# KIWISAVER FUNDS:
## *Can they be replicated cheaper?*

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*This study investigates the replicability of the recently introduced New Zealand retirement funds (KiwiSaver) by the same providers. Specifically, we replicate moderate/balanced funds based on a combination of conservative and growth/aggressive funds. We observe that moderate/balanced funds are in many cases linear combinations of the conservative and growth funds with some serious mispricings between the fees of actual funds and reconstructed funds.*

In recent years, the responsibility for retirement planning has progressively been moving away from governments to households through the use of defined contribution retirement schemes, as opposed to the traditional defined benefit plans (Benartzi and Thaler 2001; Broadbent et al. 2006; Cannon and Tonks 2011). New Zealand introduced a version of a defined contribution scheme, called KiwiSaver, in 2007. One of the New Zealand Government's main objectives in introducing the KiwiSaver scheme was to increase long-term household and private savings and to encourage people to provide for a better retirement.[1] Under this system, employees who 'opt in' contribute a percentage of their income and receive employers' contributions and certain additional tax incentives. These funds are invested on the employees' behalf by private pension fund providers. KiwiSaver funds have come to play an important role in New Zealand financial markets. Since the commencement of KiwiSaver, investors have gradually realised the importance of investing in the scheme. As at mid-2014, KiwiSaver funds had in excess of NZ$23 billion in assets under management and more than 2.2 million investors.

While the scheme was established in a way that minimises the investment decisions that must be made by employees (they need to choose from a limited pool of fund types and their percentage of contribution), such decisions could have a significant impact on retirement savings. The decisions made by employees require a broad understanding of a number of basic financial concepts, such as the level of personal contribution, the quality of the fund provider, the type of fund and its risk level, and the fees involved. Those who do not 'opt out' and fail to make the above decisions are automatically enrolled in one of six default conservative funds with personal contributions set at 3 per cent.[2] Interestingly, a large percentage of KiwiSaver investors have not moved beyond a default conservative fund (MBIE 2012). In addition, a recent survey shows that less than 30 per cent of participants choose their provider based on performance and less than 25 per cent consider fees (Colmar Brunton 2010). It has been argued that the combined consequences of these decisions will leave many participants short of the sum required for their retirement. Therefore, there is evidence to suggest that despite the importance of the decisions which the public is being asked to make about their contributions to KiwiSaver, they may be failing to make sound decisions, especially regarding the choice of their funds and the fees paid. In this study, we are particularly interested in the question of fees charged by fund providers.

There has been very limited academic research on KiwiSaver, which is unquestionably due to the young age of this particular fund industry and the lack of long-term data. There are, however, a number of recent studies that examine several relevant issues. Thomas and Matthews (2014) investigate the determinants of fund and member flows among KiwiSaver funds. The authors find that, on average, there is a positive relation between performance and fund flows (both inwards and outwards). However, the positive relationship which they observed between performance and outflows could not be explained. Thomas and Matthews also find inconclusive results when investigating the influence of the size of a fund, and the number of investors, on fund flows.

In another paper, using a unique proprietary data set of 405,107 individual KiwiSaver accounts, Zhang (2014) looks at the possible impact that financial advice could have on the asset allocation decision of investors. Her findings indicate that female, older investors and relatively wealthy investors appear to obtain financial advice more than others. Zhang observes that those investors who receive advice hold riskier assets in their portfolios, less cash and bonds, and more property and equity. Zhang further reports that differences in the investment performance of the two groups, advised and non-advised investors, is marginal over the five-year period she examines. Finally, Frijns and Tourani-Rad (2014) use the capital asset pricing model (CAPM) and multifactor models to investigate the risk-adjusted performance of KiwiSaver funds with large investment in domestic and international equity markets. On the whole the authors observe severe underperformance by these funds.

In this paper, we are mainly interested in whether we can replicate a KiwiSaver fund that has the same level of risk and return compared with an existing fund but has a lower level of fees, which, in turn, translates into higher returns. As mentioned earlier, there is a limited range of funds available to investors. Most fund providers offer four to five categories. For example, BNZ offers: cash, conservative, moderate, balanced and growth funds. To varying degrees, based on their risk exposure, these investment funds invest in cash, domestic bonds, international bonds, domestic equity, international equity and property. Our findings indicate that, for the majority of fund providers (16 out of the 28 we examine), our synthetic 'moderate and balanced funds' are linear combinations of the conservative and growth/aggressive funds that the KiwiSaver providers offer. We observe that, in various instances, investors can combine existing funds to replicate a moderate or balanced fund with different transaction costs. In 12 out of the 16 cases, we find that the replicated fund is cheaper than the fund offered by their provider. This suggests that there is some mispricing in the fees charged for the various fund types that are offered by KiwiSaver fund providers.

