



2-8-2019

# Trust and Retirement Preparedness: Evidence from Singapore

Benedict S.K. Koh  
*Singapore Management University*

Olivia S. Mitchell  
*The Wharton School, University of Pennsylvania*

Joelle H. Fong  
*National University of Singapore*

Follow this and additional works at: [https://repository.upenn.edu/prc\\_papers](https://repository.upenn.edu/prc_papers)

 Part of the [Economics Commons](#)

Koh, Benedict S.K.; Mitchell, Olivia S.; and Fong, Joelle H., "Trust and Retirement Preparedness: Evidence from Singapore" (2019).  
*Wharton Pension Research Council Working Papers*. 26.  
[https://repository.upenn.edu/prc\\_papers/26](https://repository.upenn.edu/prc_papers/26)

The research was supported by the Singapore Ministry of Education Academic Research Fund Tier 3 grant (MOE2013-T3-1-009) at the Singapore Management University, the MOE Start-up Grant at the National University of Singapore, and the Pension Research Council/Boettner Center at The Wharton School of the University of Pennsylvania.

This paper is posted at Scholarly Commons. [https://repository.upenn.edu/prc\\_papers/26](https://repository.upenn.edu/prc_papers/26)  
For more information, please contact [repository@pobox.upenn.edu](mailto:repository@pobox.upenn.edu).

---

# Trust and Retirement Preparedness: Evidence from Singapore

## **Abstract**

Trust is an essential component of the financial system, and distrust can undermine saving and economic growth. Accordingly, prior research has shown that survey responses to a question about ‘trust in people’ are associated with household willingness to invest in the stock market. Nevertheless, little is known about how trust shapes economic behaviors predictive of retirement preparedness. Our study draws on the Singapore Life Panel (SLP®), a high-frequency internet survey of people age 50-70, to assess how trust ties to older respondents’ (1) pension plan participation and withdrawals; (2) life, health and long-term care insurance purchases; and (3) stock market engagement. We show that the ‘trust in people’ question often used in prior studies is uncorrelated with household behaviors related to retirement preparedness. Nevertheless, trust in financial and public-sector representatives is positively associated with pension savings, investments, and insurance purchases. Financial literacy also has a consistent and important role in explaining who saves for retirement and other economic behaviors driving retirement readiness.

## **Keywords**

financial literacy, trust, investment, saving, household portfolios, retirement, pension, Central Provident Fund

## **Disciplines**

Economics

## **Comments**

The research was supported by the Singapore Ministry of Education Academic Research Fund Tier 3 grant (MOE2013-T3-1-009) at the Singapore Management University, the MOE Start-up Grant at the National University of Singapore, and the Pension Research Council/Boettner Center at The Wharton School of the University of Pennsylvania.

# **Trust and Retirement Preparedness: Evidence from Singapore**

Benedict Koh, Olivia S. Mitchell, and Joelle H. Fong

February 8, 2019

## **PRC WP2019-3**

### **Pension Research Council Working Paper Pension Research Council**

The Wharton School, University of Pennsylvania  
3620 Locust Walk, 3000 SH-DH  
Philadelphia, PA 19104-6302  
Tel.: 215.573.3414 Fax: 215.573.3418  
Email: [prc@wharton.upenn.edu](mailto:prc@wharton.upenn.edu)  
<http://www.pensionresearchcouncil.org>

The authors acknowledge excellent programming assistance from Yong Yu and the Singapore Life Panel (SLP®) team at Singapore Management University, as well as the RAND SLP® team. The research was supported by the Singapore Ministry of Education Academic Research Fund Tier 3 grant (MOE2013-T3-1-009) at the Singapore Management University, the MOE Start-up Grant at the National University of Singapore, and the Pension Research Council/Boettner Center at The Wharton School of the University of Pennsylvania. All opinions are solely those of the authors. © 2019 Koh, Mitchell and Fong. All rights reserved.

## **Trust and Retirement Preparedness: Evidence from Singapore**

Benedict Koh, Olivia S. Mitchell, and Joelle H. Fong

### *Abstract*

Trust is an essential component of the financial system, and distrust can undermine saving and economic growth. Accordingly, prior research has shown that survey responses to a question about ‘trust in people’ are associated with household willingness to invest in the stock market. Nevertheless, little is known about how trust shapes economic behaviors predictive of retirement preparedness. Our study draws on the Singapore Life Panel (SLP®), a high-frequency internet survey of people age 50-70, to assess how trust ties to older respondents’ (1) pension plan participation and withdrawals; (2) life, health and long-term care insurance purchases; and (3) stock market engagement. We show that the ‘trust in people’ question often used in prior studies is uncorrelated with household behaviors related to retirement preparedness. Nevertheless, trust in financial and public-sector representatives is positively associated with pension savings, investments, and insurance purchases. Financial literacy also has a consistent and important role in explaining who saves for retirement and other economic behaviors driving retirement readiness.

