Financial Knowledge and Portfolio Complexity in Singapore

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Abstract

Financial literacy in Singapore has not been analyzed in much detail, despite the fact that this is one of the world's most rapidly aging nations. Some might expect that older Singaporeans would be quite financially literate, having benefited from the country's globally-renowned educational system which has been top-ranked since the 1960s. Yet the government-run Central Provident Fund (CPF), the national mandatory savings scheme, has been in place since 1955, and some share of participants might have avoided investing in financial knowledge anticipating that their CPF accounts would provide them security in retirement. Using the Singapore Life Panel (SLP®), we explore older Singaporeans' levels of financial knowledge and compare them to those observed in the United States. We also evaluate CPF and non-CPF portfolio complexity for these older individuals, to evaluate how financial literacy is related to outcomes of interest. We conclude that older Singaporeans' levels of financial literacy are comparable to those in the United States, although knowledge of risk diversification in the U.S. is somewhat weaker. We also find that financial literacy is positively associated with respondents having both more wealth and more complex portfolios. As in many other countries, we show that women are less informed than men about stock diversification, and educated people tend to be more financially knowledgeable than their less educated counterparts.

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Around the world, greater financial literacy has been shown to be associated with more financial planning and saving, better investment behavior, and greater understanding of how to manage retirement drawdowns (Lusardi and Mitchell, 2014). This is particularly important in view of peoples' increased responsibility to effectively plan for and manage their own retirement savings and decumulation in the context of defined contribution plans. Unfortunately, several studies have also found that financial knowledge is low among older adults, even in nations with highly developed financial systems such as the UK and the US, as well as countries with less sophisticated financial markets such as Russia (Lusardi and Mitchell, 2011a, b).

Until recently, Singapore was a country where financial literacy had been little analyzed, notwithstanding the reality that it is one of the world's most rapidly aging nations (Chan, 2001). Moreover, Singaporeans must make a number of key financial decisions in connection with their contributions to, investments in, and decumulation from, their nation's mandatory pension scheme known as the Central Provident Fund (CPF). On the one hand, one might anticipate that older Singaporeans would be quite financially literate, having benefited from the country's globally-renowned educational system, top-ranked since the 1960s (OECD 2012). On the other hand, the government has, since 1955, required participation in the CPF. If participants anticipated that their CPF accounts would provide them security in retirement, they might not have been interested in self-management nor invested in financial knowledge. Moreover, the diversity of backgrounds, languages, and relatively-lower levels of education among the older Singaporean population could imply lower levels of financial knowledge for this group (OECD 2016).

Accordingly, this paper reports the first analysis of older Singaporeans' financial literacy using a unique new dataset, the Singapore Life Panel (SLP®). With this nationally representative survey, we can address three important questions. First, we analyze older Singaporeans' levels of

financial knowledge and compare their results to findings from the U.S. Second, we examine the empirical linkages between financial literacy, self-assessed retirement preparedness, and wealth holdings in Singapore. Third, we evaluate the extent to which financial knowledge in Singapore is associated with financial portfolio complexity among older individuals.

To preview our findings, we show that overall financial literacy among older adults in Singapore is comparable to that of similar-aged persons in the United States. Interestingly, in Singapore, financial literacy is higher for the 65-70 age group, compared to the age 50-54 reference category. Better-educated people and those in better health are more financially knowledgeable, while women as well as those in poor health are less financially informed. These results are similar to those from other countries. We also show that close to half of older Singaporeans anticipate that they will struggle in retirement (46%), and fewer than half say they are well prepared financially for retirement (43%). In general, the more financially literate also have more confidence in their knowledge about their household finances and are less worried about finances in retirement. Finally, we evaluate the correlates of portfolio diversification among older Singaporeans. As we have found in other countries, financial knowledge is associated with higher household net worth, higher net financial wealth, and more net non-housing wealth. Overall, the financially savvy hold more diversified and riskier portfolios. This is true even after controlling for education, indicating that financial literacy plays a role independent of schooling in peoples' portfolios.

In what follows, we first describe the dataset and then outline the empirical methodology we use to answer our two questions. Next we present results. We conclude with a discussion of further research questions deserving of attention.

The Singapore Life Panel (SLP®)

In this section we describe the Singapore Life Panel (SLP®), a high-frequency survey underway since 2015 and fielded by the Centre for Research on the Economics of Ageing (CREA) at the Singapore Management University.[1] The SLP® is a longitudinal study of individual and household circumstances and behavior in a representative cohort of Singaporean citizens and permanent residents age 50-70 when first included in the survey in 2015. Monthly surveys are ongoing.[2] Designed with input from the creators of the US Health and Retirement Study (HRS), several of the international sister studies of the HRS, the American Life Panel (ALP) at RAND, and the Chilean Encuesta de Protección Social (EPS), the survey includes many state-of-the-art and globally harmonized questions on health and health expenditures, wealth and investments, expectations and preferences, consumption and spending, and other factors central to the development of a broad-based survey useful for a wide range of economic, social, and other analyses.

The SLP® is distinguished from other longitudinal studies by its large-scale monthly frequency questionnaires delivered over the internet. The initial recruitment effort resulted in a panel of 15,000 individuals from 11,500 distinct households who completed a baseline survey in May-July 2015. Analysis of the panel along several dimensions has shown that it is closely representative of the population, and attrition rates are low.[3]

Methodology

Our empirical analysis of portfolio complexity and financial literacy in the SLP® has several components. First, we describe a module on financial knowledge that we designed and

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[1] For additional information on the SLP® see Vaithianathan et al. (2017).
[2] All data are anonymized so no personal identification of individuals or households is feasible.
[3] For additional information on the survey see https://crea.smu.edu.sg/singapore-monthly-panel.

implemented in the survey, informed by similar surveys in other nations. This module allows us to evaluate older Singaporeans' financial knowledge and to compare it to that of similar-aged individuals in the United States. In addition, we are also able to relate financial knowledge to respondent attributes, to determine what systematic patterns may be detected. Second, we relate respondents' anticipated retirement outcomes to their measured financial literacy. Third, we examine the relationship between financial literacy and respondents' wealth and portfolio complexity.

Measures of Financial Knowledge. In this section we describe how we create the key financial knowledge variables of interest. We posit that three key concepts lie at the root of economic saving and investment decisions: (i) numeracy and capacity to do calculations related to interest rates; (ii) understanding of inflation; and (iii) understanding of risk diversification (Lusardi and Mitchell 2008, 2011a, b). In our earlier work, we designed a set of "Big Three" questions around these ideas and implemented them in numerous surveys in the United States and abroad.[4] As implemented in the Singapore Life Panel, the questions are as follows (correct answers in **bold**):

- Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow: [**more than $102,** exactly $102, less than $102? Don't know, refuse to answer.]

- Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy: [more than, exactly the same as, or **less than today** with the money in this account? Don't know; refuse to answer.]

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[4] As noted in Lusardi and Mitchell (2014), four considerations informed these questions. The first was simplicity, so that the questions measured knowledge of the building blocks fundamental to decision-making in an intertemporal setting. The second was relevance, so that the question had to relate to concepts pertinent to peoples' day-to-day financial decisions and capture general rather than context-specific ideas. The third was brevity; the number of questions had to be kept short to secure widespread adoption. The fourth was that the questions had to be able to differentiate financial knowledge so as to permit comparisons across people. These same questions were added to several other U.S. surveys thereafter, including the 2007–2008 National Longitudinal Survey of Youth (NLSY) for young respondents (ages 23–28); the RAND American Life Panel (ALP) covering all ages; and the 2009 and 2012 National Financial Capability Study. They have been added to the PISA test run by the OECD to assess high school students' financial knowledge in more than a dozen countries to date.

- Do you think that the following statement is true or **false**? "Buying a single company stock usually provides a safer return than a Unit Trust. [Don't know; refuse to answer.]

The goal of the first question is to measure respondents' understanding of a simple interest rate calculation. The second assesses peoples' understanding of inflation in the context of a simple financial decision. The third is a joint test of knowledge of risk diversification and unit trusts or mutual funds. Naturally the answer to this question requires knowledge of both what a stock is, and that a unit trust (mutual fund) is comprised of many stocks.

Correlates of Financial Literacy. Table 1 provides summary statistics on responses in the SLP® on the Big Three financial literacy questions in the first three rows.[5] Here we report findings first for the full sample (Panel A), and then for the subset of nonmarried persons alone (Panel B). While the latter group is smaller, there is less possibility of confounding asset ownership as could be the case with married households.

Table 1 here

In the first three rows of both panels, a correct answer has a value of 1 and any other answer (incorrect or don't know) is assigned a value of zero. Our tabulations indicate that, in the full sample, 81% of older Singaporeans answered the interest rate question correctly, 72% answered the inflation question correctly, and 47% responded to the risk diversification question correctly. (In the nonmarried sample, results are similar though slightly lower, at 79%, 71%, and 44%). For the FinLit index, which is the total number of questions each person answered correctly, Singaporeans averaged around two of three correct answers (2.01 in the full sample, and 1.94 for the nonmarrieds). It is worth noting that many respondents answered "do not know" to the last

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[5] Our sample consists of persons who were age 50-70 in Wave 5 and who answered financial questions in Waves 18 or 19. We use the latter two waves since those modules included detailed questions on asset allocation in peoples' pension (CPF) accounts.

question on risk diversification, suggesting that Singaporean respondents in their 50s and 60s are not particularly well informed about stock risk and unit trusts.

Table 2 compares SLP® responses to the Big Three questions with those from another survey of similar-aged adults in the United States, namely the American Life Panel (ALP) conducted in 2011 (data are weighted). It should be noted that we elect to compare our results with the ALP study as both are internet-based surveys. The table reveals that the SLP® respondents scored slightly lower on the interest rate question than the ALP respondents (81% versus 87%). Older Singaporeans also performed less well on the inflation question than the US survey (72% vs 86%). Interestingly, on the risk diversification question, both SLP® and ALP respondents were markedly less accurate than on the other two questions (47% and 43%). For the full sample, the Singaporean mean correct score on the FinLit index (2.01 out of 3 questions) was slightly lower than the 2.16 average for ALP respondents in the U.S. of the same age.

Table 2 here

Next we provide estimates from a multivariate model of the Big Three questions as well as the FinLit index, regressed on a vector of control variables (where Panel A includes the entire sample and Panel B restricts the sample to nonmarried persons). Controls include the respondent's age, sex, marital status, education, health and other control variables commonly used in prior studies.[6] Table 3 reports marginal effects (with significance levels indicated). The dependent variable in the first three cases is equal to 1 if the response was correct, and 0 otherwise; estimation is by Probit. In the last column, the dependent variable is the total FinLit score; estimation is by

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[6] A list of descriptive statistics on our sample appears in Appendix Table 1. In addition, we control on but do not report coefficients for whether respondents indicate being employed, if they are homeowners, and whether they manage the finances in their households (e.g., the respondent alone, the respondent along with another, usually the spouse, or the spouse alone), as well as ethnicity. Additional results are available on request.

OLS. The coefficients on the age groups should be interpreted relative to the age 50-54 reference group. A first point to note is that, in the full sample, only the 60+ age groups were statistically significantly better-informed about interest rates than the younger groups (the effect is not significant for the nonmarried group). Persons age 55+ were better informed about inflation than the reference group, and those age 65-70 even more so, in the full sample. (Results for the nonmarrieds are less robust, probably due to the smaller sample size). Knowledge about risk diversification is not particularly age sensitive for either sample.

Table 3 here

Coefficients on the other correlates are also of interest. In the full sample, women scored slightly worse on the risk diversification question, consistent with findings from similar surveys elsewhere (Lusardi and Mitchell 2007). Nevertheless, women were not significantly different from men in the nonmarried group. Marital status was never a significant discriminator in Panel A of Table 3. Not surprisingly, the better-educated were all more financially literate than the reference group (those with less than a secondary education); these effects are similar to those we have seen in the US context and are consistent across the full sample as well as the nonmarried subgroup. Being in fair or poor health was associated with being less informed about interest rate compounding (in the full sample but not the single sample). This could arise if the less-healthy find the cost of investment needed to learn about financial matters simply too great (or offers a lesser payout). Results also show that, in all groups, homeowners were better informed about financial matters.[7]

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[7] In work not reported here in detail, we also analyzed which respondents gave a "don't know" answer versus a wrong one, or a "correct" answer versus a wrong one. Factors most strongly associated with people responding "don't know" were relative youth (older people were better informed about interest rates and risk diversification); being less educated (better educated respondents were more likely to be correct and less likely not to know correct answers to all three questions); and owning a home (those who own homes were less likely to say "don't know)." As in other cross-national comparative studies, women were more likely to say they "don't know" than men, particularly about

Results: Financial Literacy and Key Outcome Measures

Anticipated Retirement Preparedness. To evaluate whether financial literacy is associated with how older Singaporeans assess their own financial situation in retirement, Table 4 focuses on two key outcomes. First we examine respondents' self-assessed chances of struggling financially in retirement, and the full sample (and nonmarried) mean was 46%. Second we asked people to assess the quality of their financial preparedness for retirement. Possible answers were excellent, very good, good (all three coded as equal to 1), or fair or poor (coded as equal to 0). Here some 43% of all respondents indicated they were in the good or better category; in the nonmarried sample this was the case for 39%. A multivariate analysis of these two measures of expected retirement wellbeing is provided in Table 4, with Panel A covering the full sample estimates and Panel B the nonmarried group alone.