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## Methodology

We examine the replicability of KiwiSaver funds based on their conservative and growth strategies.

### Constrained OLS — fund replication

The first step in our analysis is the examination of whether funds can be replicated within a particular KiwiSaver fund provider. Specifically, we address the question of whether, say, a balanced fund or moderate fund is a linear combination of a conservative and growth fund. To examine this issue we rely on a constrained OLS methodology that allows estimation of a relationship between variables while imposing constraints on the coefficients that are being estimated. Specifically, we estimate the following model:

$$r_{it} = \beta_1 r_{cons,t} + \beta_2 r_{growth,t} + \varepsilon_t \quad (1)$$

This regression imposes the following constraints. First, we constrain the constant in the regression to be zero. Second, we constrain coefficients, $\beta_1$ and $\beta_2$, to be greater than zero. Third, we add the constraint that the sum of the coefficients is equal to one (i.e. $\beta_1 + \beta_2 = 1$). These restrictions imply that the coefficients, $\beta_1 + \beta_2$, can essentially be interpreted as allocations, or weights, that need to be put on the respective KiwiSaver funds.

To determine whether the allocations in two funds lead to a good replication of the fund in question (e.g. whether a balanced fund can be constructed out of a conservative and a growth fund), we perform a second regression to assess the fit of the replicated fund on the actual fund. Specifically, we regress

$$\hat{r}_{it} = \alpha + \beta r_{it} + \varepsilon_t, \quad (2)$$

where $\hat{r}_{it}$ is the return of the replicated portfolio and $r_{it}$ is the return of the actual portfolio. If the replicated portfolio fits the actual portfolio perfectly then we would expect $\alpha = 0$ and $\beta = 1$. Whether the replicated portfolio fits the actual portfolio can be assessed through a joint test (*F*-test) on $\alpha$ and $\beta$ in Equation (2). In addition, if the replicated portfolio fits the actual portfolio well, we would expect a very high $R^2$ for this regression.

Note that regressions such as Equation (2) and joint tests on the coefficients are commonly used in the financial forecasting literature, where a forecasted value is assessed against the actual realisation, and the coefficients and $R^2$ are used to assess the forecasting performance of the specific forecaster (see, for example, Andersen et al. 2003).

Finally, we compute the fees on the reconstructed fund using the formula

$$\overline{fee} = \beta_1 fee_1 + \beta_2 fee_2, \quad (3)$$

where $\overline{fee}$ is the reconstructed fee of the reconstructed funds, and $fee_1$ and $fee_2$ represent the fees of the conservative and growth funds, respectively.

## Data

We obtain monthly return data on KiwiSaver funds from Morningstar over the period September 2007 to April 2013. In Table 1, we present summary statistics on the funds in our sample, where we consider all funds used in the analysis. Average annual returns over the sample period range from 2.75 per cent (Grosvenor High Growth) to 9.71 per cent SIL Growth. For most of the funds we observe that the more risky strategies yield higher returns, but this is not the case for all funds. When we consider the annualised standard deviations of the funds we find that they range from 0.18 per cent (Staples Conservative) to 12.31 per cent (Tower Equity). In general, these standard deviations are rather low, especially considering that the sample period covers the global financial crisis. It suggests that many of the growth and equity funds have invested in relatively low-risk assets over this period, and perhaps even increased their holdings in fixed income securities. We note that all the funds display negative skewness, a common observation in financial time series. Kurtosis for most funds is close to three, suggesting there is little evidence of fat tails for most of the funds.

