

Financial Advice and Asset Allocation

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Abstract:

We explore differences in portfolio composition between investors who receive financial advice and those who do not. Using proprietary data from a national investment savings scheme that contains information of 405,107 individual retirement accounts, we find that financial advice is transformative. People who receive advice hold their assets differently compared to people who do not. We report five key findings. (1) Older, wealthier and female investors are more likely to receive financial advice. (2) Advised investors hold more equity assets. (3) Demographic characteristics affect asset allocation. (4) Advisers tend to recommend asset allocations in line with life-cycle based theories. (5) Investors who received advice tend to earn higher returns in years when equity markets perform well.

Keywords: Financial advice, portfolio choice, household finance

JEL codes: G1, E2, D8

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1. Introduction

In this paper we try to add to the understanding of households' investment choices and the role that financial advice plays on investment choice. Using a proprietary dataset containing information of 405,107 individual investors in a nationwide retirement investment savings scheme called KiwiSaver, we investigate the role that financial advice plays on asset allocation. We address four key questions in this paper. Who receives financial advice? Do people who get financial advice have a different asset allocation than people who do not? What roles can investor gender, wealth and age have on portfolio composition in relation to financial advice? And finally, what differences in portfolio returns exist under financial advice?

First, we find that female, wealthier, and older investors are more likely to receive investment advice. Second, investors who receive advice tend to hold a higher portion of equity in their investment accounts compared to those who do not receive financial advice. Third, investors who receive advice hold more equities, with this effect being strongest in male, younger and wealthier investors. Significant differences in portfolio asset allocations also exist between male and female investors. Women tend to hold more cash and bond assets in their portfolios, while men tend to hold more Equity and Property assets. However, when comparing women who receive advice to men who have not we find that women have more aggressive portfolios with higher proportions of equity assets. Fourth, we find that advisers provide recommendations in line with well-known life-cycle based theories introduced by Bodie, Merton and Samuelson (1992). The life-cycle theory explains the effect of the labour-leisure choice on portfolio and consumption decisions over an individual's life cycle, highlighting that the young (with greater labour flexibility over their working lifetimes) may take significantly greater investment risks than the old. Finally, comparing investment fund returns we find that investors who receive advice tend to earn higher returns in years where equity markets perform well.

A handful of empirical studies have analysed the relationship between financial advice and asset allocation. However, the findings are mixed. For instance, Mullainathan, Noth and Schoar (2010) find that advice is positively related to equity exposure compared to Kramer (2012) who finds that advised accounts in the Netherlands contain significantly less equity and more fixed income securities. Recent studies have also reported contrasting results of whether advised trading accounts outperform non-advised accounts. Bergstresser, Chalmers and Tufano (2009) find a negative relationship between adviser involvement and investor performance in US mutual funds. Hackethal et al. (2012) identify that risk-adjusted returns are lower for advised portfolios caused by higher trading costs using German data. And Hoechle et al. (2013) document that advisors hurt

performance in Swiss trading accounts. In direct contrast however, studies also show that advised accounts are better diversified and are in line with predefined model portfolios (Shapira & Venezia, 2001; Bluegthen et al., 2007; & Bhattacharya et al., 2012).

This paper makes two contributions to the existing literature. First, we exploit the use of a new proprietary dataset, KiwiSaver, to understand the relationship between financial advice and individual investor decisions in an auto-enrolment setting¹. Previous studies have not investigated the relation between financial advice in an auto-enrolment retirement investment setting before. Our dataset includes information on a nationwide sample that is representative of the population of New Zealand. We have information on wealth, age, gender and the asset allocations of investment funds and our proprietary dataset comes directly from the records within the investment firms. To the best of our knowledge, this is the largest sample size of individual investor accounts that is representative of a nationwide population. Campbell (2006) states that there are five key criteria that an ideal dataset investigating household finance behaviour would need to have, they are: (1) cover a representative sample of the entire population; (2) measure total wealth and a breakdown of wealth categories; (3) distinguish between asset classes; (4) data would be reported at a high level of accuracy and (5) be panel data. Our dataset meets three out of five of Campbell's (2006) checklist, and proportionately more requirements than datasets used in previous studies.² Second, this is the first study to look at financial advisers who provide face-to-face investment advice instead of using brokerage firm data. Brokerage firm advisers are typically employees of the banks who are

¹ KiwiSaver is a defined-contribution retirement savings scheme launched in New Zealand in 2007. KiwiSaver is the world's first auto-enrolment scheme on a national scale which provides a unique setting to be exploring individual investor behaviour. As discussed thoroughly in O'Connell (2009) KiwiSaver contains several innovative features, the most prominent feature is the auto-enrolment of individuals into the investment scheme. Sometimes called "soft compulsion", auto-enrolment is designed to reduce the level of inertia in relation to savings behaviour by automatically enrolling people who may not otherwise make the effort to join KiwiSaver themselves. See Madrian and Shea (2001) for discussion on inertia in 401(k) retirement accounts. Workers enrolled can choose to opt out if they wish, but if they stay in the scheme the employer is compelled to contribute. To date, the impact of KiwiSaver on the world stage can be seen in the United Kingdom which has made a commitment to develop a similar national auto-enrolment savings scheme.

² Hackethal, Haliassos and Jappelli (2012) use panel data from a German brokerage firm and compare the accounts of 32,751 banking customers. Chalmers and Reuter (2010) study 5,807 Optional Retirement Accounts from the Oregon University retirement savings plan. They state that their sample of defined contribution plan participants is not representative of the general population as it includes faculty and university staff only. Bergstresser, Chalmers and Tufano (2009) do not use individual account data but returns of broker-related funds. Bluegthen, Gintschel, Hackethal, and Mueller (2007) use panel data from a German brokerage house with a sample of 4,363 banking customers. Bhattacharya, Hackethal, Kaesler, Loos and Meyer (2012) use data from a German brokerage containing 8,000 individual accounts.

providing the investment product, and therefore not independent.³ Previous studies tend not to differentiate where advice has come from or what constitutes ‘advice’, which makes comparisons between results less precise. For instance, advice received from brokers, dealers, bank-employees and computer-generated algorithms in reality are not the same thing but have all been categorized as receiving advice in studies.⁴ In our study we use a more direct measure to record financial advice which matters because dealers, brokers and advisers face different regulations under the law. The main difference lies in the standard of care which financial advisers must provide. Investment advisers are fiduciaries to their clients which mean they have a duty to serve in the best interests of their clients. The standard of care differs for brokers and dealers, who mainly provide execution services and may not provide personalised advice. In New Zealand, only Authorised Financial Advisers (AFAs) are able to provide investment planning and discretionary management services to clients and give personalised advice on KiwiSaver investment products. We are fortunate to measure advice at a more personalised level than studies before us and are void of some of the disadvantages that come from using brokerage data. As suggested by Goetzmann and Kumar (2008), brokerage portfolios may not represent serious investments but investors ‘play-money’ accounts. Hoechle et al. (2013) argue while evidence based on brokerage accounts are insightful, there are limitations on the conclusions drawn on financial behaviour. And finally the use of online brokerage data may attract only a selected sample of a population that is interested in trading and may not be representative as discussed in Hackethal et al. (2012).

