	4.41%	86,038
Middle third	11.98%	12.99%	5.81%	4.17%	7.81%	86,038
Top third	18.38%	21.70%	7.50%	4.17%	14.21%	86,037

Figure 1 indicates that members are more likely to make BICs (14.5 per cent) compared with a CIC (13.2 per cent). A relatively large gender gap is evident in both choices with 14.6 per cent (10.9 per cent) of males (females) having made a CIC and 16.4 percent (11.5 per cent) a BIC. The proportion making a CIC or a BIC increases monotonically with age. A similar pattern is evident in relation to membership length, and a disproportionate amount of investment choice activity occurs among those in the top third of those ranked by the level of balance or contributions.

FIGURE 1: Overall any CIC or any BIC activity



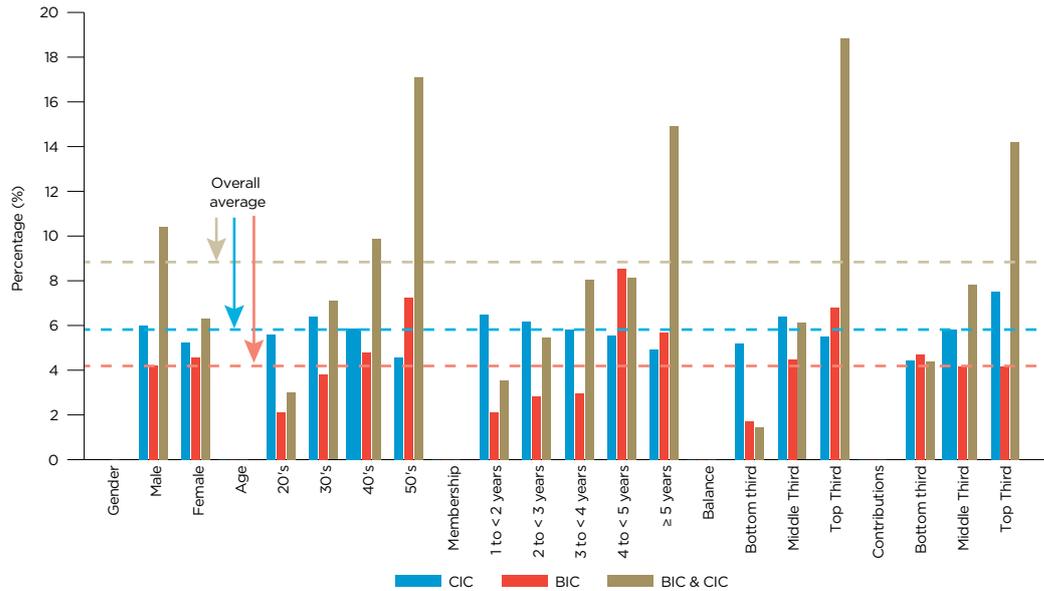
CIC only or BIC only activity

Three mutually exclusive choice groups can be identified as those who: make a CIC only; make a BIC only; and make both a CIC and a BIC. This breakdown is presented in columns three to five of Table 2 and presented graphically in Figure 2. Though there are three mutually exclusive choice groups there remain three degrees of freedom, as a member can also do nothing, which is a fourth no-choice group.

The largest proportion of members make both a CIC and BIC (8.8 per cent) compared to 5.7 for a CIC only and 4.3 per cent for a BIC only. The previously noted gender difference in CICs and BICs is reflected most in those who make a CIC and BIC together (10.4 per cent for males versus 6.3 per cent for females). While a larger proportion of males make a CIC only, a larger proportion of females make a BIC only. The increasing age and activity trend is reflected in the CIC and BIC grouping as well as those making a BIC only. The CIC only age profile is hump-shaped with the larger proportion being for those in their 30s and the lowest for those in 50s. For CIC only, the proportion declines with membership length and for a BIC only a hump-shaped relationship is suggested, peaking for those with a four year membership.

