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New residential mortgages and superannuation engagement

Hazel Bateman, James Brownlow^, Ben Culbert^, Charles Chu^, Christine Eckert§, Bin Fu^ and Susan Thorp†*

SUMMARY

We investigate how the decision to take out a residential mortgage is interrelated with engagement with superannuation, measured by changes in superannuation contributions and interactions with service providers (the mortgage provider and the super fund). We do so by analysing matched samples of superannuation fund members who do and do not take out mortgages in calendar year 2014. We measure the timing and size of changes in four types of superannuation contributions in the 36 months prior to and following mortgage commencement, and changes in interactions with service providers in the 6 months before and 12 months after mortgage commencement.

We find that the decision to take out a residential mortgage is associated with engagement with superannuation. Super fund members who took out a new residential mortgage in 2014 exhibited changes in their superannuation contribution behaviour before and /or after mortgage commencement (as compared with those who did not take out a mortgage), with the timing and size of these changes differing by mortgage type (owner-occupier or investment), employment status (employee or self-employed) and key demographics (gender, age and income).

- For new owner-occupier mortgages in 2014, we find (as compared to super fund members who did not take out a mortgage)
  - an increase in the proportion of members making superannuation guarantee contributions at 13 months before mortgage start which was maintained for the 36 months following mortgage commencement;
  - no change in the proportion of members making salary sacrifice contributions in the 36 months before or after mortgage start;
  - no change in the proportion of self-employed members making personal concessional contributions before mortgage start, but an increase at 26 months following mortgage commencement;
  - no change in the proportion of super fund members making personal non-concessional contributions (available to both employee and self-employed

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    members) prior to mortgage start date but an increase at 18 months following mortgage commencement;
  - for all demographic groups (categorised by gender, age and income) there was a change in the proportion of members making super contributions for at least one contribution type pre- or post- mortgage start.

- For new investment mortgages in 2014 we find (as compared to super fund members who did not take out a mortgage)
  - no change in the proportion of members making superannuation guarantee contributions in the 36 months before or after mortgage start;
  - a decrease in the proportion of super fund members making salary sacrifice contributions 15 months prior to mortgage start, which was not restored following mortgage commencement;
  - a decrease in the proportion of self-employed super fund members making personal contributions at 13 months prior to mortgage start, which was not restored following mortgage commencement;
  - no significant change in the proportion of employee and self-employed super fund members making personal non-concessional contributions in the 36 months before or after mortgage commencement;
  - for all demographic groups (categorised by gender, age and income) there was a change in the proportion of members making super contributions for at least one contribution type pre- or post- mortgage start.

We highlight the different superannuation contribution behaviours of owner-occupiers and investors in the 36 months pre and post mortgage commencement. This suggests that investors appear to re-weight their portfolios towards real estate and away from superannuation; whereas owner-occupiers build up superannuation after the real estate purchase.

We also find that the decision to take out a residential mortgage is associated with engagement with service providers (the mortgagee and the super fund). Super fund members who took out a new residential mortgage in 2014 exhibited changes in their interactions with service providers in terms of bank branch visits, use of the bank app and online banking, and phone calls to their super fund.

Our results provide insights to policymakers and super funds who have had only modest success engaging super fund members through choice architecture, information provision, advice and financial literacy initiatives. We show that the decisions to take out a residential mortgage and change superannuation contribution behaviour are interdependent and that a new residential mortgage provides a trigger to communicate with, and facilitate engagement of, super fund members.

Background:

Low engagement with superannuation

Australia's retirement income arrangements consist of a means-tested Age Pension supplemented by mandatory and voluntary superannuation. Participation in superannuation with a 9.5 percent employer contribution is compulsory (for most employees) and tax incentives encourage participation by the self-employed (ASFA, 2018). While super fund members are able to choose their superannuation fund, the investment option(s) for their contributions, levels of insurance and whether and how to make additional voluntary contributions, the related choice architecture (driven by the industrial relations system which assigns a default super fund, and the MySuper default super fund/investment option) allows super fund members to "set and forget" until retirement, and many of them do so.

As a result, superannuation can be characterised by a lack of engagement (Bateman et al., 2014; Deetlefs et al., 2018; Productivity Commission, 2019). While default super funds, contribution rates and investment options may be suitable for many members, it is likely that lack of engagement means that members forego opportunities to maximise their post-retirement wellbeing. Prior research has investigated proxies for, and levels of, engagement with superannuation (Bateman et al., 2014), but there has been little study of "triggers" to facilitate superannuation engagement.

Taking out a residential mortgage as a potential trigger for an engagement intervention by a super fund

Superannuation and owner-occupier housing are the two largest components of household wealth in Australia (ABS, 2019). While accumulation of both types of assets are generally encouraged by the government through the tax and transfer system, each is characterised by very specific features. Home equity provides housing "consumption" services (usually valued by imputed rent), is a tax- and social security-preferred asset (especially in retirement) and offers greater access to leverage than direct investment in financial assets. Home equity is also associated with high transactions costs in acquisition and divestment, low liquidity, and requires large cash deposits to access loans. For investors, it provides access to tax advantages via "negative gearing". Superannuation assets, on the other hand, are also tax- and social security-preferred (especially in retirement), provide liquidity from preservation age, and, in recent years, have offered a comparable or higher rate of return (net of tax) than housing assets to marginal savings for many households.[2] Superannuation accumulations can also be used to reduce debt against other assets.

[2] According to ASIC Money Smart Superannuation calculator, an estimate of net crediting rates on superannuation accounts invested in balanced funds is 4.5-5% p.a., boosted by a concessional tax rate of 15% on contributions. By comparison, residential mortgage repayments are made from after-tax income at

In Australia, net household saving, and the proportion of net household wealth held in superannuation accounts has increased since the Superannuation Guarantee began in 1992, but net debt to income has also increased (RBA, 2019). Australians have taken larger mortgages and repaid them more slowly, so that the number of highly indebted households has risen. A possible reason for higher debt-to-income ratios is that households decide to save into tax preferred superannuation and repay debt after preservation age. ABS survey data show that around one quarter of the households who drew out a lump sum from their superannuation used that to invest in their home, while another 50 per cent paid off other debt or invested their savings elsewhere.[3]

Major life events and financial decisions like marriage, childbirth, buying a home, divorce or changing jobs, create changes in both economic and non-economic status. These major changes therefore have the potential to instigate "teachable moments" where people are open to changes in their expectations and behaviour (McBride, Emmons and Lipkus, 2003).[4]

In the analysis that follows we investigate whether, and to what extent, the decision to take-out a residential mortgage is associated with engagement with superannuation, measured by changes in superannuation contribution behaviour in the 36 months prior to and following the commencement of the mortgage. We also analyse the impact of the mortgage decision on interaction with the bank providing the mortgage and the super fund of the mortgagor.