Campbell (2006) points out that households are notorious for having low levels of financial literacy and making financial mistakes. A number of papers have tried to explain why such large proportions of families do not hold stocks. For instance, Guiso, Sapienza and Zingales (2008) find that culture and trust are related to factors of financial decisions; Hong, Kubik and Stein (2004) explore the role of neighbours and peers, and van Rooji, Lusardi and Alessie (2011) link financial literacy with stock market participation. Our findings raise several questions. First, we show that 10% of people involved in retirement investment receive financial advice. While we cannot rule out that some people may obtain financial advice from outside of our advisers, it remains an important question to consider whether those people receiving financial advice are those in the population who are most in need of it? Calvet, Campbell and Sodini (2007) link age, wealth and education with

³ For example, Hackethal et al. (2012) use data from a German brokerage and bank. They refer to financial advisers as Independent Financial Advisers (IFA) and state that 90% of IFAs in their sample are bank-employees who typically place orders on behalf of the client.

⁴ See Bluethgen, Gintschel, Hackethal and Mueller (2007), Chalmers and Reuter (2010), Hackethal, Haliassos and Jappelli (2012) and Bhattacharya, Hackethal, Kaesler, Loos and Meyer (2012).

financial sophistication and show that households with greater financial sophistication tend to invest more efficiently. We find that young investors and those with low account balances are not receiving advice and may be among the population who require advice the most. This result is similar to that of Bhattacharya et al. (2012) who find those who need financial advice are the least likely to obtain it. They suggest reasons why investors are not seeking advice which include a lack of financial sophistication, a desire to not increase tax payments and lack of familiarity and trust. This reinforces the question raised of whether advice and education should target specific groups in need.⁵ Second, we find advised accounts tend to invest consistent with Bodie, Merton and Samuelson's (1992) life-cycle theory, which explains the effect of the labour-leisure choice on portfolio and consumption decisions over an individual's life cycle. In addition, the level of risk taken is also related to gender, and account balance. This adds to the on-going debate of whether life-cycle based default investment options should replace existing conservative-style funds in New Zealand.⁶

2. Data

KiwiSaver Investor Data

The primary dataset, obtained from four large KiwiSaver investment fund companies, consists of individual investors' retirement savings accounts. We have a large cross-sectional dataset which recorded as at 30 June 2011. The data includes investor accounts of 405,107 individuals (which represents approximately 10% of the total New Zealand population of 4.4 million people).⁷ Our data also includes information on 40,776 individuals who have obtained financial advice within the total sample of 405,107. Each individual in our sample holds at least one investment fund, and 13 investment funds at most. Of the 13 investment fund options available to choose, six investment funds are multi-asset funds (including, cash, bond, property and equity asset allocations) and seven single asset-funds (cash, domestic bonds, international bonds, domestic property, international

⁵ A key outcome of the 2009 Financial Literacy Summit was a call to action that different groups of people have different levels of financial knowledge and require targeted communication (see Retirement Commission, 2019 <http://www.cflri.org.nz/financial-literacy/summits/2009-summit>)

⁶ A review of KiwiSaver Default Provider Arrangements was conducted in 2012. See New Zealand Ministry of Business, Innovation and Employment, 2013) <http://www.med.govt.nz/business/business-law/current-business-law-work/changes-to-kiwisaver/default-provider-arrangements>

⁷ The population of New Zealand is 4,404,500 as at 30 June 2011 according to Statistics New Zealand (2011). http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2011/subnational%20population%20estimates.aspx

property, domestic equities and international equities). Table 1 shows the distribution of investments fund choice in the sample.

[Insert Table 1 here]

The information associated with each investor includes investment fund choice and demographic characteristic features including age, gender, account balance, and tax code. We also have information on the number of investment funds that investors hold, the time period in which they have invested in the KiwiSaver scheme and the method of enrolment into the investment fund. As there are a number of ways investors can enrol into KiwiSaver funds such as through active choice, financial advice channels, employer-preferred provider or via default (a situation where no choice has been made by the individual), we account for differences in enrolment method in our analysis.

A separate data file contains information on financial advice. Financial adviser services include the giving of financial advice—which means the making of a recommendation or provision of advice in relation to acquiring or disposing of a financial product. In New Zealand only Authorised Financial Advisers (AFAs) are allowed to give personalised advice on KiwiSaver, which is a category one⁸ investment product under the Financial Advisers Act 2008. Authorised Financial Advisers are individually registered and authorised by the Financial Markets Authority (New Zealand financial markets regulators) to provide financial adviser services. They can provide investment planning and discretionary management services and will generally provide advice on more complex products. In our data, an individual is flagged as having received financial advice if they received advice from a registered Authorised Financial Adviser.

KiwiSaver provides an opportunistic dataset to investigate investor behaviour in a number of ways. As put by Campbell (2006, p.3), the ideal dataset for household finance would have at least five characteristics. For instance, the data should cover a representative sample of the entire population, contain good coverage of both age and wealth (because many aspects of financial behaviour vary with these characteristics), measure of both total wealth and an exhaustive breakdown of wealth, disaggregate wealth categories to distinguish between asset classes, the data would be reported with a high level of accuracy and finally, the dataset would follow households over time. KiwiSaver meets the majority of these criteria, however, it is not perfect. Our dataset includes information on a nationwide sample that is representative of the population of New Zealand. We have information on wealth, age, gender and the asset allocations of investment funds

⁸ Category one products are products with more of an investment focus including shares, managed funds and KiwiSaver. <http://www.fma.govt.nz/glossary/category-1-products/> (Financial Markets Authority, retrieved March 2013).

and our proprietary dataset comes directly from the records within the investment firms. There still exist a number of data limitations in our study. For example, we do not have panel data, which prohibits us from measuring behaviour over time. In addition, our time series is short as KiwiSaver has only been operating since 2007. We do not know the total portfolio that people have, thus, the values on investment fund information do not represent the total wealth of each person as other accounts elsewhere may exist. Despite these data limitations, KiwiSaver provides a unique setting to study individual investor behaviour within the context of retirement savings and financial advice. As stated in O'Connell (2009), KiwiSaver is fast becoming the predominant vehicle for retirement savings in New Zealand and provides a viable working model for other countries seeking to create a simple and unified national lifetime savings scheme. It is important therefore to understand the choices and their implications within such a framework, especially if other countries in the future are going to invest in similar investment schemes. For example, in the United Kingdom.