**TABLE 1: Summary statistics**

| Fund | Average (%) | St. Dev. (%) | Min (%) | Max (%) | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| AMP Conservative | 5.88 | 2.22 | -1.25 | 1.86 | -0.83 | 4.63 |
| AMP Moderate | 6.10 | 3.83 | -2.77 | 2.72 | -1.02 | 5.06 |
| AMP Moderate Balanced | 6.40 | 5.50 | -4.24 | 3.59 | -1.08 | 5.06 |
| AMP Balanced | 6.94 | 6.36 | -4.85 | 4.19 | -1.05 | 5.01 |
| AMP Growth | 7.05 | 8.88 | -7.18 | 5.35 | -1.12 | 4.99 |
| AMP Aggressive | 7.32 | 10.60 | -8.70 | 6.23 | -1.13 | 4.98 |
| | | | | | | |
| Aon Conservative | 8.92 | 3.20 | -1.60 | 2.08 | -1.00 | 3.57 |
| Aon Moderate | 8.84 | 5.63 | -3.97 | 3.12 | -1.40 | 5.04 |
| Aon Balanced | 8.84 | 8.49 | -6.64 | 4.69 | -1.43 | 5.34 |
| Aon Growth | 9.00 | 10.41 | -8.23 | 5.71 | -1.37 | 5.14 |
| | | | | | | |
| ASB Conservative | 5.57 | 1.58 | -0.52 | 1.32 | -0.43 | 2.91 |
| ASB Moderate | 6.50 | 3.33 | -1.48 | 2.21 | -0.19 | 2.50 |
| ASB Balanced | 6.85 | 5.33 | -2.78 | 3.27 | -0.21 | 3.57 |
| ASB Growth | 6.91 | 7.43 | -4.08 | 4.32 | -0.24 | 2.63 |

| Fund | Average (%) | St. Dev. (%) | Min (%) | Max (%) | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| ANZ Conservative | 6.61 | 1.52 | -0.47 | 1.33 | -0.73 | 3.05 |
| ANZ Conservative Balanced | 7.56 | 2.83 | -1.46 | 2.13 | -0.57 | 2.89 |
| ANZ Balanced | 8.30 | 4.33 | -2.40 | 2.93 | -0.55 | 2.86 |
| ANZ Balanced Growth | 8.98 | 5.88 | -3.33 | 3.71 | -0.56 | 2.84 |
| ANZ Growth | 9.63 | 7.45 | -4.31 | 4.50 | -0.56 | 2.86 |
| | | | | | | |
| BT Westpac Conservative | 6.56 | 2.04 | -0.98 | 1.65 | -0.58 | 2.90 |
| BT Westpac Balanced | 7.45 | 5.10 | -2.91 | 3.52 | -0.47 | 2.83 |
| BT Westpac Growth | 8.17 | 6.25 | -3.84 | 4.06 | -0.55 | 2.97 |
| | | | | | | |
| Fidelity Conservative | 6.11 | 2.92 | -1.50 | 1.98 | -0.67 | 2.91 |
| Fidelity Balanced | 5.39 | 5.07 | -2.79 | 2.95 | -0.54 | 2.48 |
| Fidelity Growth | 5.06 | 6.73 | -3.70 | 3.92 | -0.44 | 2.47 |
| | | | | | | |
| Grosvenor Conservative | 6.10 | 2.29 | -1.04 | 1.60 | -0.42 | 2.72 |
| Grosvenor Balanced | 4.78 | 3.87 | -2.76 | 2.56 | -0.44 | 3.66 |
| Grosvenor High Growth | 2.75 | 8.10 | -5.68 | 4.74 | -0.36 | 3.06 |
| | | | | | | |
| Mercer Conservative | 5.56 | 1.67 | -0.68 | 1.19 | -0.61 | 2.69 |
| Mercer Balanced | 6.12 | 4.76 | -2.93 | 2.82 | -0.70 | 2.98 |
| Mercer High Growth | 6.56 | 7.66 | -5.09 | 4.60 | -0.63 | 3.21 |
| | | | | | | |
| OnePath Conservative | 6.77 | 1.45 | -0.54 | 1.32 | -0.72 | 3.78 |
| OnePath Conservative Balanced | 7.29 | 2.60 | -1.69 | 2.14 | -0.79 | 4.30 |
| OnePath Balanced | 7.65 | 4.01 | -2.84 | 2.91 | -0.81 | 4.15 |
| OnePath Balanced Growth | 7.99 | 5.47 | -3.99 | 3.66 | -0.83 | 4.04 |
| OnePath Growth | 8.30 | 6.99 | -5.19 | 4.47 | -0.83 | 3.98 |
| | | | | | | |
| SIL Conservative | 6.68 | 1.53 | -0.47 | 1.32 | -0.74 | 3.01 |
| SIL Conservative Balanced | 7.65 | 2.84 | -1.41 | 2.15 | -0.54 | 2.81 |
| SIL Balanced | 8.33 | 4.35 | -2.43 | 2.93 | -0.55 | 2.85 |
| SIL Balanced Growth | 9.06 | 5.92 | -3.42 | 3.72 | -0.56 | 2.88 |
| SIL Growth | 9.71 | 7.49 | -4.32 | 4.49 | -0.57 | 2.86 |
| | | | | | | |
| Staples Conservative | 3.09 | 0.18 | 0.16 | 0.40 | 0.45 | 3.86 |
| Staples Balanced | 9.12 | 5.95 | -3.47 | 3.96 | -0.47 | 2.96 |
| Staples Growth | 6.24 | 5.77 | -5.69 | 3.43 | -1.72 | 7.86 |
| | | | | | | |
| TOWER Conservative | 6.36 | 2.15 | -0.85 | 1.68 | -0.32 | 2.89 |
| TOWER Balanced | 6.57 | 4.94 | -2.56 | 3.20 | -0.32 | 2.62 |
| TOWER Growth | 7.17 | 7.68 | -4.65 | 4.68 | -0.59 | 3.27 |
| TOWER Equity | 5.60 | 12.31 | -7.44 | 8.05 | -0.28 | 2.98 |