Data:

We use a unique dataset of super fund members where we have information about their decision to take out a residential mortgage (from the Commonwealth Bank - CBA), their superannuation accounts (from Colonial First State - CFS), and their engagement with the two providers.

The total sample consists of 1,011 CFS super fund members who took out a mortgage (with CBA) over the period 1 January 2014 to 31 December 2014 for whom we have superannuation contributions data in the 36 months prior to and following the mortgage commencement date (which we call the "treatment" group), and a matched sample of 1,011 super fund members who did not take out a mortgage over this period (the "control" group), matched on gender, CFS account balance at the beginning of the observation period and age.

For each super fund member in our sample, we had data on:

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comparison rates that are currently below 4% p.a. Holding property prices constant, for a household at average income that pays a marginal income tax rate of 32.5%, there are gains to directing marginal savings to superannuation.

[3] ABS 6523.0 Household Income and Wealth, Australia, 2015–16

[4] However, there are several challenges for using major life events as triggers for engagement interventions, including the best timing for communication, maintaining member privacy, and whether the life event and communication can actually promote lasting behavioural change (Blakstad et al., 2017).

- their mortgage decision: whether they did or did not take out a residential mortgage with CBA in calendar year 2014 and the month of commencement;
- their superannuation contributions behaviour: whether or not they made contributions to their CFS super fund in any of four categories - superannuation guarantee, salary sacrifice, personal concessional, and personal non-concessional - in the 36 months prior to and following the mortgage commencement month; and
- whether or not they interacted with the mortgagee or their super fund through bank branch visits, calls to the super fund, uptake of the bank's app and/or use of online banking in the 6 months prior to, and 12 months following, mortgage commencement.

We also had data on key personal characteristics including gender, age (five age groups) and income, and whether the mortgage was taken out for owner-occupier or investment purposes.

Table 1 reports summary statistics for the sample.

Table 1: Summary statistics

	Per cent
Gender	
Males	60.6
Age	
30-39	13.6
40-49	26.2
50-59	35.0
60-69	22.4
70+	2.8
Income	
Low (High)	51.2 (48.8)
Purpose of mortgage	
Owner-occupier (investment)	57.9 (42.1)
Number of CFS super fund members	2022

The four types of superannuation contributions we monitor differ in several ways, as summarized in Table 2 and discussed in detail in Appendix C.

Table 2: Categories of superannuation contribution and their characteristics

<table>
<tr><th>Contribution type</th><th>Available for…</th><th>Contributions can be changed…</th><th>Tax treatment</th></tr>
<tr><td>Superannuation guarantee</td><td>Employees</td><td>Not easily: requires change in employment status (not employed to employed, self-employed to employed, working for an additional employer)</td><td rowspan="3">Concessional contributions:
• Taxed at 15% (30% for high income earners)
• Subject to concessional contribution caps

Tax deductibility of personal contributions:
• Self-employed (over sample period)
• Employees (since 1 July 2017)</td></tr>
<tr><td>Salary sacrifice</td><td>Employees</td><td>Not easily: requires employer agreement</td></tr>
<tr><td>Personal concessional</td><td>Self-employed only until 30 June 2016. Both self-employed and employees since 1 July 2017</td><td>Easily at any time</td></tr>
<tr><td>Personal non-concessional</td><td>Both self-employees and employed</td><td>Easily at any time</td><td>Non-concessional contributions:
• Paid from after-tax income
• Subject to non-concessional contribution caps</td></tr>
</table>

In summary, superannuation guarantee contributions are mandatory, available to employees, but not the self-employed, and are linked with employment status. Salary sacrifice contributions are discretionary, available to employees but require agreement with an employer. Personal concessional contributions are discretionary and can be varied with ease at any time. However, until financial year 2016/17 – which is most of our sample period – personal concessional contributions were only an option for the self-employed. These three types of contributions – superannuation guarantee, salary sacrifice and personal concessional – are all classified as concessional contributions. As such they are taxed at a concessional rate, compared with personal savings, but are subject to an annual contributions cap. The fourth contribution type is personal non-concessional, which are discretionary and can be made by employees and the self-employed at any time. Non-concessional contributions are made out of after-tax income and are subject to annual contribution caps which are substantially higher than for concessional contributions. It is therefore tax effective to make concessional contributions up to the annual cap before making non-concessional contributions.

Method and Results:

Using regression methods, we estimate the time and size of significant differences between the behaviour of super fund members who do (treatment) and do not (control) take out residential mortgages, measured in terms of changes in superannuation contribution behaviour in the 36 months prior to and following mortgage commencement.[5] We also conduct similar analysis for interactions with the two service providers (CFS and CBA) in the 6 months before and 12 months after mortgage commencement.

We find evidence that taking out a residential mortgage is associated with engagement with superannuation.

Residential mortgages and superannuation contributions

Figures 1, 2 and 3 summarise the results of the regression analysis. We report the time and size of significant differences between the treatment and control groups in the proportion of members making superannuation contributions by type of superannuation contribution. The graphs in Figure 1 are for the full sample, while those in Figures 2 and 3 are split into residential mortgages for owner-occupier (Figure 2) and investment (Figure 3) purposes. Tables B1-B4 (Attachment B) summarise results that further disaggregate by gender, age (five age groups) and income (low and high).

As illustrated in Figures 1A, 1B, 1C and 1D (the full sample), we find significant differences in superannuation contribution behaviour between the treatment group (super fund members who took out a residential mortgage in 2014) and the control group (the matched sample of super fund members who did not take out a residential mortgage in 2014), for all four superannuation contribution types. We find significant differences, but variation in the time and size of these, when we disaggregate by type of mortgage and by key demographics.

[5] The results are estimated using threshold regression. The method is summarized in Appendix A.