Table 4 here

Not surprisingly, we find that people scoring higher on the FinLit questions feel they are less likely to face financial struggles in retirement and more likely to indicate they are financially well prepared for retirement. Interestingly, the effect in the full sample is less pronounced than that for the nonmarried sample alone. This is plausible because in couples both spouses may influence the financial decision making of the household, hence reducing the influence of just the respondents' own FinLit, whereas in nonmarried households the involvement of another person tends to be rare. It is also interesting to note that the respondents age 60-70 were more financially confident than their younger counterparts, probably due to the recently-introduced Silver Support

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stock market diversification (Lusardi and Mitchell 2014). This could imply that women would be more welcoming to financial education efforts, as they are less confident in their knowledge.

program targeted at the elderly poor in Singapore.[8] Better-educated respondents were substantially more optimistic about their retirement prospects, and women were also relatively less concerned about retirement struggles. Those expressing most concern were those in fair or poor health, who were much less optimistic on both metrics. Results are comparable across the full sample and the nonmarried groups.

Household Portfolios and Financial Literacy. Several measures of household wealth are available in the SLP®, three of which we relate to our financial literacy index. The most comprehensive measure we call total net wealth; this includes total household wealth inclusive of pensions, financial wealth, bank accounts, insurance, vehicles, primary and any secondary residences and net of debt. The second measure which we call total non-housing wealth excludes from the previous measure all housing assets and debt. The third measure, net financial wealth, excludes pension assets from the previous measure.[9]

Table 5 summarizes results of multivariate linear regression models analyzing the association between financial literacy and household wealth in the older Singaporean population. As before, we control on age, sex, marital status, education, self-reported health, etc., [10] and Panel A reports findings for the full sample, while Panel B for the nonmarried group only. Results for the full sample strongly confirm the economically meaningful and statistically significant relationship between financial knowledge and household wealth (expressed in S$100,000). For instance, if a respondent scored one additional correct answer to the FinLit questions versus the mean, this was associated with around 16% more total net wealth, 30% more net financial wealth,

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[8] See for instance Chen and Tan (2017).

[9] In the dataset these variables are named HaTotbw, HaTotnw, and HaTotfw, devised under the direction of the RAND team, particularly Susann Rohwedder.

[10] In sensitivity analysis we also controlled on the respondent's self-assessed confidence regarding knowledge to report on household's financial matters, an indicator of the respondent having a 5+ year planning horizon, and indicators of the respondent's risk preferences (one regarding general risks, and the second regarding financial risks). Results are qualitatively similar.

and 23% more nonhousing wealth.[11] The qualitative results for the nonmarried sample are qualitatively similar, though the FinLit score was statically significant only for net financial wealth: one additional correct answer to the FinLit questions here would be associated with a 23% more net financial wealth.

Table 5 here

Besides the FinLit coefficients, other controls behave as expected. For instance, in all cases and for both samples, having more education is associated with more wealth (however defined). Thus we confirm that in the SLP®, more financial knowledge is associated with substantially higher household wealth, regardless of whether we focus on the broadest measure available, or look instead at narrower measures such as non-housing and financial wealth.

Measures of Portfolio Complexity. SLP® respondents were also asked the details of the asset allocation of their investments. For the analysis below, we distinguish two broad categories of portfolio holdings: assets held *outside* respondents' CPF accounts, and assets held *inside* their CPF accounts.[12] In addition, we develop a *total number of complex asset holdings* measure, which is the sum of the total number of complex assets held outside and inside respondents' CPF accounts.

We also distinguish people's allocations to what we term to be *noncomplex* versus *complex* holdings in each of the two asset locations. For nonpension accounts, we define *noncomplex investments* as including an owner-occupied home, a checking/saving bank account, a vehicle, any fixed-term deposits, bonds, and whole life insurance. *Complex nonpension assets* include own

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[11] See for instance Behrman et al. (2012).

[12] For non-CPF assets, we sum each age-eligible respondent's holdings plus those of the spouse, if any, to obtain household non-CPF assets; for some assets we cannot disentangle ownership, notably those that tend to be jointly held by spouses of a couple, like homes. For CPF assets, the respondent reports own CPF balances and—in separate survey questions—the CPF balances of the spouse (if any). The respondent was also asked to provide the details of his or her own CPF investment allocations. However, with respect to the spouse's CPF investment allocations the respondent was only asked to provide the fraction of the CPF balance held in shares. Accordingly, our variable measuring household CPF total complex holdings sums the respondent's complex investments and the spouse's share CPF investments.

businesses, investment property, shares/stock funds, gold/gold funds, managed accounts, and mutual funds/unit trusts. We categorize CPF holdings according to whether people left their CPF retirement funds in their default account invested by the government, or whether they moved their money to "permitted" assets managed by non-government entities via the CPF Investment Scheme (CPFIS). In prior work, Koh et al. (2008a and b, 2010) reported that many CPF participants left their retirement assets to be managed by the CPF since their net-of-expense returns are perceived to be safer, and often higher than, those earned from investing in relatively expensive and riskier non-CPF products.[13] Nevertheless, several products available under the CPF IS may be attractive to savers willing to take additional risk including gold ETFs and gold certificates, investment-linked insurance products, annuities, government-guaranteed and statutory board bonds, unit trusts, and property funds.[14] For this analysis, we classify as *noncomplex CPF assets* money managed by the CPF, and as *complex CPF assets* those held in CPF-Investment Scheme (IS) accounts.

Table 6 reports coefficient estimates from multiple regression analyses of the number of complex assets held inside and outside respondent CPF accounts, as well as for the full portfolio inclusive of both pension and nonpension accounts. Findings for the full sample as well as nonmarried respondents alone are presented separately, as before. It should be noted that the portfolio holdings are drawn from survey responses, so they represent what people reported and

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[13] This was confirmed in a recent CPF Advisory Panel report showing that the funds permitted under the investment scheme remain expensive by international standards; see
https://services.mom.gov.sg/cpfpanel/media/recommendations/part2/Chapter%205_Simpler%20Investment%20Choices%20for%20CPF%20Savings.pdf .