*Note: This table presents summary statistics for the funds in the sample. All numbers are on a per annum basis.*

## Empirical findings

In this section, we present the results for the analyses based on methodologies presented above. We start by assessing the replicability of KiwiSaver funds within a fund family.

### Replicability of KiwiSaver funds

To assess the replicability of KiwiSaver funds within a specific fund family, we select all KiwiSaver funds that have moderate or balanced funds (moderate risk) as well as conservative (low risk) and growth/aggressive funds (high risk). For these KiwiSaver funds, we examine whether it is possible to create a synthetic fund (based on a combination of conservative and growth funds) that tracks a balanced or moderate fund. We report our results for this analysis in Table 2.

In the first columns of Table 2, we report the results for the constrained OLS regression in Equation (1), where we replicate funds based on the conservative and growth funds of a KiwiSaver fund provider or, if available, we use the conservative and aggressive/equity funds. The coefficients we report are essentially the weights that one would have to put onto the respective conservative or growth funds in order to replicate the fund. Within specific styles, we observe that there is considerable variation in weights. For instance, Grosvenor Balanced consists of a mix of 66 per cent conservative and 34 per cent growth, whereas Aon Balanced consists of a mix of 25 per cent conservative and 75 per cent growth.

In the next three columns, we report the fit of the reconstructed funds. If the reconstructed fund fits the actual fund, we expect $\alpha = 0$ and $\beta = 1$. Overall, we observe that this is the case for most of the funds. We further observe relatively high $R^2$ values that are greater than 95 per cent in all but a few cases. The values for the *F*-tests indicate whether we can reject the null hypothesis that $\alpha = 0$ and $\beta = 1$. In most cases (16 out of 28), we observe that we cannot reject this null hypothesis, but we find significant results for some of the funds (e.g. the SIL and ANZ funds do not seem to be simple replications of a Conservative and Growth fund; Staples Balanced is not a simple mix of the other funds either).[3] This can be because these funds indeed have different asset mixes (e.g. Staples Balanced, which produces an $\alpha$ that is very different from zero, a $\beta$ that is very different from 1; and a relatively low $R^2$) or it could be due to some other factors (e.g. SIL Balanced, which produces a very high $R^2$ and $\beta = 1$, but has a significantly negative $\alpha$).