Of the four KiwiSaver Providers in our sample, two companies are large retail banks, one company is a mutual fund investment firm and the fourth KiwiSaver company is a government default-provider.⁹ Investors in the default-provider category are those who have not selected a provider to join (hence by default) while investors in the other three investment funds have joined either via self-appointment, appointment of their employers or through financial advice channels. Three of the four providers (default provider and two bank providers) offer six investment fund options: Cash, Conservative, Conservative-Balanced, Balanced, Balanced-Growth and Growth. The fourth provider offers 13 funds, six of which are identical to the funds offered in the previous funds mentioned, and seven additional single-asset class funds which are: Equity, Property, International Equity, International Property, Bonds, International Bonds and Sustainable Funds. The asset allocations of all funds included in our sample are provided in Table 2.

[Insert Table 2 here]

The differentiation of the four KiwiSaver providers in the sample enables cross-sectional comparisons to be made based on investor demographics. Our sample is extensive, covering almost 25% of the KiwiSaver population in New Zealand.

⁹ Default providers are an important component of KiwiSaver. Default providers have special contracts with Government that requires them to meet additional reporting requirements, and default providers' activities and their default investment funds are closely monitored. This is because KiwiSaver members joining default providers have not specified a choice of provider (or investment fund for that matter), hence are placed in relatively conservative investments. (New Zealand Inland Revenue, 2012) Website <http://www.kiwisaver.govt.nz/new/providers/>

Investment Fund Returns

We obtain KiwiSaver investment fund returns from the Morningstar Direct database from 2007-2012. All returns are reported net of fees. We also use Morningstar return indices from January 2000 to December 2012 to generate monthly, quarterly and annual returns over a 12-year time period in order to extend our returns series to the period before KiwiSaver returns existed. This 12-year time frame includes the longest return series available to best represent KiwiSaver investment fund portfolio returns based on actual KiwiSaver investment fund asset allocations. We use the ANZ NZ 90 Day Bank Bill to represent Cash returns, ANZ NZ Government Stock to represent domestic Fixed Interest returns, the Barclays Global Aggregate Bond Index to represent International Fixed Interest return, the NZX Property Index and S&P/ASX 200 A-REIT indices to represent the Australasian property market returns, the UBS Global Investors Ex NZL property index to represent the international property market return, the Cat 50% NZX 50 & 50% S&P/ASX 200 index to represent the Australasian Equity returns and the MSCI World Ex Australia to represent the International Equity market returns. The market benchmarks we use in each asset class are in line with the benchmarks used by Morningstar for multi-sector funds and are market indices that are frequently referred to within the Australasian finance industry.

3. Methodology

The following probit regression is used to explore which investors are more likely to receive financial advice based on their demographic characteristics.

$$Financial\ Advice_i = \alpha + \beta_1 Age_i + \beta_2 Female_i + \beta_3 FUM_i + \varepsilon_i \quad (1)$$

The left hand side variable *Financial Advice_i* is a binary variable that takes the value of 1 if an investor received financial advice, and 0 otherwise. α is the constant term, *Age_i* is the age of the investor in years, *Female_i* is a dummy variable which equals to 1 if the investor is female and 0 if the investor is male; *FUM_i* is the value of funds under management in an investor's KiwiSaver account, and ε_i is the error term.

We run t-tests to examine the differences in portfolio asset holdings and their level of significance. We divide the data into subgroups to compare the differences in asset allocation between genders, advised and non-advised investors, and fund enrolment through default and active enrolment methods. We then run univariate and multivariate regressions to identify the relationship between financial advice and holdings within each asset category held within an

investor's portfolio. As noted in Jansen, Fischer and Hackethal (2008) and Bluethgen et al. (2007), regressing on the equity asset proportion of an investor's portfolio captures overall portfolio risk. In our model we regress the holdings of each asset class (cash, bonds, property and equity) as the percentage share held in investment fund on financial advice to see whether the relationship differs across asset classes. Our univariate model is:

$$\% \text{ Asset Allocation}_i = \alpha + \beta_1 \text{FinancialAdvice}_i + \varepsilon_i \quad (2)$$

The left hand side variable *Asset Allocation_i* is the percentage of asset allocation for *j* asset class categories available in the KiwiSaver fund portfolio for investor *i* (where *j* = 4 and asset classes are Cash, Bonds, Property and Equity.) α is the constant term, *FinancialAdvice_i* is a dummy variable that equals to 1 if the KiwiSaver member has received financial advice and ε_i is the error term.

In order to control the effect of investor demographic characteristics on portfolio asset allocation separately from the effect of financial advice, we use a multivariate framework shown in the equation below:

$$\% \text{ Asset Allocation}_i = \alpha + \beta_1 \text{FinancialAdvice}_i + \beta_2 \text{Age}_i + \beta_3 \text{Female}_i + \beta_4 \text{FUM}_i + \varepsilon_i \quad (3)$$

The left hand side variable *Asset Allocation_i* is the percentage of asset allocation for *j* asset class categories available in the KiwiSaver fund portfolio for investor *i* (where *j* = 4 and asset classes are Cash, Bonds, Property and Equity). α is the constant term, *FinancialAdvice_i* is a dummy variable, which equals to 1 if the KiwiSaver member has received financial advice, *Age_i* is the age of the investor in years, *Female_i* is a dummy variable which equals to 1 if the investor is female and 0 if the investor is male; *FUM_i* is the value of funds under management in an investor's KiwiSaver account, and ε_i is the error term.