[14] These are available only to persons having at least $20,000 in their Old-Age account, or at least $40,000 in their Special Account. For additional detail see
https://www.cpf.gov.sg/Assets/members/Documents/CPFISInvestmentProducts.pdf

presumably believed they owned. In future work, we hope to compare these self-reports with administrative records.[15]

Table 6 here

The row labeled Dep Var Mean indicates that older Singaporeans held relatively few complex assets overall, namely an average of 0.7 per respondent in the full sample (and 0.6 in the nonmarried group). Nevertheless there is important variation inside and outside the CPF accounts, since people averaged 0.5 complex nonpension assets, but only 0.2 inside their pension accounts. These results confirm earlier evidence that older respondents tend to keep their pension money in what they consider to be a safe government-invested account. Consistent with expectations, estimated coefficients on the FinLit variable in Table 6 show that the more financially knowledgeable did hold a statistically significantly higher number of complex assets.[16] Being able to answer one additional financial question correctly is associated with 0.17 more complex assets overall (a difference of almost 25%). We also see that older Singaporeans (age 60-70) held fewer complex assets in their pension accounts than the reference group, while in their non-CPF accounts they held—if anything—slightly more complex assets than their younger counterparts, however these estimates are not statistically significant at the 5-percent level. Across the board, better-educated individuals held more complex assets, and the association is quantitatively large and statistically significant. Persons in poor health held fewer complex assets across the board, while married persons were less diversified in their CPF accounts.

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[15] In Chile, for instance, respondent self-reports of pension accumulations and investments can be compared with evidence from administrative data. We found that people tend to report contributing more than they actually do over their lifetimes, though account balances were relatively accurate for those who were willing to report a pension fund balance (Arenas et al. 2008). Nevertheless only 40% of the respondents could provide an estimated balance in the Chilean context. In the SLP, the response rates on CPF account balances are much higher, ranging between 86 and 92 percent, if counting only continuous reporters, and even a little higher when taking into account bracketed responses. These higher item-response rates are likely due to the self-administered nature of the survey and the careful survey design.

[16] This accords with U.S. data from Clark et al. (2015).

A similar story is told by Table 7, where the dependent variables focus on the share of each wealth type held in complex assets. Again, the FinLit score is consistently statistically significant and positive for both samples examined, confirming that those with more financial knowledge held much larger shares of their net wealth in complex assets. Overall, a one-point higher FinLit score is associated with a 2.0 percent higher share held in complex assets in the full sample, a quantitatively large (32%) result compared to the mean (6.1). As above, the older age groups (60-70) had lower complex shares in their pension accounts but not outside their pensions, and better-educated respondents had much higher complex wealth shares. Results were similar for the nonmarried subset.

Table 7 here

Portfolio Diversification: Risky and Equity Share. The data also permit us to evaluate how older Singaporeans allocate their pension and nonpension investments to risky assets and to equities. We define someone as *diversified* if he holds equity/stocks, fixed-income/bonds, and cash.[17] We also compute whether the respondent's *risky share* of assets falls within +/-10% of the fraction conventionally recommended by financial advisors, namely 100 minus his age.[18] A comparable measure focuses more narrowly only on the respondent's equity share.[19] Additionally, we can evaluate whether a respondent's risky share is close to (again, within +/- 10%) the age-

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[17] A respondent's risky share is defined as the value of his stocks/shares, unit trusts, mutual funds, investment-linked products, ETFs, properties, and gold, as a ratio of his total wealth (see Table 7). This is a composite of a variable HoldRisk = 1 if a respondent held any risky assets (defined as any common stocks/shares, unit trusts, mutual funds, investment-linked investments, ETFs, properties, gold), 0 otherwise; a variable HoldEquity = 1 if the respondent held equity (defined here as any common stocks/shares, unit trusts, mutual funds, investment-linked investments, ETFs, gold), 0 otherwise; a variable HoldFI=1 if a respondent holds corporate bonds, treasury bonds, Singapore savings bonds, endowment policies (life insurance), etc; and a variable HoldCash = 1 if the respondent held bank checking account, savings account, time or fixed deposits, 0 otherwise. If a respondent's wealth was less than $1,000, we dropped the observation; thus 287 observations were omitted for total wealth, 1,672 for financial wealth, and 421 for nonhousing wealth.

[18] A respondent's risky share is defined as the value of his stocks/shares, unit trusts, mutual funds, investment-linked products, ETFs, properties, and gold, as a ratio of his total wealth (see Table 7).

[19] The respondent's equity share is defined as the value of common stocks/shares, unit trusts, mutual funds, investment-linked investments, and ETFs, to the total wealth measure (see Table 7).

appropriate fraction implied by the glide path of a conventional Target Date Fund (TDF) such as that offered by Vanguard (see Figure 1).[20] This variable is defined over net financial wealth. Table 8 provides results regarding whether portfolios were within the 10% of the 100-Age Rule of Thumb, while Table 9 shows factors associated with whether the respondent's investment portfolio was within the conventional TDF glide path described above.

Figure 1 and Tables 8 and 9 here

Focusing first on Table 8, we see that around one-third (33.1%) of all SLP® respondents held cash, stocks, and bonds, and hence they were diversified in this basic way. About 8% of the full sample held a risky share of financial assets that approximately met the 100-Age Rule of Thumb. For the nonmarried sample this was also about 8%. We note that diversification, as defined in Table 8, is strongly positively associated with the FinLit score: for instance the coefficient in the first row and column of Panel A indicates that people in the full sample who answered one additional FinLit question correctly were 8 percentage points more likely to be diversified, or 24% higher than the mean. For the nonmarried sample the estimates were closely comparable. Continuing on to an assessment of the respondent's risky share of financial wealth, we find a positive association with FinLit overall (in the nonmarried sample the estimate was not statistically significant). We conclude that the financially savvier were more likely to have portfolios that rebalanced according to the 100-age rule. It is interesting that these effects remain strong and statistically significant despite controlling for education (which is also positive and statistically significant).

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[20] Target Date Funds recommend that people invest more in equity when young, and less (following a glide path) when older. In the figure above, the fraction is 90% to age 40, declining at 1.5% per year of age to 60% at age 60, declining by 2% per year of age to 50% at age 65, declining 2.9% per year of age to 40% at age 72, and flat after age 72 at 30%.

Table 9 shows which respondents held portfolio investments conforming to the Target Date Fund glide path benchmark described above. Here we see that only 5% of respondents in the full sample indicated that they held an equity share of financial wealth that was in line with (+/- 10%) of the TDF guideline; in the nonmarried sample this was the case for 6%. Interestingly, the coefficient on the FinLit index is not statistically significant here at conventional levels, indicating that financially savvy Singaporeans do not follow the Target Date profile when allocating their asset portfolios. There is evidence, however, that older and better-educated respondents invested along what could be called a TDF glide path more closely.