**TABLE 2: Replication of funds**

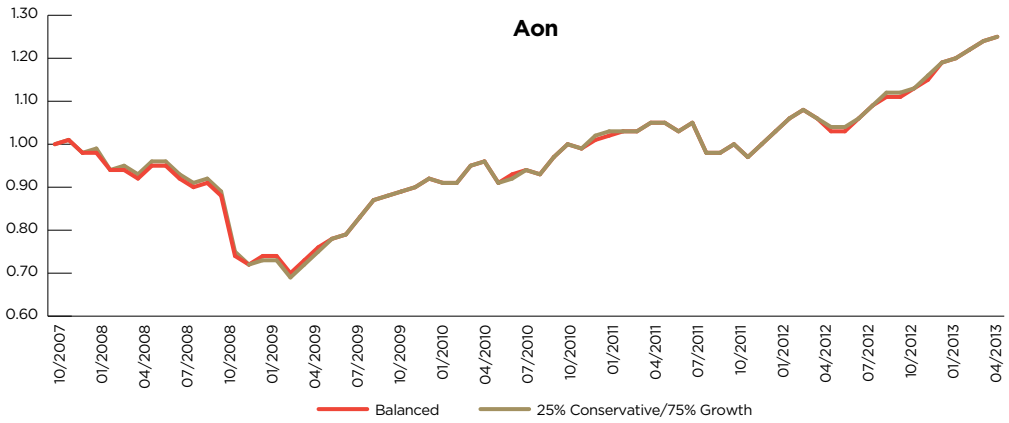
| | Constrained OLS | | | Fit of Reconstructed Funds | | | | Fees | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fund | Conservative | Growth | Aggressive/ Equity | Alpha | Beta | $R^2$ | F-test | Fund Fees | Recon-structed Fees | Diff. |
| **AMP Moderate** | **0.73 (143.88)** | **0.27 (52.47)** | | **0.012 (0.93)** | **1.01 (98.57)** | **99.34%** | **0.99** | **0.975%** | **0.9177%** | **-0.05734%** |
| **AMP Moderate** | **0.796 (158.23)** | | **0.21 (43.15)** | **0.018 (1.08)** | **1.01 (81.50)** | **99.03%** | **1.01** | **0.975%** | **0.9328%** | **-0.04225%** |
| **AMP Moderate Balanced** | **0.49 (377.46)** | **0.51 (391.61)** | | **0.005 (1.61)** | **1.00 (564.20)** | **99.98%** | **1.57** | **1.025%** | **0.9556%** | **-0.06942%** |
| **AMP Moderate Balanced** | **0.59 (223.62)** | | **0.41 (155.49)** | **0.0137 (1.61)** | **1.00 (225.37)** | **99.87%** | **1.76** | **1.025%** | **0.9775%** | **-0.0475%** |
| AMP Balanced | 0.36 (66.49) | 0.64 (118.06) | | -0.021 (-1.51) | 0.99 (161.02) | 99.75% | 2.68* | 1.025% | 0.9761% | -0.04888% |
| **AMP Balanced** | **0.48 (119.40)** | | **0.52 (127.32)** | **-0.011 (-0.85)** | **0.99 (169.95)** | **99.78%** | **0.98** | **1.025%** | **1.0050%** | **-0.02%** |
| **AMP Growth** | **0.19 (55.10)** | | **0.81 (228.76)** | **0.017 (1.51)** | **1.00 (277.37)** | **99.92%** | **1.32** | **1.033%** | **1.0775%** | **0.0445%** |
| **Aon Moderate** | **0.64(55.02)** | **0.36 (31.12)** | | **0.038 (1.20)** | **0.98 (74.25)** | **98.82%** | **1.64** | **0.94%** | **0.9384%** | **-0.0016%** |
| **Aon Balanced** | **0.25 (47.39)** | **0.75 (140.16)** | | **0.214 (1.50)** | **1.00 (230.75)** | **99.88%** | **1.30** | **1.01%** | **1.0125%** | **0.0025%** |
| ASB Moderate | 0.64 (63.22) | 0.36 (35.81) | | -0.028 (-1.08) | 0.97 (61.98) | 98.34% | 2.99* | 0.60% | 0.5080% | -0.092% |
| **ASB Balanced** | **0.32 (49.19)** | **0.69 (107.16)** | | **-0.022 (-1.34)** | **0.99 (146.57)** | **99.70%** | **1.66** | **0.65%** | **0.6110%** | **-0.039%** |
| ANZ Cons. Balanced | 0.75 (307.60) | 0.25 (103.25) | | -0.011* (-1.75) | 1.00 (210.73) | 99.85% | 3.08* | 1.02% | 1.0575% | 0.0375% |
| ANZ Balanced | 0.51 (227.02) | 0.50 (222.27) | | -0.014*** (-2.70) | 1.00 (347.40) | 99.95% | 4.88** | 1.07% | 1.1052% | 0.0352% |