Interaction terms are added for age, gender and funds under management with financial advice in order to control the possible effects between advice and demographic characteristics. We use the following model for robustness of our main multivariate model:

$$\% \text{ Asset Allocation}_i = \alpha + \beta_1 \text{FinancialAdvice}_i + \beta_2 \text{Age}_i + \beta_3 \text{Female}_i + \beta_4 \text{FUM}_i + \beta_5 \text{Age}_i * \text{FinancialAdvice}_i + \beta_6 \text{Female}_i * \text{FinancialAdvice}_i + \beta_7 \text{FUM}_i * \text{FinancialAdvice}_i + \varepsilon_i \quad (4)$$

The left hand side variable *Asset Allocation_i* is the percentage of asset allocation for *j* asset class categories available in the KiwiSaver fund portfolio for investor *i* (where *j* = 4 and asset classes are Cash, Bonds, Property and Equity). α is the constant term, *FinancialAdvice_i* is a dummy variable which equals to 1, if the KiwiSaver member has received financial advice, *Age_i* is the age of the

investor in years, $Female_i$ is a dummy variable which equals to 1 if the investor is female and 0 if the investor is male; and FUM_i is the value of funds under management in an investor's KiwiSaver account. $Age_i * FinancialAdvice_i$, $Female_i * FinancialAdvice_i$, and $FUM_i * FinancialAdvice_i$ are interaction terms between Age_i , $Female_i$, FUM_i and $FinancialAdvice_i$, and ε_i is the error term.

Lastly, we compare the differences in performance for advised and non-advised accounts by calculating the average returns for investors who received advice and investors who did not. We then compute t-tests to see whether there are statistical differences in returns between the two groups. The returns used in this calculation are the actual KiwiSaver investment fund returns earned by investors in our sample which were downloaded from Morningstar Direct. In order to check for robustness of our findings, we further generate hypothetical returns using the average asset allocation weights for accounts held and market return indices. The returns indices also come from Morningstar Direct from January 2000 to December 2012.

4. Results

Who seeks advice?

Table 3 shows the probability of receiving financial advice based on investor characteristics of age, gender and funds under management. The interpretation of the coefficients in a probit model is not as straight forward as in a linear model. The increase in the probability attributed to a one-unit increase in a given independent variable is dependent both on the values of the other predictors and the starting value of the given predictors. As shown in Table 3, there is a positive relationship between receiving financial advice and variables: age, female and funds under management. This means that older investors are more likely to receive advice. Females are also more likely to receive advice than males, and the propensity to receive advice increases with the amount of funds under management in investment accounts. Our findings differ from the results of Bluethgen et al. (2007) and Hackethal, Haliassos and Japelli (2012) who find that financial advisers mostly serve younger investors with less wealth. We graph the probability of receiving advice based on funds under management controlling for age and gender to look at the relationship of fund balance and advice in isolation. As shown in Figure 1 in the Appendix, a balance between \$20,000-\$30,000 of money invested results in the largest change in probability of receiving advice, as indicated by the steepest part of the curve.

[Insert Table 3 here]

[Insert Figure 1 here]

Our findings raise a number of questions with broad possible implications. Why do women, older investors and investors with relatively more funds under management receive advice? And conversely why don't men, younger investors and investors with smaller investment balances seek advice? Is it related to the level of financial literacy a person has? van Rooij, Lusardi and Alessie (2011) find that households with higher financial literacy are more likely to rely on professional financial advisers and households with low financial literacy tend to rely on informal sources of information such as through friends and family. van Rooij et al. (2011) state that financial literacy differs substantially depending on education, age and gender. Poorer, less educated and immigrant households often exhibit lower levels of financial literacy (Calvet, Campbell & Sodini, 2009). Women display much lower basic financial knowledge than men and advanced literacy is low among the young and high among middle-aged individuals (van Rooij, et al., 2011; Lusardi & Mitchell, 2008). If financial mistakes are most prevalent among groups that have low financial literacy as Agarwal, Driscoll, Gabaix and Laibson (2009) suggest, it would seem that those who need financial advice the most are not receiving it. Bhattacharya et al. (2012) find a similar case in Germany where those who receive advice tend to follow it, but those who do not receive advice need the advice the most.

What difference does financial advice make on investment fund asset allocation?

Table 4 presents the results from t-tests that show the difference in asset allocation between investor subgroups. We find that financial advice is most transformative in that people who receive advice hold their assets differently compared to people who do not. Gender also appears to play a significant role in asset allocation.

[Insert Table 4 here]

We compare women and men with and without advice in Panels A, B, C and D of Table 4. Panel A of Table 4 shows that among those investors who received advice, men tend to hold a higher proportion of equity and property asset classes in their funds and less cash and bond assets than women. Of the investors who received advice, women hold on average 4.7% less equity than men and 7.6% more cash assets in their funds. Panel B shows the average fund holdings of investors who do not have financial advice. Men still hold more risky (property and equity) assets than women, however the difference is smaller. For example, men hold 2.2% more in equity and 6% less in cash than women. When we further split the subsamples to examine the difference between males and females with and without financial advice in Panel C and Panel D, we find that financial advice has a much larger effect on asset allocation. Those who received advice are far more likely to hold more

equity and property assets and less cash and bond asset classes. Panel C shows that men who received advice hold 16.2% more equity and a significant 45% less of cash in their investment funds compared with men who do not receive advice. Panel D shows similar results of that in Panel C for women. Women who receive advice hold 13.3% more equity and 43% less cash than women who have not received advice.

In the bottom Panel of Table 4 we show the asset allocation of investors who have enrolled into their accounts actively and those who enrolled via default. Not surprisingly, actively enrolled investors hold more equity and property assets than default enrolled investors (who are typically invested in the Conservative fund). Actively enrolled investors hold 2.3 times more equity than default enrolled investors and 35.5% less cash assets than default enrolled investors.

We show our univariate regression results in Panel A of Table 5. Financial advice is negatively related to cash and bond asset holdings and positively related to property and equity asset classes. Receiving financial advice reduces cash and bond holdings by 5% and 4%, respectively, while increases property and equity class investment by 2% and 6%. This result is in line with the financial advice audit results that Mullainathan, Noth and Schoar (2010) indicated in their study. They find that advice tends to promote a higher equity mix. Bergstresser, Chalmers and Tufano (2009) and Bhattacharya, et al. (2012) discuss the conflict of interest between adviser remuneration structure and investment product recommendation.

[Insert Table 5 here]

When we add demographic characteristics of age, gender and the level of funds under management in the multivariate regression, we find that the relationship between demographic characteristics and asset allocation are statistically significant in all the models except for the relationship between cash allocation and gender. As shown in Panel B of Table 5, age is positively related to cash and bond asset allocation and negatively related to property and equity asset allocation. This means that as investors increase in age they tend to hold relatively safer assets than riskier assets. This finding provides support to the life-cycle theory which states that the younger an investor the more flexible he is in his future savings rate and therefore can afford to take more risks (Bodie, Merton & Samuelson, 1992, Cocco, Gomes & Maenhout, 2005). The opposite trend is shown for funds under management. We find that as the balance of investor's account increases they will hold more equity and property assets and less cash and fixed interest assets. This finding is in line with academic literature which links wealth to financial sophistication. Using Swedish data, Calvet, Campbell and Sodini (2007) find that households with greater financial sophistication, as

measured by wealth or education, tend to invest more efficiently but also more aggressively (riskier). These households tend to invest more in risky assets and choose more diversified portfolios, however, at times at the expense of bearing higher return losses than unsophisticated households that have not invested in risky assets. Furthermore, Hilgerth, Hogarth and Beverly (2003) demonstrate a strong link between financial knowledge and financial behaviour, showing that those who know more are likely to engage in recommended financial behaviours—such as paying all bills on time, reconciling the checkbook every month, and having an emergency fund.