A Comment on Causal Relationships versus Associations

Thus far we have framed our discussion in terms of associations rather than causal relationships. This is because an economic model of lifecycle consumption, saving, investment, and retirement would posit that rational and well-informed individuals will arrange their optimal behavior in ways that smooth their marginal utilities over their lifetimes. These behaviors will naturally be influenced by peoples' time preferences and tastes for risk, features of their economic environment, and the availability and generosity of transfer schemes.[21] This literature has recently been enriched by behavioral research showing that some people have difficulties making complex economic calculations and lack the expertise to deal effectively with complex financial products. As a result, and particularly when retirement saving schemes are centrally-designed and managed, many workers tend to devote little attention to managing their saving and investment plans on their own. Accordingly, it is critical to explore which people are well-equipped to make these decisions,

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[21]See Lusardi and Mitchell (2014) for citations.

and also to determine where policy efforts can be most effectively targeted to enhance individual decision-making.

It is important to acknowledge that investing in financial knowledge is also endogenous: that is, consumers must devote time and money to learn about financial products and the working of the capital market. (Kim et al, 2016). Accordingly, investment in financial knowledge depends on both the costs of acquiring financial knowledge and the value of the investment to the decision-makers. In this context, it has been shown that some people – particularly the least educated and lowest-paid – may optimally invest little in financial literacy (Lusardi et al. 2017, Delavande et al. 2008). An implication of this research is that peoples' financial knowledge will be endogenously related to their wealth and portfolio diversification. As a result, it is important to identify the directionality of these causal relationships, and many researchers have used instrumental variable econometric techniques and experimental analysis to this end. While additional research will be useful to confirm findings, there is now substantial evidence supporting the conclusion that financial knowledge does drive more saving, better retirement planning, better investment outcomes, and more informed decisions about retirement payouts.[22] Future work with the SLP® will allow us to investigate this matter in more detail using this dataset.

Conclusions and Implications

This paper reports the first results of our analysis of Singaporeans' financial literacy using a unique new dataset, the Singapore Life Panel®. With this new and nationally representative survey, we addressed three important questions. First, we explored how financially knowledgeable Singaporeans are, and how their results compared to a similar internet-based U.S. study, the

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[22] A discussion of this literature appears in Lusardi and Mitchell (2014); see also Brown et al (2016 and forthcoming), and Clark et al. (2015).

American Life Panel. Second, we evaluated the relationship between financial literacy and wealth, an issue of key interest in a wide range of policy circles. Third, we examined whether greater financial knowledge in Singapore is associated with more complex portfolios.

We show that older adults' level of financial literacy in Singapore is comparable, albeit a bit lower, than that in the U.S. American Life Panel. Moreover, financial literacy is positively associated with having more wealth and better-diversified portfolios both inside and outside CPF pensions. Older women in Singapore tend to be less informed about stock diversification, while educated and wealthier people tend to be more financially knowledgeable. We also show that financial literacy is positively and significantly associated with most of our portfolio complexity measures, holding other factors constant. Additionally, better-educated and healthier respondents tend to exhibit better portfolio diversification.

As Singapore, and indeed the entire Asian region, continue to age, there will be pressure to facilitate and encourage more saving, and especially more productive saving, among some parts of the population. Financial literacy can play an important role in enhancing peoples' pension and non-pension saving, and also in improving asset diversification patterns.

Figure 1. Share Held in Risky Assets in Conservative, Aggressive, and the Vanguard Target Date Glide Path

Glide-path equity allocations
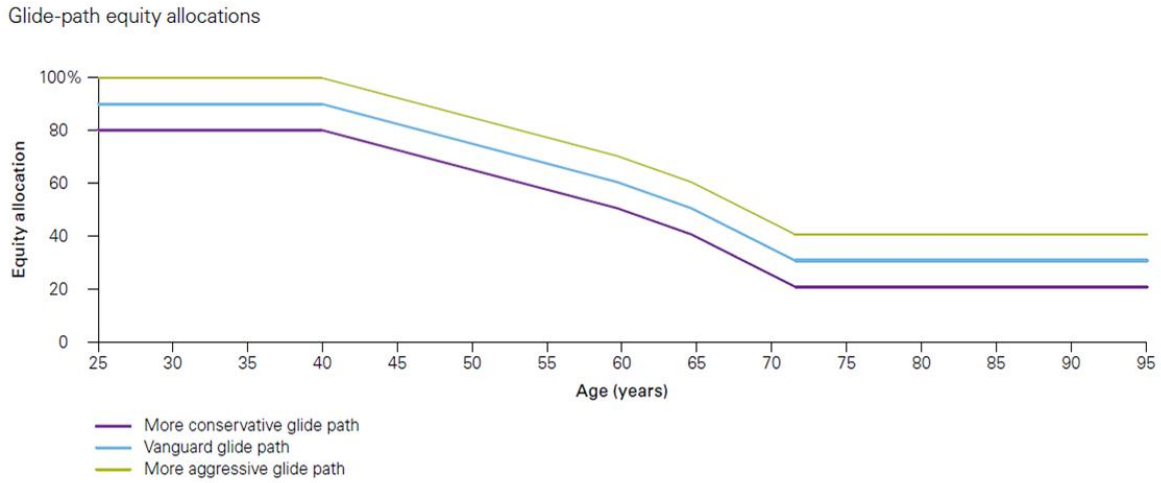
Note: This hypothetical illustration does not represent any particular investment. Results may vary with each use and over time. For a detailed description of the assumptions used in the scenario analysis, see Appendix I.

Source: Vanguard.

Source: http://www.vanguard.com/pdf/s167.pdf

Table 1: Summary Statistics on Financial Literacy in Singapore among Older Adults

A. Full sample

Variable	Mean	Sd.	Min	Max
FinLit interest (=1 if correct, 0 otherwise)	0.81	0.39	0	1
FinLit inflation (=1 if correct, 0 otherwise)	0.72	0.45	0	1
FinLit risk (=1 if correct, 0 otherwise)	0.47	0.50	0	1
FinLit Index (total correct)	2.01	0.97	0	3

B. Nonmarried sample

Variable	Mean	Sd.	Min	Max
FinLit interest (=1 if correct, 0 otherwise)	0.79	0.41	0	1
FinLit inflation (=1 if correct, 0 otherwise)	0.71	0.46	0	1
FinLit risk (=1 if correct, 0 otherwise)	0.44	0.50	0	1
FinLit Index (total correct)	1.94	0.98	0	3

Note: Dataset includes SLP® respondents age 50-70 who answered the Big Three Financial Literacy questions and financial questions in waves 18 and 19 (see text). Unweighted full sample N=6,686; nonmarried sample N=1,278.