A member's balance is a clear discriminator for those who make a CIC and a BIC, with 18.9 per cent of those in the top third of balances having made both choices compared with only 1.5 per cent of those in the bottom third having done so. The same pattern, though less pronounced, is revealed when comparing activity by contributions.

FIGURE 2: Overall CIC only, BIC only, CIC and BIC activity



CIC and BIC activity over time

A further analysis can be made of choice activity over time. Here, the focus is restricted to those who make a CIC and separately those who make a BIC in the financial year of their membership. That is, we don't consider the time pattern in the mutually exclusive choice groups (CIC only, BIC only, CIC and BIC). Figure 3 to Figure 6 present the statistics for CICs and BICs by member characteristics graphically.

While the difference in the rate of CICs between men and women remains fairly stable over the sample period, Figure 3 shows that in 2006–07 there was a much smaller difference in the proportions making BICs. This appears to be due to a disproportionate rise in female members changing investment strategy.⁴ The analysis here does not extend to the type of change (i.e., asset allocation). One possible source of the increased activity is the change in government policy through 2006-07 to allow a one-off non-concessional contribution of up to \$1 million following the reduction in older members' contributions limits. With the increased balance, members were more likely to make an investment strategy change. However, an alternative explanation is that this was due to members' early reaction to the onset of the global financial crisis, at least as it emerged in the US. The former explanation appears to be the most likely with average member contributions doubling in 2006–07 compared with 2005–06, though the increase was greater for males.

FIGURE 3: CIC, BIC activity by gender and financial year

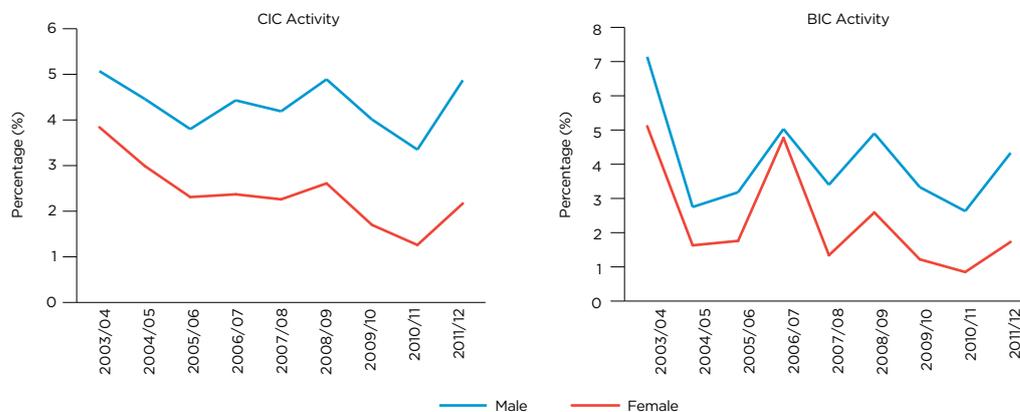
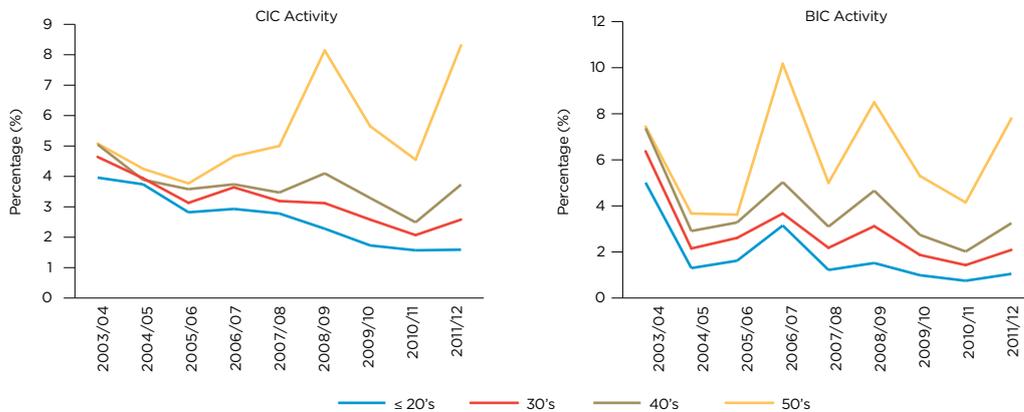


Figure 4 indicates that the increase in BICs is much larger for the 50 and older age group and the increase in activity by age widens over time for the 50 and over age group. The gap widens from 2006–07 and is evident for CICs as well.