When we examine the results from our pooled findings in Panel C of Table 5, we find that the financial advice dummy coefficients are robust and do not change when we add demographic variables and interaction terms. We find that interaction term between age and financial advice is negative for cash holdings and positive for equity holdings. Because the coefficient for the interaction term between advice and age must be interpreted with the coefficient of age, we find that as a whole advised-accounts tend to invest more in equity and less in cash assets compared to non-advised accounts, however, the proportion of risky-assets held decreases relatively with age and the proportion of cash assets held increases with age, as shown in Figure 2 and Figure 3 in the Appendix. This suggests that advisers tailor their recommendations in relation to the life-cycle theory. That is, reducing the proportion of riskier assets (e.g. equities) as people get closer to retirement age (age 65).

[Insert Figure 2 and 3 here from the Appendix]

If advisers are already adopting the life-cycle theory in their recommendations as our findings suggest, then why aren't default investment funds life-cycle based? Would this save time and costs and shift inert investors into funds suited to their age-based risk profile? An OECD study focussing on default investment strategies in defined contribution pension plans by Antolin, Payet and Yermo (2012, p20.) found that life-cycle fund strategies would have provided protection against market risk around the time of three major equity shocks in the US and similarly in Japan, demonstrating the potential value of life cycle strategies in protecting pension benefits against equity risk in the years prior to the retirement date. Basu and Drew (2006) investigate the appropriateness of various asset allocation strategies actually adopted by defined contribution plans as default options in Australia. They also find that asset allocation strategies with higher allocation to equities result in higher wealth outcomes for participants, controlling for periods of extreme equity market returns.

While there is support for life-cycle based funds as the default investment option for pension plans, the key issue of adopting a one-size-fits-all life-cycle strategy is that it may not be suitable for individuals who are less risk-tolerant. For instance, a highly risk averse investor, regardless of their age, may not want exposure to risky assets under any circumstance. In this instance, unless the investor is paying attention to the fund they have been placed by default, they may not know to switch to a less risky fund. A mitigating factor in this situation is that under the current KiwiSaver scheme in New Zealand, if people are uncomfortable with the default choices, they are free to switch to alternative options that better suit their risk profile needs. Changing the default fund option from the existing model to a life-cycle based strategy has the potential for inducing existing non-active investors to become more engaged and be aware of their investment fund choice.

What are the differences in returns?

We next turn to the question of how the accounts of investment funds track for investors who receive advice compared to investors who do not. Table 6 shows the annual fund returns between investor groups.

[Insert Table 6 here]

Investors who received advice tend to earn higher returns in years where equity markets perform well. This is not surprising. As we find in early results, advised accounts tend to hold more equity assets than non-advised accounts. What makes the question of ‘do advised accounts outperform non-advised accounts?’ difficult to answer lies in that the return series for KiwiSaver investment funds is extremely short and saving for retirement typically occurs over long term periods, sometimes up to 45 years. It is hard to say with absolute certainty that financial advice generates higher returns than non-advised accounts until the end of the investment period. In a retirement savings context, this means that only when investors retire, they can finally see their returns of the total investment horizon. For instance, a 20-year old joining the workforce today, enrolling in KiwiSaver, who seeks financial advice and then selects an investment fund, may not realise their return until 45 years later when they retire at the age of 65. At which point does this individual realise the benefit of paying for financial advice? Since the national retirement savings

scheme started only just in 2007 there is a limit to how much we can say in regards to how advised accounts track against non-advised accounts with a short returns series. Hackethal et al. (2012) point to a puzzle that exists in terms of why investors continue to purchase funds under advice that appear to perform no better yet cost substantially more. They suggest that the answer to this puzzle lies in that researchers may fail to measure intangible benefits of the brokerage relationship. In general, however, we can see that financial advice is transformative. It promotes investing into equity asset categories than otherwise and depending on the risk tolerance of an investor, which may have been an option otherwise overlooked if the advice was not there. In accordance with the life-cycle theory, the earlier someone invests for their retirement, the more they are able to invest in instruments that provide long-term growth. Similarly, if one does not begin planning for retirement until later, they may choose to invest assets with greater short term stability. Numerous studies have focussed on the importance of asset allocation on portfolio returns. For example, past studies have shown that 90% of the variability of returns over time can be explained by asset allocation (Brinson, Hood & Beebower, 1986, 1991 & 1995) and 40% variation of returns across funds (Ibbotson & Kaplan, 2000).

Since we are limited in our study by a short-returns series on KiwiSaver fund returns, we generate hypothetical returns using the average weights for advised and non-advised accounts and market indices returns from 2000-2012 to extend the time period and check for robustness. Figure 4 in the Appendix shows the results.

We find that the hypothetical portfolio returns derived from advised-client asset allocations do not differ strongly or statistically from non-advised clients over monthly, quarterly or annual periods from 2000 to 2012. The hypothetical returns calculated based on average asset allocation holdings of the two subgroups shown in Table 4 are unrelated to the investment fund returns that we actually received by the investors in our sample. We are not surprised that differences in average asset allocation lead to insignificant differences in hypothetical returns between subgroups because the difference in fund choice and asset allocation is marginal when the average is used. We hope to use actual KiwiSaver fund returns which are longer in time frame in the future. In the short term, asset allocation may not have a large effect on returns but over a 40-year investment period the result may be much different.