Table 2: Comparing Financial Literacy in Singapore and in the U.S. in the Population age 50-70

Variable	SLP 2016 (unweighted)	ALP 2011 (weighted)
FinLit interest (=1 if correct, 0 otherwise)	0.81	0.87
FinLit inflation (=1 if correct, 0 otherwise)	0.72	0.86
FinLit safer (=1 if correct, 0 otherwise)	0.47	0.43
FinLit Index (total correct)	2.01	2.16

Note: SLP® = Singapore Life Panel; ALP = American Life Panel (https://alpdata.rand.org/).
The SLP® sample answered three Financial Literacy questions in wave 5 (December 2016) and financial questions in waves 18 or 19 in 2017. The ALP sample answered financial literacy questions in Modules 179-180 in 2011.

Table 3: Multivariate Analysis (Probit) of Three Financial Literacy Questions and Overall FinLit Score (OLS) on Controls

A. Full sample

	Interest rate		Inflation		Risk		FinLit score	
Age55-59	0.010		0.030	**	0.024		0.062	**
Age60-64	0.027	**	0.040	**	0.032	*	0.097	**
Age65-70	0.037	**	0.071	***	-0.009		0.101	**
Female	0.009		-0.009		-0.051	***	-0.046	*
Married	0.001		-0.020		-0.001		-0.024	
2ndry educ.	0.043	***	0.092	***	0.080	***	0.231	***
Post-2ndry educ.	0.156	***	0.288	***	0.259	***	0.722	***
Fair/poor health	-0.021	**	0.009		-0.023	*	-0.032	
Work for pay	-0.002		-0.025	**	-0.001		-0.023	
Self-employed	0.028	*	0.021		0.018		0.066	*
Own home	0.072	***	0.137	***	0.090	***	0.294	***
N	6,686		6,686		6,686		6,686	
R-sq	0.047		0.107		0.050		0.135	
Dep. Var. Mean	0.813		0.723		0.472		2.009	
Dep. Var. St. Dev.	0.390		0.448		0.499		0.974	

B. Nonmarried sample

	Interest rate		Inflation		Risk		FinLit score	
Age55-59	-0.004		0.020		-0.052		-0.034	
Age60-64	-0.006		0.033		0.000		0.025	
Age65-70	0.004		0.067	*	-0.047		0.024	
Female	0.002		-0.020		-0.045		-0.062	
2ndry educ.	-0.015		0.075	**	0.008		0.072	
Post-2ndry educ.	0.103	***	0.253	***	0.196	***	0.555	***
Fair/poor health	-0.017		-0.005		-0.044		-0.06	
Work for pay	0.015		-0.048	*	-0.032		-0.059	
Self-employed	0.096	**	-0.028		-0.003		0.074	
Own home	0.035		0.077	**	0.050		0.155	**
N	1,278		1,278		1,278		1,278	
R-sq	0.034		0.081		0.054		0.104	
Dep. Var. Mean	0.793		0.707		0.443		1.942	
Dep. Var. St. Dev.	0.406		0.456		0.497		0.980	

Notes: * Significant at 0.10 level, ** Significant at 0.05 level, *** Significant at 0.01 level. Data from SLP®. First three columns =1 if correct answer to question (marginal from Probit reported; see text); last column is total correct score (OLS model). Reference categories: Age50-54; primary education; missing data dummies included; also controls on ethnicity, Respondent manages household finances. Additional results (and standard errors) are available on request.

Table 4. Multivariate Regressions of Expected Retirement Outcomes on Financial Literacy and Other Factors

A. Full sample

	Chance of struggling financially in retirement (%)		Good financial prep. for retirement (1/0)	
FinLit score	-1.392	***	0.028	***
Age55-59	-1.235		0.027	
Age60-64	-4.296	***	0.066	***
Age65-70	-6.517	***	0.084	***
Female	-2.018	**	0.018	
Married	-0.579		0.011	
2ndry educ.	-2.043	**	0.046	**
Post-2ndry educ.	-7.533	***	0.121	***
Fair/poor health	7.748	***	-0.253	***
Work for pay	0.099		0.023	*
Own home	-1.352		-0.009	
Intercept	61.929	***		
	(2.160)			
N	5,391		6,670	
R-sq	0.065		0.115	
Dep. Var. Mean	45.594		0.430	
Dep. Var. St. Dev.	26.163		0.495	

B. Nonmarried sample

	Chance of struggling financially in retirement (%)		Good financial prep. for retirement (1/0)	
FinLit score	-1.967	**	0.016	
Age55-59	-1.026		0.069	*
Age60-64	-8.542	**	0.159	***
Age65-70	-8.070	**	0.160	***
Female	-2.651		0.023	
2ndry educ.	-5.256	**	0.053	
Post-2ndry educ.	-9.396	***	0.124	**
Fair/poor health	8.487	***	-0.255	***
Work for pay	1.712		0.003	
Own home	-4.430	**	-0.035	
Intercept	71.133	***		
	(4.782)			
N	1,008		1,271	
R-sq	0.100		0.124	
Dep. Var. Mean	46.924		0.393	
Dep. Var. St. Dev.	28.379		0.489	

Notes: Dependent variable in column 1: self-reported chances of struggling financially in retirement (OLS coefficients); in column 2, =1 if preparation for retirement excellent/very good/good and =0 else (Probit marginal effects reported). See also Table 3.

Table 5: Multivariate Regressions (OLS) of Three Different Household Wealth Measures on Financial Literacy and Other Factors

A. Full sample

	HH total net wealth ($100k) (incl. 2nd res)		HH net financial wealth ($100k)		HH non-housing wealth ($100k)	
FinLit score	1.883	***	0.596	***	1.093	***
Age55-59	1.064	*	0.456	**	0.597	**
Age60-64	2.232	**	0.412	**	0.557	**
Age65-70	1.631	**	0.502	***	-0.029	
Female	1.092	**	0.222	**	0.449	**
Married	4.265	***	0.499	***	1.607	***
2ndry educ.	2.400	***	0.524	***	1.524	***
Post-2ndry educ.	10.964	***	2.628	***	5.361	***
Fair/poor health	-1.985	***	-0.405	***	-0.831	***
Work for pay	-0.552		-0.037		0.763	***
Own home	3.183	***	0.111		0.502	**
N	6,686		6,686		6,686	
R-sq	0.098		0.117		0.161	
Dep. Var. Mean	11.433		1.913		4.848	
Dep. Var. St. Dev.	20.493		4.523		7.830	

B. Nonmarried sample

	HH total net wealth ($100k) (incl. 2nd res)		HH net financial wealth ($100k)		HH non-housing wealth ($100k)	
FinLit score	0.242		0.283	**	0.397	
Age55-59	1.361	**	0.502	**	0.820	**
Age60-64	3.244	**	0.759	**	1.264	**
Age65-70	2.686	**	0.310		0.356	
Female	1.151		0.209		0.355	
2ndry educ.	2.144	**	0.541	***	1.276	***
Post-2ndry educ.	8.134	***	2.123	***	4.074	***
Fair/poor health	-1.107	*	-0.108		-0.410	
Work for pay	-0.917		-0.109		0.622	*
Own home	3.554	***	0.115		0.312	
N	1,278		1,278		1,278	
R-sq	0.091		0.092		0.106	
Dep. Var. Mean	6.967		1.260		2.940	
Dep. Var. St. Dev.	13.748		3.500		6.226	

Notes: For dependent variable definitions, see text. See also Table 3.