| ANZ Balanced Growth | 0.25 (147.43) | 0.75 (436.52) | | -0.009** (-2.19) | 1.00 (591.58) | 99.98% | 3.23** | 1.12% | 1.1325% | 0.0125% |
| **BT Westpac Balanced** | **0.29 (13.09)** | **0.71 (32.20)** | | **-0.0167 (-0.49)** | **0.97 (54.72)** | **97.84%** | **2.14** | **0.65%** | **0.6565%** | **0.0065%** |
| **Fidelity Balanced** | **0.50 (28.81)** | **0.50 (29.20)** | | **-0.0228 (-0.75)** | **0.99 (61.48)** | **98.31%** | **0.72** | **1.19%** | **1.1550%** | **-0.035%** |
| **Grosvenor Balanced** | **0.66 (97.63)** | **0.34 (51.25)** | | **-0.017 (-0.99)** | **1.01 (115.64)** | **99.52%** | **0.76** | **1.07%** | **1.0380%** | **-0.032%** |
| **Mercer Balanced** | **0.41 (70.70)** | **0.59 (103.64)** | | **-0.00 (-0.06)** | **0.99 (167.04)** | **99.77%** | **2.10** | **0.72%** | **0.6888%** | **-0.0312%** |
| **OnePath Cons Balanced** | **0.76 (175.99)** | **0.25 (57.05)** | | **-0.008 (-0.78)** | **0.99 (117.17)** | **99.52%** | **1.03** | **0.60%** | **0.6106%** | **0.0106%** |
| OnePath Balanced | 0.51 (12.62) | 0.49 (12.23) | | -0.016 (-0.19) | 0.84 (17.95) | 83.00% | 6.51*** | 0.65% | 0.6482% | -0.0018% |
| **OnePath Balanced Growth** | **0.25 (132.66)** | **0.75 (393.00)** | | **0.001 (0.14)** | **1.00 (510.10)** | **99.98%** | **0.14** | **0.70%** | **0.6950%** | **-0.005%** |
| SIL Cons Balanced | 0.75 (297.63) | 0.26 (101.83) | | -0.013** (-2.06) | 1.00 (206.98) | 99.85% | 3.65** | 1.06% | 1.1096% | 0.0496% |
| SIL Balanced | 0.51 (247.65) | 0.49 (241.17) | | -0.016*** (-3.34) | 1.00 (386.35) | 99.96% | 7.01*** | 1.11% | 1.1335% | 0.0235% |
| SIL Balanced Growth | 0.25 (134.39) | 0.75 (400.93) | | -0.013*** (-2.99) | 1.00 (557.98) | 99.98% | 5.47*** | 1.16% | 1.1725% | 0.0125% |
| Staples Balanced | 0.14 (2.15) | 0.86 (12.78) | | 0.1647 (1.07) | 0.71 (12.26) | 69.81% | 13.20*** | 1.05% | 1.1440% | 0.094% |
| **Tower Balanced** | **0.56 (25.14)** | **0.44 (19.40)** | | **-0.014 (-0.30)** | **0.96 (42.79)** | **96.52%** | **1.43** | **0.98%** | **0.9724%** | **-0.0076%** |
| Tower Balanced | 0.74 (57.03) | | 0.26 (19.70) | -0.031 (-0.68) | 0.96 (43.75) | 96.67% | 2.76* | 0.98% | 0.9450% | -0.035% |
| Tower Growth | 0.43 (23.04) | | 0.57 (30.26) | -0.024 (-0.38) | 0.95 (46.68) | 97.06% | 2.98* | 1.09% | 0.9997% | -0.0903% |