We now consider the additional functions that financial advice may serve, outside of providing performance alone. As suggested by Bergresser et al. (2009), the reason why many people prefer to use brokers - despite the inferior performance and higher distribution fees involved with broker-sold funds - is because of intangible benefits which are difficult to measure. According to van

Rooij, Lusardi and Alessie (2011), there is a shift to greater responsibility for financial decisions on the individual investor and their ability to make sound investment decisions has never been more important because increasingly more complex financial products and markets are being created. Therefore, it seems plausible that investors seek advice to reduce their behaviour biases (as discussed in Barberis and Thaler, 2003), help identify investor risk tolerance, and generally ask questions that increase the level of comfort from financial decisions. If this is the case then the role of financial advice ought to be more focused on intangible benefits. Perhaps emphasis on financial advice should predominately be placed on its educational role, instead of higher returns. This may be the type of cultural shift required in order to push New Zealand towards higher financial literacy and advice-seeking patterns similar to countries such as Germany, which has 80% of their population seeking advice. Yaniv (2004) argues that receiving advice (of any type) improves the accuracy of decision-making because it serves a special function that enables people to overcome their self-confirmation tendencies and biases. Frijns, Gilbert and Tourani-Rad (2012) find that there is a positive and causal effect of financial experience on financial knowledge. This means that financial knowledge can be obtained not only through education, but also experience. Therefore, regardless of the financial gains from receiving advice, the experience of receiving advice in itself through discussing with an adviser and making investment fund choices adds to improving financial literacy and knowledge of individuals and households.

Conclusion

We explore differences in portfolio composition between investors who receive financial advice and those who do not. We find that financial advice is transformative and changes the way investors allocate their assets in investments. We arrive at several interesting findings: (1) older, wealthier and female investors are among the population that is more likely to receive financial advice; (2) financial advice is negatively related to cash and bond asset holdings and positively related to property and equity asset classes. Receiving financial advice reduces cash and bond holdings by 5% and 4%, respectively, while increases property and equity class investment by 2% and 6%; (3) age, gender and wealth are also related to asset allocation. Men tend to take more risks than women. In addition, as investors increase in age, they tend to hold relatively safer assets than riskier assets. Furthermore, as the balances of accounts increase investors will hold more equity and property assets and less cash and fixed interest assets; (4) advisers tend to tailor their recommendations based on the life-cycle theory when providing advice and; (5) investors who received advice tend to earn higher returns in years when equity markets perform well.

This paper makes two key contributions to the existing literature. First, we exploit the use of a new proprietary dataset to understand the relationship between financial advice and individual investor decisions in a different setting. Previous studies have not investigated the relation between financial advice in an auto-enrolment retirement investment setting before. To our best knowledge, this is the largest sample of individual investor accounts nationwide that also includes information on financial advice which allows us to address the role of financial advice and asset allocation with more precision. Second, we distinctly measure who has received independent financial advice in our population across a nationwide sample, where previous studies focussed on brokerage information within one investment company.

Our findings raise a number of questions. We show that 10% of the population involved in KiwiSaver receive financial advice. Why do New Zealanders shy away from getting financial advice? Does financial advice need to be more targeted to specific groups who need it the most? How could advice be provided to households that have lower levels of financial literacy in order to improve their investment knowledge? Furthermore, if financial advisers recommend clients to select investment products in line with Bodie, Merton and Samuelson's (1992) life-cycle theory, then should life-cycle related investment products be more abundant? Or perhaps be considered more seriously as a default option? We look forward to more research in this area to be developed.

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Table 1. Investor Summary Statistics

	Provider 1	Provider 2	Provider 3	Provider 4*	Total
Number of investors	115,059	152,133	63,823	74,092	405,107
	28%	38%	16%	18%	
Males	53,330	71,688	32,168	36,497	193,683
	28%	37%	17%	19%	
Females	61,729	80,445	31,655	37,595	211,424
	29%	38%	15%	18%	
AgeU16	30,626	35,525	3,570	377	70,098
	44%	51%	5%	1%	
Age16-25	25,326	33,956	9,366	17,112	85,760
	30%	40%	11%	20%	
Age26-40	19,042	32,758	16,839	26,063	94,702
	20%	35%	18%	28%	
Age41-59	26,898	35,050	23,297	24,899	110,144
	24%	32%	21%	23%	
Age60-65	9,903	11,185	7,829	4,501	33,418
	30%	33%	23%	13%	
Age65+	3,264	3,659	2,922	1,140	10,985
	30%	33%	27%	10%	
Total Funds Under Management (FUM)					
Min FUM	100	100	100	100	-
Max FUM	166,628	154,863	221,612	181,010	-
Mean FUM	3,444	4,041	8,799	5,146	-

This table shows a summary of the number of investors enrolled in each of the four KiwiSaver Providers we have in our sample. Provider 1 and Provider 2 are large commercial banks and Provider 3 includes investors who have come through the financial advisor track. Provider 4 is a default provider which means that members enrolled have not actively engaged in the selection process of which investment fund to invest in and have entered the KiwiSaver scheme by default. The members are split into gender and age group categories. Total Funds Under Management (FUM) shows the minimum, maximum and average funds under management for investors in our sample.

Table 2. Investment Fund Asset Allocation

Single Sector Funds	Cash	Fixed Interest	Property	Shares	Alternatives
Cash	100				
Fixed Income (New Zealand)		100			
Fixed Income (International)		100			
Property (Australasian)			100		
Property (International)			100		
Equity (Australasian)				100	
Equity (International)				100	
Sustainable Growth Fund				60	40
Multi-Sector Funds					
Conservative	20	60	3	17	
Conservative-Balanced	15	50	6	29	
Balanced	10	40	8	42	
Balanced-Growth	6	29	10	55	
Growth	4	16	12	68	

This table shows the asset allocation of the investment funds offered by the four KiwiSaver Providers. Provider 1, 2 and 4 offer one single sector fund (Cash fund) and five multi-sector funds. Provider 3 offers all the single sector funds and multi-sector funds listed above.

Table 3. Who receives advice?

	β	Pr > ChiSq
α	-2.143	<.0001***
Age	0.011	<.0001***
Female	0.078	<.0001***
Funds Under Management	0.00007	<.0001***

This table reports the results from the probit regression with the financial advice dummy as the dependent variable. $Financial\ Advice_i = \alpha + \beta_1 Age_i + \beta_2 Female_i + \beta_3 FUM_i + \varepsilon_i$

Where the left hand side variable $Financial\ Advice_i$ is a binary variable that takes the value of 1 if an investor received financial advice and 0 otherwise. α is the constant term, Age_i is the age of the investor in years, $Female_i$ is a dummy variable which equals to 1 if the KiwiSaver member is female and 0 if the investor is male, FUM_i is the value of funds under management in investor's KiwiSaver account, and ε_i is the error term. *, **, and *** denotes statistical significance at the 10%, 5% and 1% levels respectively.