Figure 1: Timing and size of changes in proportion of members making super contributions: new residential mortgage vs. no mortgage (full sample)

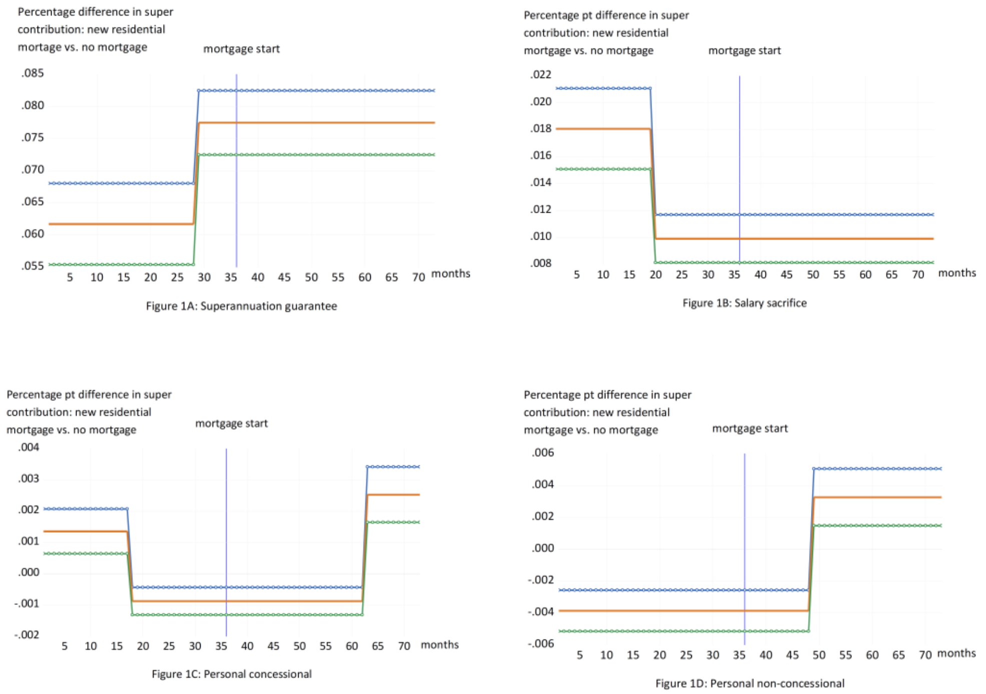

Figure 1A: Superannuation guarantee
Figure 1B: Salary sacrifice
Figure 1C: Personal concessional
Figure 1D: Personal non-concessional

Note: Blue and green lines represent 95% confidence intervals around percentage point difference in superannuation contributions (red lines) between CFS super fund members taking out and not taking out a residential mortgage with the Commonwealth Bank in 2014.

Figure 2: Timing and size of changes in proportion of members making super contributions: new residential mortgage vs. no mortgage (owner-occupiers)

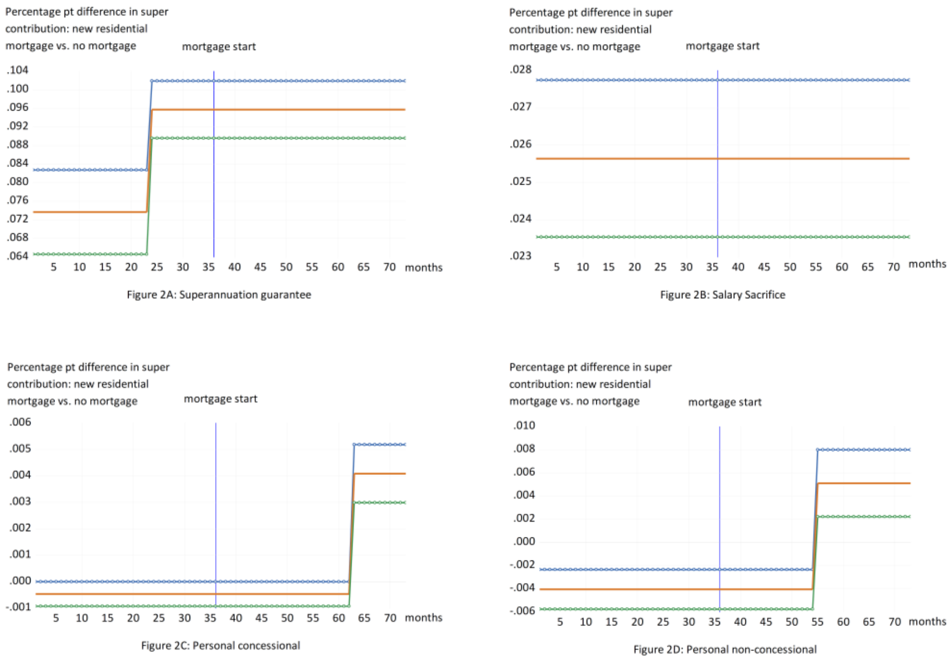

Figure 2A: Superannuation guarantee
Figure 2B: Salary Sacrifice
Figure 2C: Personal concessional
Figure 2D: Personal non-concessional

Note: Blue and green lines represent 95% confidence intervals around percentage point difference in superannuation contributions (red lines) between CFS super fund members taking out and not taking out a residential mortgage with the Commonwealth Bank in 2014.

Figure 3: Timing and size of changes in proportion of members making super contributions: new residential mortgage vs. no mortgage (investors)