FIGURE 4: CIC, BIC activity by age and financial year



The 2008–09 increase in the proportion of members changing their BIC can be linked with the global financial crisis. While the increase in proportion was around 40–50 per cent, it remained relatively small in absolute terms. A relative peak in CICs only occurred in the 40s and 50s age groups. The global financial crisis appears to be the catalyst for investment change, but this was only restricted to those with closer proximity to retirement and, possibly, larger balance sizes. CIC activity was largely constant until 2008–09 when a relative peak for all but the two shortest membership lengths is observed (figures not shown). Post global financial crisis, CIC activity declines before increasing in 2011–12. The two peaks in BIC activity previously noted are again observed across all membership lengths.

Next, we consider investment activity by member balance and contributions (employer contributions) level. The correlation with investment activity is stronger among those in the top and bottom third of balance size, less so among those in the middle third of balances. Figure 5 indicates that there is a consistent overall trend in CIC activity by contributions level (low, middle and top thirds). The previously noted peaks in BIC activity in 2006–07 are observed across contributions levels. The increase in BICs in 2008–09 is largely restricted to the highest contributions level.

FIGURE 5: CIC, BIC activity by employer contributions and financial year

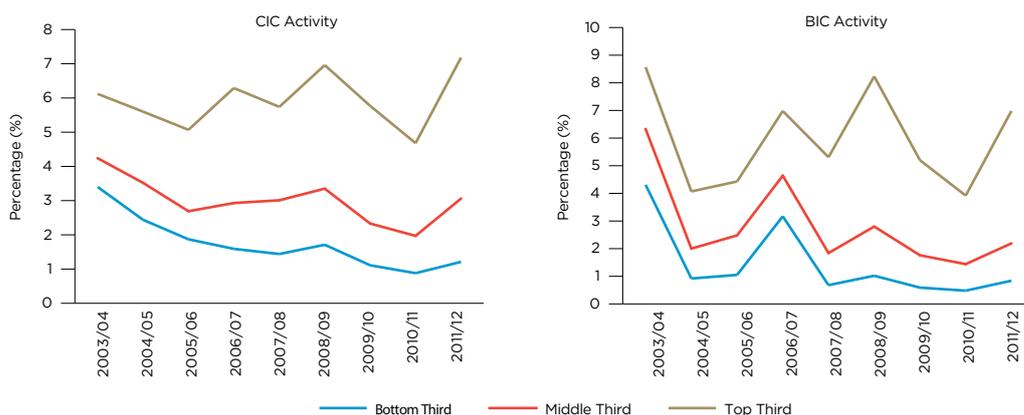
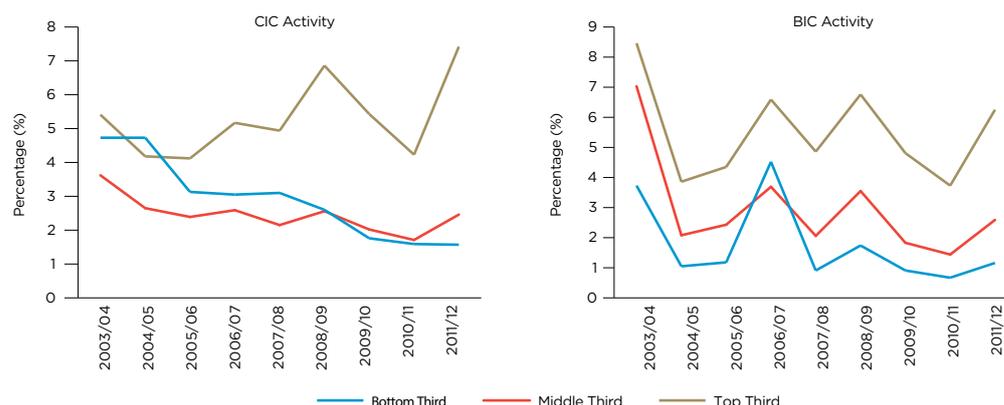