Table 4. Asset Allocation T-tests

Asset Allocation T-Tests									
Panel A: Financial Advice									
	N	Cash		Bonds		Property		Equity	
		Mean		Mean		Mean		Mean	
Male	19405	0.104		0.305		0.101		0.489	
Female	21371	0.112		0.326		0.096		0.467	
T-Stat		-5.45	***	-12.1	***	5.930	***	11.37	***
Panel B: No Financial Advice									
		Cash		Bonds		Property		Equity	
		Mean		Mean		Mean		Mean	
Male	174278	0.151		0.352		0.076		0.421	
Female	190053	0.160		0.354		0.074		0.412	
T-Stat		-13.32	***	-3.14	**	10.39	***	12.24	***
Panel C: Males									
		Cash		Bonds		Property		Equity	
		Mean		Mean		Mean		Mean	
No Advice Male	174278	0.151		0.352		0.076		0.421	
Advice Male	19405	0.104		0.305		0.101		0.489	
T-Stat		39.72	***	35.05	***	-34.8	***	-42.67	***
Panel D: Females									
		Cash		Bonds		Property		Equity	
		Mean		Mean		Mean		Mean	
No Advice Female	190053	0.160		0.354		0.074		0.412	
Advice Female	21371	0.112		0.326		0.096		0.467	
T-Stat		41.08	***	23.02	***	-34.03	***	-34.03	***
Panel E: Active Fund Enrolment									
		Cash		Bonds		Property		Equity	
		Mean		Mean		Mean		Mean	
Default Enrolment	106252	0.187		0.563		0.038		0.213	
Active Enrolment	298855	0.138		0.273		0.091		0.497	
T-Stat		107.53	***	619.41	***	-453.41	***	-499.66	***

This table reports the T-statistics and means for KiwiSaver members by financial advice, gender, and enrolment method.

Table 5. OLS Regressions

Panel A: Univariate								
	Cash		Bonds		Property		Equity	
α	0.16	***	0.35	***	0.07	***	0.42	***
	460.1		1042.7		1073.3		1054.2	
Financial Advice	-0.05	***	-0.04	***	0.02	***	0.06	***
	-57.1		-40.9		48.6		56.6	
Panel B: Multivariate								
	Cash		Bonds		Property		Equity	
α	0.0656	***	0.1984	***	0.1098	***	0.6263	***
	87.4		310.4		678.2		827.3	
Financial Advice	-0.0624	***	-0.0933	***	0.0327	***	0.1230	***
	-71.2		-101.4		69.4		117.4	
Age	0.0032	***	0.0048	***	-0.0012	***	-0.0068	***
	136.1		276.4		-276.8		-408.4	
Female	0.0004		-0.005	***	0.0008	***	0.0041	***
	0.59		-9.24		5.70		6.40	
FUM	-0.000003	***	-0.000003	***	0.000001	***	0.000003	***
	-56.2		-6.68		31.1		47.9	
Panel C: Interaction Terms								
	Cash		Bonds		Property		Equity	
α	0.0651	***	0.1944	***	0.1106	***	0.6299	***
	81.4		292.3		798.1		803.9	
Financial Advice	-0.0540	***	-0.0356	***	0.0197	***	0.0699	***
	-25.9		-14.2		13.4		22.7	
Age	0.0033	***	0.0049	***	-0.0012	***	-0.0070	***
	128.5		256.9		-368.4		-396.9	
Female	0.0003		-0.0073	***	0.0012	***	0.0059	***
	0.40		-11.94		9.62		8.56	
FUM	-0.000004	***	0.0000006	***	0.0000005	***	0.0000	***
	-52.9		9.1		36.4		37.5	
FA*age	-0.0006	***	-0.0011	***	0.0002	***	0.0014	***
	-9.8		-19.0		8.5		22.1	
FA*Female	0.000374		0.0199	***	-0.0035	***	-0.0168	***
	0.23		11.73		-3.68		-8.57	
FA*FUM	0.0000019	***	-0.0000025	***	0.0000004	***	0.0000002	
	16.7		-22.7		7.08		1.45	

This table reports the results from the OLS regression with % *Asset Allocation_i* as the dependent variable. The left hand side variable *Asset Allocation_i* is the percentage of asset allocation for *j* asset class categories available in the KiwiSaver fund portfolio for investor *i* (where *j* = 4 and asset classes are Cash, Bonds, Property and Equity). α is the constant term, *FinancialAdvice_i* is a dummy variable, which equals to 1 if the KiwiSaver member has received financial advice, *Age_i* is the age of the investor in years, *Female_i* is a dummy variable which equals to 1 if the investor is female and 0 if the investor is male; *FUM_i* is the value of funds under management in an investor's KiwiSaver account. *Age_i*FinancialAdvice_i*, *Female_i*FinancialAdvice_i*, and *FUM_i*FinancialAdvice_i* are interaction terms between *Age_i*, *Female_i*, *FUM_i* and *FinancialAdvice_i* and ε_i is the error term. *, **, and *** denotes statistical significance at the 10%, 5% and 1% levels respectively based.

Table 6. Returns Differences T-tests

Annual Return	Advice	No Advice	T-stat
Return2008	-12.90	-10.38	46.2
Return2009	13.28	11.72	-60.9
Return2010	6.93	6.65	-43.4
Return2011	2.41	2.96	43.3
Return2012	14.58	13.10	-60.1

This table reports the T-statistics and means annual returns from 2008-2012 for investors who have received financial advice compared to investors without financial advice. The returns used are KiwiSaver investment fund returns from Morningstar, calculated net of fees.

Appendix

Figure 1

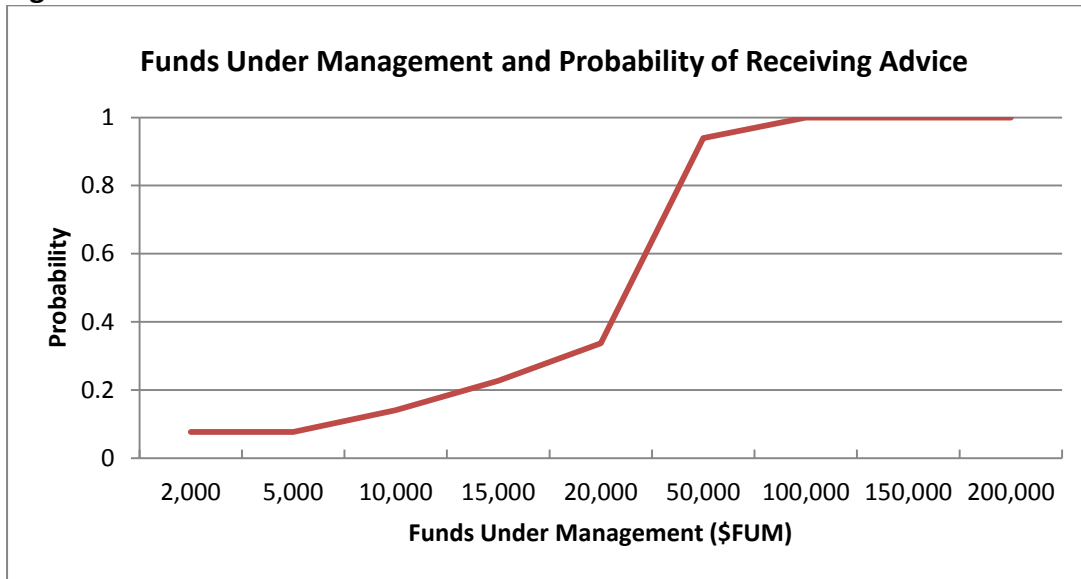


Figure 1 shows the probability of receiving financial advice as a function of funds under management.