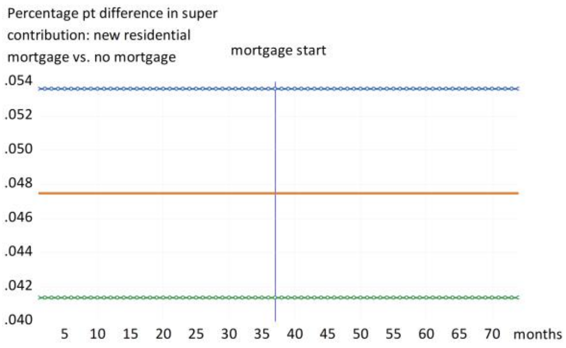

Figure 3A: Superannuation guarantee

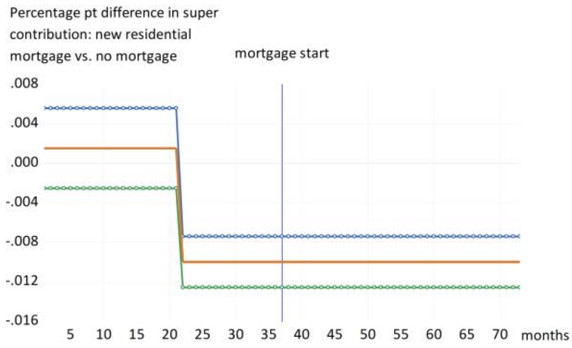

Figure 3B: Salary sacrifice

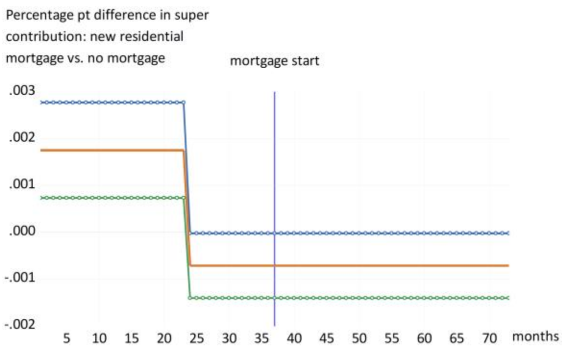

Figure 3C: Personal concessional

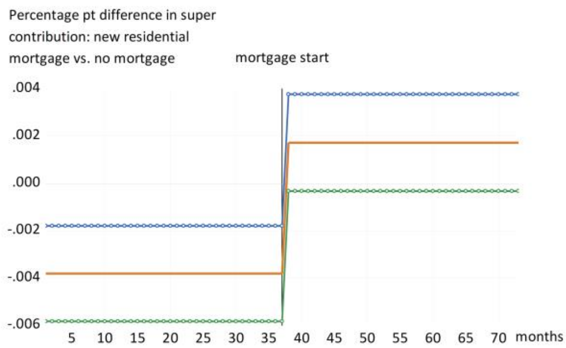

Figure 3D: Personal non-concessional

Note: Blue and green lines represent 95% confidence intervals around percentage point difference in superannuation contributions (red lines) between CFS super fund members taking out and not taking out a residential mortgage with the Commonwealth Bank in 2014.

Results by type of superannuation contribution are discussed below:

<u>Superannuation Guarantee contributions</u>

Figure 1A (full sample) shows that up to 8 months prior to mortgage take-up, the proportion of super fund members making superannuation guarantee contributions is 6.17pp higher for the treatment group than the control group. At 8 months prior to mortgage commencement, this difference increases to 7.74pp and where it remains following mortgage commencement.

However, this contribution behaviour differs between owner-occupiers and investors. Owner-occupiers exhibit a similar pattern as the full sample although the timing of the increase in the proportion of members making superannuation guarantee contributions occurs at 13 months rather than 8 months before mortgage start (Figure 2A). Analysis by demographics confirms this contribution pattern for those in the lowest age group (age group

30s), while for high income earners we observe a fall in the proportion of members making superannuation guarantee contributions at 18 months post mortgage commencement (Table B1, Appendix B). For investors, there is a different contribution pattern (Figure 3A): the proportion of members making superannuation guarantee contributions is initially 4.75pp higher for the treatment group and remains unchanged in the 36 months prior to and after mortgage commencement (Table B1, Appendix B).

Since superannuation guarantee contributions are mandatory and reflect employment status these contribution patterns most likely reflect high labour force participation of owner-occupiers pre-mortgage as they save for a deposit, which is maintained post-mortgage start to facilitate repayment of the loan. High-income super fund members who take out an owner-occupier mortgage may have more flexibility to reduce labour force attachment post mortgage commencement. For investors, it is less likely that mortgage take-up is as closely related to labour force participation.

Salary Sacrifice contributions

Figure 1B (full sample) shows that up to 17 months prior to mortgage take-up month, the proportion of super fund members making superannuation guarantee contributions is 1.81pp higher for the treatment group than the control group. At 17 months prior to mortgage commencement this difference falls to 1.00pp higher where it remains. Again the contributions behaviour differs between owner-occupiers and investors. For owner-occupiers we find no change over the sample period of 36 months pre and post mortgage start month (Figure 2B), except for young and older super fund members (age groups 30s and 60s) and females where we find an increase in salary sacrifice contributions post mortgage. We also observe a reduction in the proportion of fund members making salary sacrifice contributions pre-mortgage for the 40s age group (Table B2, Appendix B). The pattern for investors follows that of the full sample (Figure 3B) in aggregate and by gender, age and income (Table B2, Appendix B) in terms of timing, but the magnitude of difference between the treatment and control groups is miniscule.

Salary sacrifice decisions are usually long-term decisions which require the super fund member to liaise with their employer to make changes to their payroll. Given the general lack of engagement with superannuation and the additional hurdle this type of change requires, our results for owner occupiers are not surprising. For older fund members however, who can be expected to be more engaged with their superannuation because of the closer proximity of the impact, this hurdle seems not to be deterrent. Similarly, females who generally have lower account balances, and fund members in their 40s who likely face additional expenditures associated with children may be more motivated to organise their affairs to alter salary sacrifice where it is available.

Personal Concessional contributions

Figure 1C (full sample) indicates that at 19 months prior to mortgage take-up month, the proportion of super fund members making personal superannuation contributions falls from 0.14pp higher for the treatment group to 0.09pp lower than the control group. At 26 months post-mortgage commencement, the difference reverts to 0.25pp in favour of the treatment group. The pattern is slightly different for owner-occupiers, where we observe no change prior to mortgage take-up, but an increase to 0.41pp higher than the control group at 26 months post mortgage (Figure 2C). This pattern is consistent across income groups and gender. Exceptions include the middle aged (age groups 40s, 50s and 60s), who are more likely constrained by the annual concessional contribution cap (Table B3, Appendix B).

For investors, we observe a pre-mortgage fall in contributions at 13 months prior to mortgage commencement which is maintained post-mortgage (Figure 3C) and is particularly evident for younger, low income and female fund members (Table B3, Appendix B). Concessional contributions are discretionary and easily changed, so this result suggests substitution between superannuation assets and investment property in the household portfolio of this group.

Personal Non-concessional contributions

Figure 1D (full sample) shows no change in personal non-concessional contributions prior to mortgage commencement, but an increase post-mortgage. However, this pattern applies to owner-occupiers only (Figure 2D) and specifically to people aged in their 50s and those on high incomes, who have likely reached the concessional contribution cap (Table B4, Appendix B). For investors, we do not find any significant changes in personal non-concessional contributions in the 36 months prior and post mortgage commencement (Figure 3D, Table B4 Appendix B).

Residential mortgages and interaction with service providers

We also investigated whether taking out a residential mortgage changes engagement with the superannuation fund (CFS) and the mortgage provider (CBA). To measure engagement, we used four different measures: a) branch visits, b) calls to the super fund, c) using the bank app (Netbank), and d) online banking. We note that a certain "normal" increase in engagement with the superannuation fund prior to taking up the mortgage can be expected as preapprovals (which are usually undertaken several months before the mortgage is taken out) require clients to provide their superannuation balance. Results for the full sample are reported in Figure 4.