Figure 6 provides a breakdown of CIC and BIC activity over time according to balance level. There is less distinctive CIC activity by balance level in the first three years. From 2006–07 those with the highest balance level have a clearly higher CIC activity level. There is a more consistent increase in BIC activity with balance level, and the peaks in 2006–07 and 2008–09 are also evident.

FIGURE 6: CIC, BIC activity by balance and financial year



Conclusion

Our analysis of member behaviour indicates that approximately one-fifth of investors make some sort of investment strategy change (CIC or BIC) over the substantial 10-year period examined. While our results are consistent with prior literature in reporting low levels of activity by a majority of investors, we concur with Bateman et al. (2014) that this is not necessarily an indication of a lack of engagement. Remaining with a default investment strategy can be a deliberate, considered choice and our data does not include this information.

We document large gender differences over the sample period, with men consistently making more CICs and BICs than women. Our analysis also suggests that the incidence of changes to investment strategy increase with time in the fund and that those with higher balances and larger contributions are more likely to make changes. However, this appears to be disproportionately among those with much larger contributions and balances. Finally, the policy changes announced in May 2006 appear to have been a significant event associated with an increase in investment activity across a relatively large proportion of members.

Our analysis of member behaviour indicates that approximately one-fifth of investors make some sort of investment strategy change (CIC or BIC) over the substantial 10-year period examined. While our results are consistent with prior literature in reporting low levels of activity by a majority of investors, we concur with Bateman et al. (2014) that this is not necessarily an indication of a lack of engagement. Remaining with a default investment strategy can be a deliberate, considered choice and our data does not include this information.

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Notes

1. With minor qualifications including age and amount earned.
2. Contrast public sector employees, state and federal politicians, and university sector employees for example.
3. A number of sub-plans originally offered defined benefit (DB) benefits to employees though no sub-plans now offer DB benefits to new members. Those retaining a DB membership are not included in the analysis. We also exclude those members who move to the personal division of the MST when they leave their employer (sub-plan).
4. Nonetheless, for all financial years the gender difference is significant at a 95% confidence level.