Figure 2

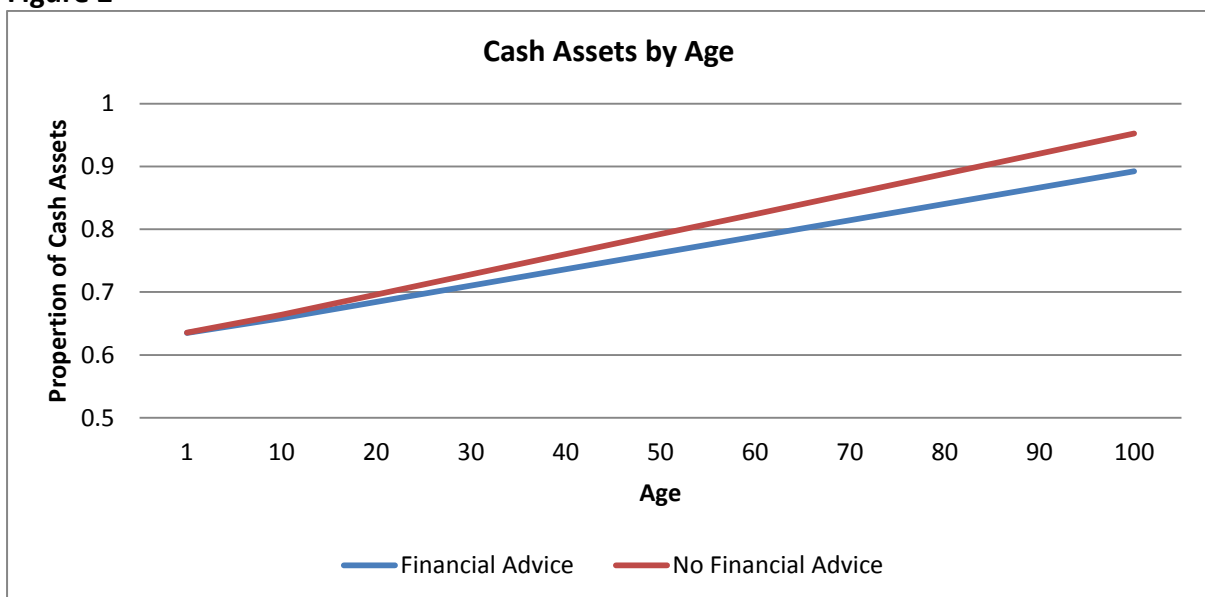


Figure 2 shows the relationship between the proportion of cash holdings relative to investor age for investors with and without advice.

Figure 3

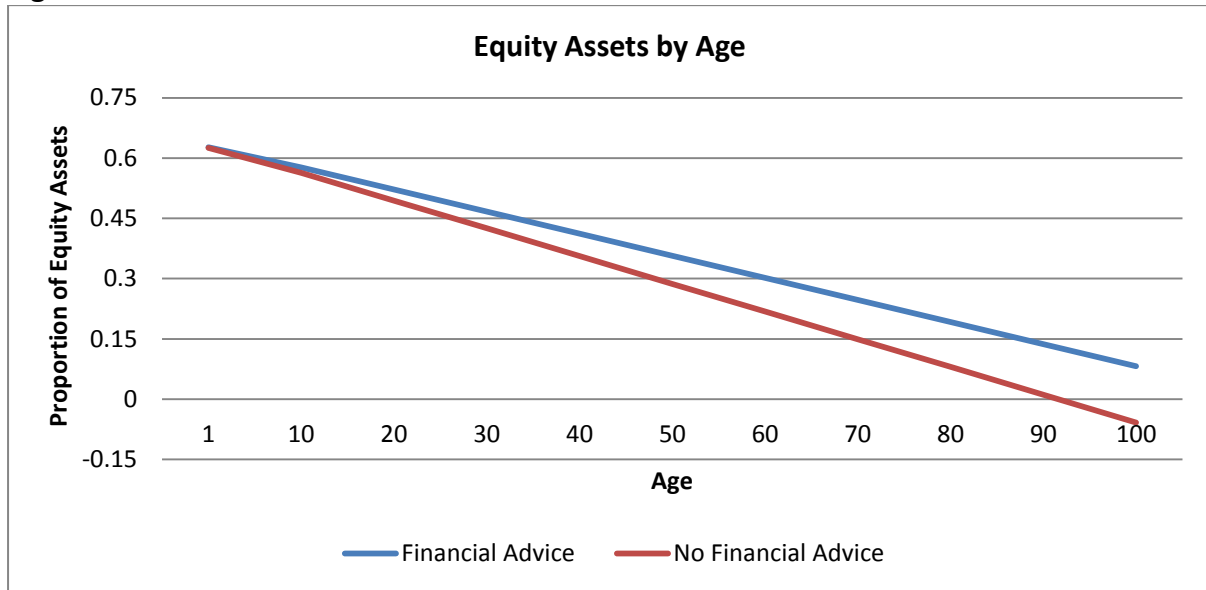


Figure 3 shows the relationship between the proportion of equity holdings relative to investor age for investors with and without advice.

Figure 4. Differences in portfolio returns

	N	Female	T-Value	Male	T-Value	All	T-Value
Month	240	0.010	0.62	0.015	0.69	0.012	0.65
Quarter	49	0.037	0.57	0.051	0.64	0.044	0.6
Annual	12	0.244	0.68	0.324	0.72	0.281	0.7

This table shows the T-values for differences in portfolio returns between female investors who attain advice with female investors without advice, male investors with advice compared with male investors without advice and investors who receive advice compared with investors without advice. The returns used were calculated based on hypothetical asset allocation fund holdings and market return indices.