Figure 4: Timing and size of changes in proportion of members interacting with service providers: new residential mortgage vs. no mortgage (owner-occupiers)

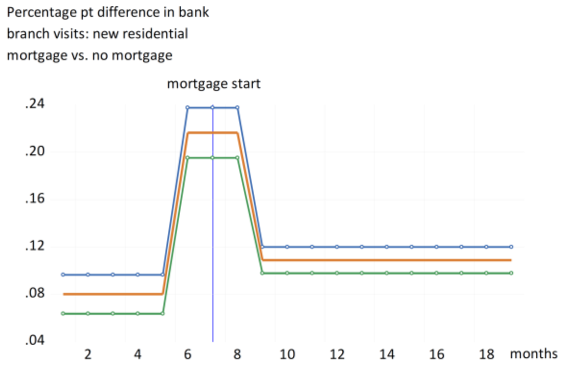

Figure 4A: Bank branch visits

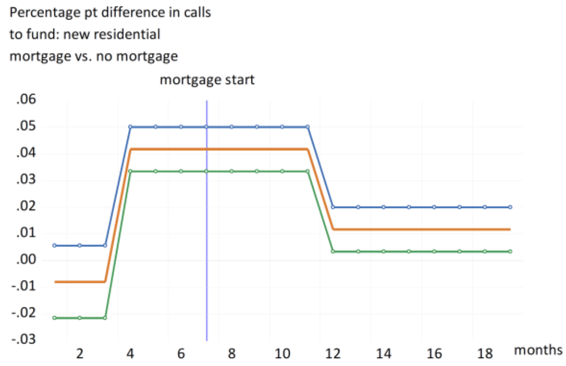

Figure 4B: Calls to super fund

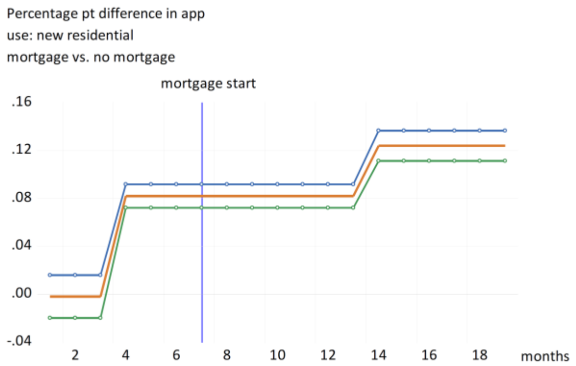

Figure 4C: Bank app use

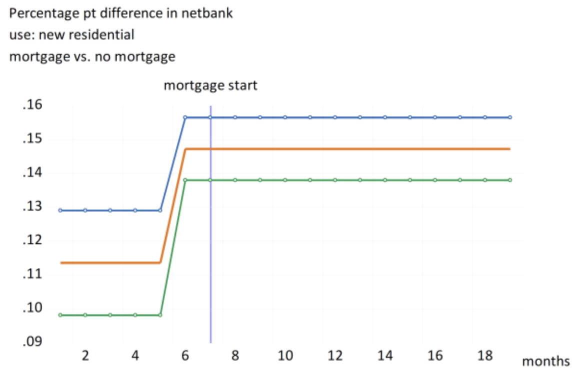

Figure 4D: Netbank use

Note: Blue and green lines represent 95% confidence intervals around percentage point difference in superannuation engagement (red lines) between CFS super fund members taking out and not taking out a residential mortgage with the Commonwealth Bank in 2014.

Discussion and Conclusions:

We investigate how the decision to take out a residential mortgage is linked with engagement with superannuation, measured by changes in superannuation contributions and interactions with service providers (the mortgage provider CBA and the super fund CFS) by analysing matched samples of superannuation fund members who do and do not take out mortgages in calendar year 2014.

We find that the decision to take out a residential mortgage is associated with engagement with superannuation and with the associated service providers. Super fund members who took out a new residential mortgage in 2014 exhibited changes in their superannuation contribution behaviour before and /or after mortgage commencement (as compared with those who did not take out a mortgage), with the timing and size of these changes differing by mortgage type (owner-occupier or investment), employment status (employee or self-employed) and key demographics (gender, age and income). Furthermore, super fund members who took out a new residential mortgage in 2014 exhibited changes in their interactions with service providers in terms of bank branch visits, use of the bank app and online banking, and phone calls to their super fund.

Our results provide insights to policymakers and super funds who have had only modest success engaging super fund members through choice architecture, information provision, advice and financial literacy initiatives. We show that the decisions to take out a residential mortgage and change superannuation contribution behaviour are interrelated and that a new residential mortgage provides a trigger for a super fund to communicate with, and enhance engagement of, their members.

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Appendix A: Estimation Method

Our goal is to find the time and size of significant differences between engagement behaviour (measured by changes in super contributions behaviour and interaction with service providers) of superannuation fund members who do (treatment) and do not (control) take mortgages around the time of the mortgage. We estimate these effects using threshold regression models, a type of nonlinear regression consisting of piecewise linear specifications where regimes switch at unknown times. For $j = 1,...,m$ regimes, we propose the following linear regression model

$$y_t = \sum_{j=0}^{m} 1_j(q_t \gamma) \cdot c'\delta_j + \varepsilon_t$$

Where y_t is the difference between the saving or engagement behaviour of matched treatment and control groups for a specified variable; c is a constant; and 1(.) is the indicator function that takes the value of 1 if the expression is true and 0 otherwise. The indicator function is $1_j(q_t \gamma) = 1(\gamma_j \leq q_t < \gamma_{j+1})$ for q_t the threshold variable, and threshold values $(\gamma_1 < \gamma_2 < ... < \gamma_m)$ where the regime is *j* iff $\gamma_j \leq q_t < \gamma_{j+1}$. In the models in this analysis, we define the threshold variable by a time indicator running from T-36 (T-6) to T+36 (T+12) for super contributions (interactions with service providers) where T marks the time of mortgage contract completion by the treatment group. This simple threshold model estimates *m* changes in the average treatment effect. We determine the number of thresholds using Bai-Perron tests of *l+1* versus *l* sequentially determined thresholds.