*Note: This table reports results for the constraint OLS in Equation (1). The regression to measure the fit of the replicated funds (see Equation (2)) and the differences between actual fees and reconstructed fees. The F-test is a test for the joint significance of $\alpha$ and $\beta$. Fund fees either represent total fees or total variable fees as they are reported by the funds in their investment statements.*

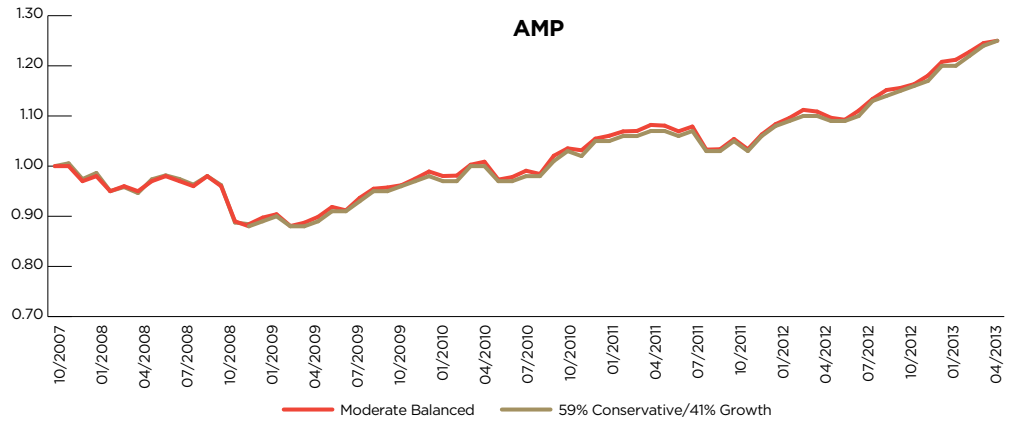
To provide a visual representation of the fit between actual and replicated funds, we show the performance of $1 invested in the actual versus the replicated fund for the Aon Balanced fund (Panel A) and the AMP Moderate Balanced fund (Panel B). As can be seen from both graphs, the fit between the actual fund and the replicated one is very close.

**FIGURE 1**

**Panel A — Replication of the Aon Balanced fund**




**Panel B — Replication of the AMP Moderate Balanced fund**




The last column of Table 2 reports the fees of the actual fund versus the fees of the replicated fund (which are based on a weighted average of conservative and growth funds).[4] We note that of the funds that we can replicate successfully (i.e. those which produce an insignificant *F*-test), the difference between fees on reconstructed funds and the actual are mostly negative (12 out of 16 cases). For these funds we find that the average (median) difference between the fees on the reconstructed fund and the actual fund is -0.02 per cent (-0.025 per cent), and this average difference is significant with a *t*-statistic of 2.75 (Wilcoxon rank test statistic of 2.37). We find particularly large negative values for the AMP funds, suggesting that these funds can be replicated more cheaply than what they are offered to investors, whereas other funds, like Aon seem to price their funds relatively accurately.

## Conclusions

KiwiSaver funds and their performance have not yet been widely examined so far. The present study investigates a particular issue, namely, the replicability of KiwiSaver funds within a family of funds (based on their conservative and growth/aggressive strategies). Of the 28 funds we examine, 16 can be replicated from conservative and growth funds. Our results suggest that of those 16, 12 funds charge higher fees than if they were replicating the fund themselves. This difference is statistically significant, using standard statistical tests. The methodology outlined in this study thus presents a tool to check whether a fund's fee is in line with the different products that the same provider offers.

In general, the investors in KiwiSaver are not given the option to invest in a variety of alternatives as is the case, for example, in Australia. All KiwiSaver providers are private for profit-organisations. Effectively, investors are obliged to invest in a small menu of funds, normally five, with a selected number of fund providers. Moreover, as the size of investors' portfolios increases over time, fund providers tend to charge higher fees accordingly.

In Australia, the vast majority of providers of MySuper are non-profit organisations and they generally charge a fixed fee. In New Zealand, the KiwiSaver providers have more incentive to charge higher fees and the findings of our study suggest that some overcharge in cases where their products are simply a replication of their other existing products.

*In Australia, the vast majority of providers of MySuper are non-profit organisations and they generally charge a fixed fee. In New Zealand, the KiwiSaver providers have more incentive to charge higher fees and the findings of our study suggest that some overcharge in cases where their products are simply a replication of their other existing products.*

## Notes

1. In New Zealand, there is evidence of negative savings among some portion of the public, with youth saving the least (Scobie and Henderson 2009). Further, when the KiwiSaver was introduced, less than 30 per cent of the labour force was covered by some sort of retirement plan (Kritzer 2007). The question of sufficient wealth accumulation and the adequacy of the current contribution rate have been studied in a recent paper by MacDonald et al. (2012). Applying stochastic simulation analysis, the authors indicate that the current rate of 6 per cent is far too low to ensure New Zealanders have sufficient retirement savings in the long term.
2. Details of KiwiSaver are available at http://www.kiwisaver.govt.nz
3. We highlight the funds for which we cannot reject the null hypothesis of replicability in bold.
4. Note that fees should not be compared between the different KiwiSaver providers as these funds do not represent the total fees charged in all cases. Fees are based on what fund providers report in their investment statements. Some providers only report total fees, some provide management fees, etc. However, the fees that we report capture all fees that vary across the different investment styles of the funds.

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