References

- Agnew, J, Balduzzi, P and Sunden, A 2003, 'Portfolio choice and trading in large 401(k) plan', *The American Economic Review*, vol. 93, no. 1, pp. 193–215.
- Australian Prudential Regulation Authority (APRA) 2014, *Annual Superannuation Bulletin*, Insight, Sydney.
- Ando, A and Modigliani, F 1963, 'The "life cycle" hypothesis of saving: Aggregate implications and tests', *The American Economic Review*, pp. 55–84.
- Bajtelsmit, VL and Bernasek, A 1996, 'Why do women invest differently than men?', *Financial Counseling and Planning*, vol. 7, pp. 1–10.
- Bateman, H, Deetlefs, J, Dobrescu, LI, Newell, BR, Ortmann, A and Thorp, S 2014, 'Just interested or getting involved? An analysis of superannuation attitudes and actions', *Economic Record*, vol. 90, no. 289, pp. 160–78.
- Bernasek, A and Shwiff, S 2001, 'Gender, risk, and retirement', *Journal of Economic Issues*, vol. XXXV, no. 2, pp. 345–56.
- Bodie, Z 2003, 'Thoughts on the future: life-cycle investing in theory and practice', *Financial Analysts Journal*, vol. 59, no. 1, pp. 24–9.
- Burnett, J, Davis, KT, Murawski, C, Wilkins, R and Wilkinson, N 2014, 'Measuring adequacy of retirement savings', *Melbourne Institute Working Paper*, vol. 5.
- Choi, J, Laibson, D, Madrian, B and Metrick, A 2002, 'Defined contribution pensions: Plan rules, participant decisions, and the path of least resistance', in *Tax Policy and the Economy*, ed. J Porteba.
- Clark, G, Caelewy-Smith, E and Marshall, JC 2009, 'Solutions to the asset allocation problem by informed respondents: The significance of the size-of-bet and the 1/N heuristic', *Risk Management and Insurance Review*, vol. 12, no. 2, pp. 251–71.
- Clark, RL, d'Ambrosio, MB, McDermed, AA and Sawant, K 2004, 'Sex differences, financial education and retirement goals', in *Pension design and structure: Lessons from behavioural finance*, ed. OS Mitchell and SP Utkus, Oxford University Press, Oxford.
- Dwyer, PD, Gilkeson, JH and List, JA 2002, 'Gender differences in revealed risk taking: Evidence from mutual fund investors', *Economic Letters*, vol. 76, pp. 151–8.
- Feng, J and Gerrans, P 2014a, 'Patterns of voluntary worker retirement savings: A longitudinal analysis', CSIRO-Monash Superannuation Research Cluster paper (Project 3: Better Superannuation Outcomes).
- Feng, J and Gerrans, P 2014b, 'Understanding superannuation contribution decisions: Theory and evidence', CSIRO-Monash Superannuation Research Cluster paper (Project 3: Better Superannuation Outcomes).
- Gerrans, P 2012, 'Retirement savings investment choices in response to the global financial crisis: Australian evidence', *Australian Journal of Management*, vol. 37, no. 3, pp. 415–39, doi: 10.1177/0312896212450041
- Gerrans, P and Clark-Murphy, M 2004, 'Gender differences in retirement savings decisions', *Journal of Pension Economics and Finance*, vol. 3, no. 2, pp. 145–64, doi: 10.1017/S1474747204001477
- Lusaardi, A and Mitchell, OS 2008, 'Planning and financial literacy: How do women fare?', *American Economic Review*, vol. 98, no. 2, pp. 413–17.
- Madrian, BC and Shea, DF 2001, 'The power of suggestion: Inertia in 401(K) participation and savings behavior', *The Quarterly Journal of Economics*, vol. CXVI, no.4, pp.1149–87.
- McNaughton, M and Watson, J 2007, 'Superannuation investment choice – gender difference', *The Journal of Superannuation Management*, vol. 1, no. 1, pp. 41–6.
- Merton, RC 1969, 'Lifetime portfolio selection under uncertainty: The continuous-time case', *Review of Economics and Statistics*, vol. 51, no. 3, pp. 247–57.
- Mitchell, O, Mottola, GR, Utkus, SP and Yamaguchi, T 2006, 'The inattentive participant: Portfolio trading behavior in 401(k) plans', *Michigan Retirement Research Center Working Paper*, no. 5, University of Michigan.
- Modigliani, F and Brumberg, R 1980, 'Utility analysis and aggregate consumption functions: An attempt at integration', in *The collected works of Franco Modigliani*, ed. A Abel, MIT Press, Cambridge, MA.
- Samuelson, PA 1991, 'Long-run risk tolerance when equity returns are mean regressing pseudoparadoxes and vindication of businessman's risk', in *Money, Macroeconomics and Economic Policy*, eds W Brainard, W Nordhaus and H Watts, MIT Press, Cambridge, MA.
- Samuelson, PA 1994, 'The long-term case for equities and how it can be oversold', *Journal of Portfolio Management*, vol. 21, no. 1, pp. 15–24.
- Thaler, RH and Shefrin, HM 1981, 'An economic theory of self-control', *Journal of Political Economy*, vol. 89, no. 2, pp. 392–406.
- Whitaker, EA, Bokemeiner, JL and Loveridge, S 2013, 'Interactional associations of gender on savings behaviour: Showing gender's continued influence on economic action', *Journal of Family and Economic Issues*, vol. 34, pp. 105–19, doi: 10.1007/s10834-012-9307-2