Table B1: Timing and size of changes in superannuation guarantee contributions for holders of new residential mortgages

Grey (no change); Pink (lower than initial); Green (higher than initial); Blue (higher than pre-mortgage) Insignificantly different from zero in italics	Initial proportion of members making contributions (relative to control)	Time of change (pre-mortgage)	Pre-mortgage proportion of members making contributions (relative to control)	Time of change (post-mortgage)	Post-mortgage proportion of members making contributions (relative to control)
Full sample	+6.17pp	-8 months	+7.74pp		
Owner-occupier	+7.37pp	-13 months	+9.58pp		
Investor	+4.75pp				
Age 1 (30)	+8.49pp				
Owner-occupier	*+2.03pp*	-11 months	+8.56pp		
Investor	+12.45pp			+25 months	+5.53pp
Age 2 (40)	+4.09pp	-5 months	+7.28pp		
Owner-occupier	+10.28pp				
Investor	-5.73pp	-1 months	+2.72pp		
Age 3 (50)	+3.45pp				
Owner-occupier	+3.73pp				
Investor	+3.11pp				
Age 4 (60)	+12.80pp				
Owner-occupier	+17.12pp				
Investor	+7.52pp				
Age 5 (70)	+12.39pp				
Owner-occupier	+9.44pp				
Investor	+14.16pp				
Low income	+4.59pp	-8 months	+7.39pp		
Owner-occupier	+7.37pp			+19 months	+11.62pp
Investor	+3.38pp				
High income	+8.00pp				
Owner-occupier	+10.20pp			+18 months	+7.04pp
Investor	+6.15pp				
Male	+8.24pp				
Owner-occupier	+11.02pp				
Investor	+4.41pp				
Female	+5.45pp				
Owner-occupier	+5.59pp				
Investor	+5.26pp				

Table B2: Timing and size of changes in salary sacrifice contributions for holders of new residential mortgages

Grey (no change); Pink (lower than initial); Green (higher than initial); Blue (higher than pre-mortgage) Insignificantly different from zero in italics	**Initial proportion of members making contributions (relative to control)**	**Time of change (pre-mortgage)**	**Pre-mortgage proportion of members making contributions (relative to control)**	**Time of change (post-mortgage)**	**Post-mortgage proportion of members making contributions (relative to control)**
Full sample	+1.81pp	-17 months	+1.00pp		
Owner-occupier	+2.56pp				
Investor	*0.15pp*	-15 months	-1.00pp		
Age 1 (30)	*+0.38pp*	-3 months	-1.47pp		
Owner-occupier	+1.94pp			+17 months	*-0.23pp*
Investor	-1.20pp	-6 months	-4.60pp		
Age 2 (40)	+1.92pp	-21 months	-0.29pp		
Owner-occupier	+2.19pp	-20 months	*+0.18pp*		
Investor	+0.59pp	0 months	-1.74pp		
Age 3 (50)	*-0.01pp*	-25 months	+1.35pp		
Owner-occupier	+1.65pp				
Investor	*+0.34pp*			+4 months	+1.34pp
Age 4 (60)	+3.56pp				
Owner-occupier	+6.60pp			+24 months	+11.18pp
Investor	-1.14pp				
Age 5 (70)	+1.83pp				
Owner-occupier	+2.74pp				
Investor	+1.28pp				
Low income	+0.28pp	-7 months	-0.94pp	+13 months	-0.11pp
Owner-occupier	+0.85pp				
Investor	-1.04pp	-6 months	-2.04pp		
High income	+3.33pp	-16 months	+2.41pp		
Owner-occupier	+4.38pp				
Investor	+1.24pp	-15 months	*-0.04pp*		
Male	+2.10pp	-19 months	+0.93pp		
Owner-occupier	+2.88pp				
Investor	*+0.74pp*	-25 months	-1.42pp		
Female	+1.20pp				
Owner-occupier	+1.64pp			+12 months	+2.92pp
Investor	+0.54pp			+1 months	-0.57pp

Table B3: Timing and size of changes in personal concessional contributions for holders of new residential mortgages

Grey (no change); Pink (lower than initial); Green (higher than initial); Blue (higher than pre-mortgage) Insignificantly different from zero in italics	**Initial proportion of members making contributions (relative to control)**	**Time of change (pre-mortgage)**	**Pre-mortgage proportion of members making contributions (relative to control)**	**Time of change (post-mortgage)**	**Post-mortgage proportion of members making contributions (relative to control)**
Full sample	+0.14pp	-19 months	-0.09pp	+26 months	+0.25pp
Owner-occupier	*-0.04pp*			+26 months	+0.41pp
Investor	+0.18pp	-13 months	*-0.07pp*		
Age 1 (30)	+0.61pp	-19 months	*+0.04pp*	+26 months	+0.79pp
Owner-occupier	*+0.05pp*			+26 months	+1.40pp
Investor	+1.29pp	-19 months	*+0.04pp*		
Age 2 (40)	*+0.00pp*				
Owner-occupier	*+0.00pp*				
Investor	*-0.00pp*				
Age 3 (50)	*+0.11pp*	-13 months	-0.29pp		
Owner-occupier	+0.36pp	-25 months	-0.25pp		
Investor	*+0.11pp*			+1 month	-0.48pp
Age 4 (60)	*+0.07pp*			+22 months	+0.60pp
Owner-occupier	*+0.10pp*			+26 months	+0.87pp
Investor	*+0.12pp*				
Age 5 (70)	*-0.06pp*				
Owner-occupier	*-0.15pp*				
Investor	*NA*				
Low income	+0.09pp			+26 months	+0.25pp
Owner-occupier	+0.07pp			+26 months	+0.41pp
Investor	+0.32pp	-19 months	-0.13pp		
High income	+0.20pp	-25 months	-0.14pp	+26 months	+0.25pp
Owner-occupier	*+0.21pp*	-25 months	-0.25pp	+26 months	+0.41pp
Investor	*+0.04pp*				
Male	-0.08pp			+26 months	+0.27pp
Owner-occupier	*+0.08pp*			+26 months	+0.04pp
Investor	*-0.08pp*				
Female	+0.41pp	-19 months	*-0.09pp*	+26 months	+0.22pp
Owner-occupier	+0.49pp	-26 months	*-0.01pp*	+26 months	+0.35pp
Investor	+0.59pp	-19 months	*+0.00pp*		

Table B4: Timing and size of changes in personal non-concessional contributions for holders of new residential mortgages