Table 6: Multivariate Regressions (OLS) of Indicators of Portfolio Complexity on Financial Literacy and Other Factors

A. Full Sample

	#Complex NonCPF		#Complex CPF		Total # Complex	
FinLit score	0.093	***	0.074	***	0.166	***
Age55-59	0.005		-0.065	**	-0.058	*
Age60-64	0.035		-0.143	***	-0.108	**
Age65-70	0.046	*	-0.211	***	-0.162	***
Female	0.048	**	-0.017		0.032	
Married	-0.060	**	-0.047	**	-0.107	***
2ndry educ.	0.153	***	0.065	***	0.216	***
Post-2ndry educ.	0.405	***	0.203	***	0.604	***
Fair/poor health	-0.022		-0.028	**	-0.050	**
Work for pay	-0.050	**	0.060	***	0.010	
Own home	-0.018		-0.024		-0.040	
N	6,589		6,570		6,613	
R-sq	0.284		0.122		0.287	
Dep. Var. Mean	0.467		0.215		0.679	
Dep. Var. St. Dev.	0.747		0.567		1.048	

B. Nonmarried Sample

	#Complex NonCPF		#Complex CPF		Total # Complex	
FinLit score	0.082	***	0.076	***	0.157	***
Age55-59	-0.011		-0.122	**	-0.130	*
Age60-64	-0.061		-0.155	**	-0.213	**
Age65-70	-0.037		-0.260	***	-0.294	***
Female	0.114	**	0.014		0.127	**
2ndry educ.	0.112	**	0.023		0.133	**
Post-2ndry educ.	0.361	***	0.183	***	0.544	***
Fair/poor health	-0.002		-0.037		-0.038	
Work for pay	-0.036		0.105	***	0.068	
Own home	-0.032		-0.012		-0.045	
N	1,265		1,259		1,267	
R-sq	0.291		0.164		0.311	
Dep. Var. Mean	0.429		0.209		0.636	
Dep. Var. St. Dev.	0.694		0.570		1.012	

Notes: See text and notes to Table 3.

Table 7: Multivariate Regressions of Complex Share on Financial Literacy and Other Factors

A. Full sample

	% Complex of non-CPF net wealth		% Complex of CPF Wealth		% Complex of Total Net Wealth	
FinLit score	2.145	***	3.406	***	2.001	***
Age55-59	-0.054		-0.074		0.022	
Age60-64	0.318		-3.636	***	-0.329	
Age65-70	1.971	**	-7.056	***	1.742	*
Female	0.625		-1.405	**	1.443	**
Married	-0.467		0.144		-2.362	
2ndry educ.	2.286	***	4.694	***	2.093	***
Post-2ndry educ.	7.695	***	10.581	***	8.643	***
Fair/poor health	-0.754		-0.488		-0.282	
Work for pay	-1.886	**	0.206		-1.117	*
Intercept	2.777	**	-0.326		2.919	**
	(1.336)		(1.523)		(1.485)	
N	6,578		6,569		6,126	
R-sq	0.041		0.064		0.036	
Dep. Var. Mean	6.771		9.699		6.101	
Dep. Var. St. Dev.	22.813		28.297		25.967	

B. Nonmarried sample

	% Complex of non-CPF net wealth		% Complex of CPF Wealth		% Complex of Total Net Wealth	
FinLit score	1.652	***	2.820	***	3.644	*
Age55-59	-0.130		-3.267		-2.717	
Age60-64	0.177		-2.583		-4.767	
Age65-70	1.067		-7.078	***	-2.055	
Female	1.496		-0.872		6.222	*
2ndry educ.	1.470		3.149	**	2.944	*
Post-2ndry educ.	8.287	***	8.696	***	13.928	**
Fair/poor health	-0.867		-1.472		1.877	
Work for pay	-2.318	**	1.775		-1.395	
Own home	-6.556	***	0.054		-11.023	*
Intercept	5.992	**	2.934		-1.094	
	(2.666)		(2.962)		(5.298)	
N	1,261		1,259		1,197	
R-sq	0.081		0.074		0.042	
Dep. Var. Mean	6.921		7.976		8.028	
Dep. Var. St. Dev.	17.828		25.296		50.453	

Notes: Dependent variables defined in text. See also Table 3.

Table 8: Multivariate Regressions (OLS) of Portfolio Diversification on Financial Literacy and Controls As Per 100-Age Rule

A. Full sample

	Diversified asset allocation (1/0)		EquityAsPerAge (1/0)	
FinLit score	0.082	***	0.018	***
Age55-59	-0.045	**	0.001	
Age60-64	-0.089	***	0.022	**
Age65-70	-0.126	***	0.040	**
Female	0.021	*	0.010	
Married	-0.018		-0.009	
2ndry educ.	0.088	***	0.040	**
Post-2ndry educ.	0.260	***	0.096	***
Fair/poor health	-0.037	**	0.001	
Work for pay	0.067	***	-0.002	
Own home	0.107	***	-0.012	
N	6,606		5,014	
R-sq	0.143		0.074	
Mean of dep. var	0.333		0.078	
Std.dev. of dep. var	0.471		0.268	

B. Nonmarried sample

	Diversified Asset Allocation (1/0)		EquityAsPerAge (1/0)	
FinLit score	0.072	***	-0.005	
Age55-59	-0.058	*	-0.002	
Age60-64	-0.121	***	-0.003	
Age65-70	-0.176	***	0.014	
Female	0.147	***	0.035	**
2ndry educ.	0.090	**	0.020	
Post-2ndry educ.	0.203	***	0.086	**
Fair/poor health	-0.036		0.003	
Work for pay	0.042		-0.030	**
Own home	0.151	***	-0.007	
N	1,267		925	
R-sq	0.174		0.094	
Mean of dep. var	0.305		0.079	
Std.dev. of dep. var	0.460		0.270	

Notes: Dependent variable in column one = 1 if respondent held cash, stocks, and bond; =0 otherwise; second column dependent variable =1 if respondent's share of equity of financial wealth conforms with the (100-age) glide path; =0 otherwise. See Table 3.