Grey (no change); Pink (lower than initial); Green (higher than initial); Blue (higher than pre-mortgage) Insignificantly different from zero in italics	**Initial proportion of members making contributions (relative to control)**	**Time of change (pre-mortgage)**	**Pre-mortgage proportion of members making contributions (relative to control)**	**Time of change (post-mortgage)**	**Post-mortgage proportion of members making contributions (relative to control)**
Full sample	-0.39pp			+12 months	0.33pp
Owner-occupier	-0.41pp			+18 months	+0.51pp
Investor	-0.38pp			+1 month	*+0.17pp*
Age 1 (30)	*-0.05pp*			+11 months	+0.94pp
Owner-occupier	+1.07pp				
Investor	-2.26pp			+2 months	*-0.37pp*
Age 2 (40)	-0.60pp				
Owner-occupier	-0.74pp	-4 months	-1.85pp	+25 months	-0.68pp
Investor	*-0.54pp*	-16 months	+0.69pp		
Age 3 (50)	*-0.19pp*			+8 months	+0.43pp
Owner-occupier	-0.98pp			+8 months	*-0.06pp*
Investor	+1.00pp				
Age 4 (60)	-0.52pp			+3 months	+0.65pp
Owner-occupier	*-0.03pp*	-9 months	+1.86pp		
Investor	*+0.43pp*	-25 months	-1.69pp		
Age 5 (70)	-0.46pp				
Owner-occupier	*-0.46pp*				
Investor	*-0.46pp*				
Low income	*-0.17pp*			+11 months	+0.45pp
Owner-occupier	+0.69pp				
Investor	-1.32pp			+0 months	-0.40pp
High income	*+0.08pp*	-25 months	-0.91pp	+3 months	*-0.01pp*
Owner-occupier	-1.51pp			+8 months	-0.42pp
Investor	*+0.65pp*				
Male	*-0.29pp*			+4 months	+0.58pp
Owner-occupier	*-0.18pp*			+7 months	+0.56pp
Investor	-0.42pp			+2 months	+0.62pp
Female	*+0.04pp*	-25 months	-0.82pp	+23 months	*+0.05pp*
Owner-occupier	-0.94pp			+19 months	*+0.38pp*
Investor	+0.96pp	-26 months	-0.61pp		

Appendix C: Superannuation contributions – key features and tax treatment

Superannuation contributions are of four main types - superannuation guarantee, salary sacrifice, personal concessional and personal non-concessional. Key features of the four contribution types are summarised below (section C1), followed by the tax treatment of contributions – distinguished as concessional contributions (which include superannuation guarantee, salary sacrifice and personal concessional contributions) and non-concessional contributions (section C2). While the tax rules and regulations vary from time to time, the focus in this appendix is sample period for the study (1 January 2011 to 31 December 2017). The final section of this appendix summarises recent initiatives which could also influence contribution patterns currently and in future (section C3).

C1. Key features of superannuation contributions

Superannuation guarantee contributions

Superannuation guarantee contributions are paid by employers on behalf of eligible employees. They do not apply to the self-employed. Eligible employees are distinguished by age and include:

- All employees age 18 and over who earn at least $450 per month. Prior to 1 July 2013, only applied to employees aged 70 and below.
- Employees below age 18 who earn at least $450 per month and work at least 30 hours per month.

The superannuation guarantee must be paid at least quarterly at a rate of 9.5% of earnings. This compulsory rate increased from 9% on 1 July 2014. The mandatory 9.5% contribution rate is subject to a maximum contribution base. This implies, for example, that for the 2017/18 financial year for those earning more than $211,040 the mandatory 9.5% superannuation guarantee rate applies to the first $211,040 of income only.

Superannuation guarantee contributions are treated as concessional contributions for tax purposes and are therefore subject to the tax rates and contribution caps applying to concessional contributions – summarised in section C2.

In summary, superannuation guarantee contributions:

- Apply to employees but not the self-employed
- Prior to 1 July 2013 only relevant to employees aged 18-70. Since 1 July 2013 relevant to all employees aged 18 and above.
- Are characterised by low flexibility. Can only be modified (increased or decreased) through change in employment status (full time, part time, multiple jobs, not employed) or wage level.

Salary sacrifice contributions

Salary sacrifice contributions can only be made through an arrangement with an employer to forego salary or wages in return for superannuation contributions paid into a super fund.

Salary sacrifice super contributions are classified as employer super contributions, rather than employee contributions. As a result, unless a specific agreement is made between an employee and an employer to continue to pay the minimum superannuation guarantee amount, any salary sacrifice contributions made could reduce the amount of super guarantee contributions that an employer is required to make. As such, in some instances the take-up or increase in salary sacrifice contributions may show up in data as a decrease in superannuation guarantee contributions.

Salary sacrifice contributions are treated as concessional contributions for tax purposes and are therefore subject to the tax rates and contribution caps applying to concessional contributions – summarised in section C2.

In summary, salary sacrifice contributions

- Are only available to employees, not the self-employed
- May be limited as a supplement to superannuation guarantee contributions due to the concessional contribution caps
- Could be mis-classified superannuation guarantee contributions
- Are characterised by low flexibility, as they require an arrangement with an employer and may not be accessible to all employees

Personal concessional contributions

Personal concessional contributions are voluntary superannuation contributions made by individuals for which they can claim a tax deduction.

Prior to 1 July 2017 only individuals classified as 'self-employed' could claim a tax deduction for superannuation contributions (where the self-employed are defined as those who earnt less than 10% of their income from employment-related activities). However, since 1 July 2017 tax deductibility has been extended to all individuals eligible to make personal contributions.

Individuals can make personal concessional contributions up to age 74. However, between the ages of 65 and 74 a work test applies. Under the work test an individual must work at least 40 hours in 30 consecutive days.

Personal concessional contributions are treated as concessional contributions for tax purposes and are therefore subject to the tax rates and contribution caps applying to concessional contributions – summarised in section C2.

In summary, personal concessional contributions

- Before 1 July 2017 were available only to the self-employed. Since 1 July 2017 have been available to all individuals.
- Are only available to individuals between the ages of 65 and 74 who satisfy a 'work test' and cannot be made by individuals who are aged 75 and above.
- For employees (since 1 July 2017) the amount of concessional contributions may be limited as a supplement to salary sacrifice contributions due to the concessional contribution caps
- Are characterised by flexibility, as (subject to eligibility) they can be made at any time.

Personal non-concessional contributions

Non-concessional contributions are voluntary superannuation contributions made out of after-tax income. Non-concessional contributions also include spouse contributions, government co-contributions and contributions to the First Home Super Saving Scheme (from 1 July 2017)

Prior to 1 July 2017 a non-concessional contribution was the only type of contribution available to employees to supplement their superannuation guarantee and salary sacrifice contributions (if offered by their employer). Since 1 July 2017 employees are able to make tax deductible personal contributions.