Table 9. Multivariate Regressions (Probit) of Equity Share of Financial Assets (as per TDF Glide Path) on Financial Literacy and Other Controls

A. Full sample

	Equity /Net Financial Wealth	
FinLit score	0.007	*
Age55-59	0.026	**
Age60-64	0.051	***
Age65-70	0.074	***
Female	0.005	
Married	-0.010	
2ndry educ.	0.034	**
Post-2ndry educ.	0.054	***
Fair/poor health	-0.007	
Work for pay	-0.005	
Own home	0.003	
N	5,022	
R-sq	0.062	
Dep. Var. Mean	0.052	
Dep. Var. St. Dev.	0.223	

B. Nonmarried sample

	Equity /Net Financial Wealth	
FinLit score	-0.003	
Age55-59	0.003	
Age60-64	0.024	
Age65-70	0.062	**
Female	0.005	
2ndry educ.	0.009	
Post-2ndry educ.	0.029	
Fair/poor health	0.005	
Work for pay	0.008	
Own home	0.021	
N	927	
R-sq	0.086	
Dep. Var. Mean	0.060	
Dep. Var. St. Dev.	0.238	

Notes: Dependent variable = 1 if respondent's share of equity of financial wealth conformed to +/- 10% of TDF glide path, =0 else. See also Table 3

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Appendix Table 1. **Descriptive Statistics on Financial Knowledge and Other Financial Variables**

Variable	Full Sample		Nonmarried Sample	
	Mean	Sd.Dev.	Mean	Sd.Dev.
FinLit interest (=1 if correct, 0 else)	0.81	0.39	0.79	0.41
FinLit inflation (=1 if correct, 0 else)	0.72	0.45	0.71	0.46
FinLit safer (=1 if correct, 0 else)	0.47	0.50	0.44	0.50
FinLit Index (total right)	2.01	0.97	1.94	0.98
HH total wealth (S$100k) (inl. 2nd residence)	11.43	20.49	6.97	13.75
HH financial wealth (S$100k)	1.91	4.52	1.26	3.50
HH non-housing wealth (S$100k)	4.85	7.83	2.94	6.23
NumComplexNonCPF	0.47	0.75	0.43	0.69
NumComplexCPF	0.22	0.57	0.21	0.57
TotNumComplex	0.68	1.05	0.64	1.01
Diversified asset allocation	0.33	0.47	0.30	0.46
EquityAsPerAge: Equity amount/Financial wealth	0.08	0.27	0.08	0.27
EquityAsPerTDF, Equity amount / Financial wealth	0.05	0.22	0.06	0.24
Percent of complex investment in non-CPF (%)	6.77	22.81	6.92	17.83
Percent of complex investment in CPF (%)	9.70	28.30	7.98	25.30
Percent of complex investment in total wealth (%)	6.10	25.97	8.03	50.45
Chance of struggling financially during retirement	45.59	26.16	46.92	28.38
Good financial preparedness for retirement (=1 if yes, 0 else)	0.43	0.50	0.39	0.49

Note: SLP® unweighted data. Sample includes respondents age 50-70 who answered the Big Three financial literacy questions and financial questions.

Appendix Table 2. Descriptive Statistics on Other Control Variables Portfolio Composition Outcomes

Variable	Full sample		Nonmarried Sample	
	Mean	Sd.	Mean	Sd.
Age 50-54	0.27	0.45	0.23	0.42
Age 55-59	0.30	0.46	0.29	0.45
Age 60-64	0.23	0.42	0.24	0.43
Age 65-70	0.20	0.40	0.25	0.43
Female	0.52	0.50	0.76	0.43
Married	0.81	0.39	0.00	0.00
Race, Chinese	0.87	0.33	0.86	0.34
Race, Malay	0.06	0.24	0.06	0.24
Race, Indian	0.05	0.21	0.05	0.23
Race, others	0.02	0.14	0.02	0.15
Education, primary	0.21	0.41	0.25	0.43
Education, secondary	0.41	0.49	0.42	0.49
Education, post-secondary	0.37	0.48	0.33	0.47
Fair/poor health	0.34	0.48	0.38	0.49
Work for pay	0.54	0.50	0.49	0.50
Self-employed	0.10	0.30	0.09	0.29
Home owner	0.84	0.36	0.74	0.44
R mgs finances	0.38	0.49	0.77	0.42
R+Other mgs finances	0.46	0.50	0.10	0.31
Other mgs finances	0.16	0.36	0.12	0.33
HH total wealth ($100k)	11.43	20.49	6.97	13.75
Confident about knowledge of HH finances	0.78	0.41	0.74	0.44
Financial planning long horizon (>=5 years)	0.42	0.49	0.40	0.49
General risk prefer	0.15	0.36	0.14	0.35
Financial risk prefer	0.15	0.36	0.13	0.34

Note: SLP® unweighted data. Sample includes respondents age 50-70 who answered all three financial literacy questions and financial questions.

Appendix 3. Additional Results for Financial Literacy Questions in the ALP

	Interest rate	Inflation	Risk	FinLit score
Age55-59	0.001	0.066 **	-0.02	0.047
Age60-64	0.004	0.005	-0.039	-0.031
Age65-70	-0.06 **	0.003	-0.024	-0.081
Female	-0.058 ***	-0.07 ***	-0.014	-0.142 ***
Married	0.058 ***	-0.022	-0.018	0.018
White	0.103 ***	0.146 ***	0.036	0.285 ***
Hispanic	0.015	-0.026	-0.062	-0.072
Post-secondary education (>12 yrs)	0.115 ***	0.106 ***	0.042	0.264 ***
Fair/poor health	-0.04	0.063 **	0.087 *	0.11
Work for pay	0.134 ***	0.177 ***	0.075	0.386 ***
Own home	0.03	0.029	0.192 ***	0.252 ***
Intercept	0.518 ***	0.561 ***	0.284 **	1.363 ***
	(0.088)	(0.089)	(0.132)	(0.201)
N	1,075	1,075	1,075	1,075
R-sq	0.118	0.108	0.061	0.15
Mean of dep. var	0.867	0.863	0.431	2.161
Std.dev. of dep. var	0.340	0.344	0.495	0.795

Note: * Significant at 0.10 level, ** Significant at 0.05 level, *** Significant at 0.01 level. Data weighted. See also Table 3.