Non-concessional contributions also include spouse contributions, government co-contributions and the First Home Super Saver Scheme as follows:

- A spouse contribution is a contribution by an individual to the super account of a low/no income spouse.
- A government co-contribution is a partial government match of up to $500 ($1,000 prior to 1 July 2012) to a non-concessional contribution.
- A First Home Super Saver Scheme contribution is a voluntary superannuation contribution of up to $15,000 a year (to a maximum of $30,000 over more than one year) to an individual's superannuation account for the purposes of saving for the purchase of a first home. The scheme started on 1 July 2017 and access to the contributions (and associated earnings) have been available since 1 July 2018 for the purpose of purchasing a first home.

In summary, personal non-concessional contributions:

- Can be made by all individuals (employees and self-employed)
- Include personal, spouse, government co-contribution and first home saver scheme contributions
- Are likely to be a supplement to concessional contributions and could be attractive to those (employees and/or self-employed) who exceed the concessional contributions cap.
- Can be made up to age 74 (but not from age 75), subject to a work test from age 65
- Characterised by flexibility.

C2. Taxation of superannuation contributions

Concessional contributions

Concessional contributions include superannuation guarantee, salary sacrifice and personal concessional contributions. The tax rates, contribution caps and the tax treatment of excess contributions over the sample period 1 January 2011 to 31 December 2017 are summarised below.

Tax rate: For most super fund members concessional contributions (that is, superannuation guarantee, salary sacrifice and personal concessional contributions) are taxed at 15%. However, a tax rate of 30% applies to some contributions of individuals with annual income above $250,000. This higher tax rate was introduced from 1 July 2012, so did not apply to concessional contributions made before 1 July 2012. However, between 1 July 2012 and 30 June 2017 the annual income threshold was $300,000 rather than the current $250,000.

Contribution caps: Annual contributions caps apply to all concessional contributions: superannuation guarantee, salary sacrifice and personal concessional. Over the period 1 January 2011 to 31 December 2017 there has been some variation in the annual concessional contribution caps, both in amount and by age, as shown in Table 1.

Table C1: Concessional contribution caps

Year	Age 50 or less	Age 51-60	Above age 60
2010/11	$25,000	$50,000	$50,000
2011/12	$25,000	$50,000	$50,000
2012/13	$25,000	$25,000	$25,000
2013/14	$25,000	$25,000	$35,000
2014/15	$25,000	$35,000	$35,000
2015/16	$25,000	$35,000	$35,000
2016/17	$30,000	$35,000	$35,000
2017/18	$25,000	$25,000	$25,000

Excess concessional contributions: Concessional contributions in excess of the contributions cap are taxed at higher rates as follows:

- Before 1 July 2013 excess concessional contributions were taxed at a rate of 31.5% (in addition to the 15% tax contributions tax).
- Since 1 July 2013 excess concessional contributions are included in personal assessable income and taxed at the marginal income tax rate less a 15% tax offset.

Non-concessional contributions

Personal non-concessional contributions not taxed but are subject to contribution caps. Over the sample period (1 January 2011 to 31 December 2017) there has been some variation in the annual non-concessional contribution caps as indicated in Table 2.

l contribution limits and from 1 July 2017 cannot be made if the total superannuation balance is $1.6 million or more. If an individual is under the age of 65, he or she can also take advantage of the 'bring forward' rules when making personal non-concessional contributions. The 'bring forward' rule allows up to two years' worth of non-concessional contributions to be made in advance.

Table C2: non-concessional contribution caps

Year	Annual cap	Bring forward cap
2010/11	$150,000	$450,000
2011/12	$150,000	$450,000
2012/13	$150,000	$425,000
2013/14	$150,000	$425,000
2014/15	$180,000	$540,000
2015/16	$180,000	$540,000
2016/17	$180,000	$540,000
2017/18	$100,000	$300,000

Excess non-concessional contributions: Non-concessional contributions in excess of the contributions cap are taxed as follows:

Pre 1 July 2013: Non-concessional contributions in excess of the non-concessional contributions cap were taxed at the highest marginal income tax rate plus the Medicare levy.

From 1 July 2013: Non-concessional contributions in excess of the non-concessional contributions cap were taxed at the highest marginal income tax rate plus the Medicare levy. However, since 1 July 2014, excess non-concessional contributions can be withdrawn from a super fund without penalty (and the super fund earnings associated with those excess contributions are included in assessable income and taxed at the fund member's marginal income tax rate).

Age restrictions: Individuals can make personal non-concessional contributions up to age 74. However, between age 65 and 74 a work test applies whereby a contributor must work for at least 40 hours in a period of not more than 30 consecutive days in the financial year in which they plan to make a super contribution.

Tax treatment of 'other' non-concessional contributions:

Spouse contribution: Prior to 1 July 2017 the income threshold to be considered a no/low income spouse was $13,000 pa. It was increased to $40,000 from 1 July 2017. The spouse contribution is not taxed. The spouse contributing is eligible for an 18% tax offset on eligible spouse contributions up to a limit of $3,000 in super contributions (i.e., a maximum offset of $540 pa).

Government co-contribution: Since 2012/13, low/medium income individuals have been eligible for a government co-contribution of 50% of non-concessional contributions to a maximum of $500 pa. The maximum co-contributions was reduced from $1,000 pa from 1 July 2012. The government co-contribution is treated as a non-concessional contribution and not taxed but is not counted towards the non-concessional contributions cap. Eligibility to the government co-contribution is subject to income thresholds as set out in Table 3.

Table C3: Government co-contribution, income thresholds

Year	Lower income threshold	Upper income threshold	Maximum government co-contribution
2010/11	$31,920	$61,920	$1,000
2011/12	$31,920	$61,920	$1,000
2012/13	$31,920	$61,920	$500
2013/14	$33,516	$48,516	$500
2014/15	$34,488	$49,488	$500
2015/16	$35,454	$50,454	$500
2016/17	$36,021	$51,021	$500
2017/18	$36,813	$51,813	$500

C3. Recent tax developments

Finally, there are a number of tax developments post Dec 2017 (end of the sample period) which may also influence current and future contribution patterns. These include:

Total Superannuation Balance: A global cap of assets of $1.6 million in superannuation accounts was set from 1 July 2017. Anyone with a Total Superannuation Balance of more than $1.6 million in their super accounts (in both the accumulation and retirement phase) is not be eligible to make further non-concessional contributions.

Downsizing contributions: Since 1 July 2018, any aged 65 years or over can make a non-concessional contributions of up to $300,000 (or $300,000 each for a couple) from the proceeds of selling their home. Downsizing contributions are treated as non-concessional contributions for tax purposes, but will not count towards an individual's annual non-concessional contributions cap.