Keywords: financial literacy, trust, investment, saving, household portfolios, retirement, pension, Central Provident Fund

JEL Codes: D14, E21, G11, J32

#### **Benedict S. K. Koh**

Professor of Finance  
Singapore Management University  
50 Stamford Road, #04-01; Singapore 178899  
T: 65-6828-0716 • F: 65-6828-0777  
Email: [skkoh@smu.edu.sg](mailto:skkoh@smu.edu.sg)

#### **Olivia S. Mitchell** (*corresponding author*)

International Professor of Employee Benefit Plans  
Professor of Insurance/Risk Management and Business Economics/Policy  
Director, Pension Research Council and Boettner Center for Pensions & Retirement Research  
The Wharton School, 3620 Locust Walk, St 3000 SHDH, Philadelphia, PA 19104-6320  
T: 215-898-0424 • F: 215-898-0310  
Email: [mitchelo@wharton.upenn.edu](mailto:mitchelo@wharton.upenn.edu)

#### **Joelle H. Fong**

Assistant Professor (Economics & Public Policy)  
Lee Kuan Yew School of Public Policy, National University of Singapore  
469C Bukit Timah Road, Oei Tiong Ham Building, Singapore 259772  
T: +65-6601-6224 • Email: [j.fong@nus.edu.sg](mailto:j.fong@nus.edu.sg)

## Trust and Retirement Preparedness: Evidence from Singapore

### 1. Introduction

Trust can be defined as the “subjective probability (that) individuals attribute to the possibility of being cheated” (Guiso et al. 2008), and in the aftermath of the Global Financial Crisis (GFC), public levels of trust in institutions fell precipitously around the world (Close 2016, Sapienza and Zingales 2012). Moreover, financial institutions are among the least-trusted of all entities in the post GFC environment (Edelman 2018). Nevertheless, a growing and rapidly aging population faces an ever-longer retirement period, making it increasingly necessary for people to engage with financial and governmental institutions to save more and invest more efficiently for the long term. Indeed, restoring peoples’ trust in institutions is likely to be central to successful retirement for generations to come. Particularly important in this setting is trust in pension institutions, pivotal in converting workers’ deferred earnings into benefits payable over the retirement period.

The subject of people’s trust in other persons and in institutions has long been a topic of interest to economists.<sup>1</sup> Knack and Keefer (1997) examined trust patterns using a question in the World Values Survey (WVS) and General Social Survey (GSS), to the following effect: *“Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?”* Much research has explored whether this conventional ‘trust in people’ question was reliable in real-world situations, and the evidence indicates that individuals stating that “most people can be trusted” are also most trusting in investment experiments (Johnson

---

<sup>1</sup> For instance Nobel Prize winner Arrow (1972: 357) noted that “virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can plausibly be argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence.” Sociologists and political scientists have also discussed the role of trust in understanding human behavior; see Morrone et al. (2009) for an overview.

and Mislin 2012; Sapienza et al. 2013). Additionally, several different economic outcomes have been found to be positively associated with trust measured this way including economic growth (Knack and Keefer 1997; Zak and Knack 2001), judicial efficiency (LaPorta et al. 1997), the size of the welfare state (Algan et al. 2016), public finance efficiency (Slemrod, 2003), participation in the stock market (Guiso et al. 2008), use of financial advice (Lachance and Tang 2012), and household saving (Beckmann and Mare 2017). More generally, Bartling et al. (2018) showed experimentally and theoretically that trust has a causal effect on the efficiency of human interactions in families, organizations, markets, and politics.

While previous studies on trust and financial behavior have not focused on whether trust influences peoples' retirement security, it is likely to be influential. For instance, trust can enhance employees' willingness to participate in a pension system, and it can also shape their savings and investment behavior when they do participate. Guiso et al. (2008) found that trust was positively related to household decisions to buy individual listed or unlisted company shares,<sup>2</sup> but that study excluded pension and net housing values from the definition of wealth considered. Balloch et al. (2015) focused on financial assets as well as farm and nonfarm partnerships, but that study also excluded pensions. Beckmann and Mare (2017) investigated whether households in developing economies were more likely to save in formal versus informal instruments, and though they did ask whether respondents participated in pension plans, the authors did not examine how much wealth was represented in these accounts. Accordingly, the current study helps fill this gap by examining how trust is associated with retirement preparedness.

---

<sup>2</sup> They also examined how trust was related to direct holdings of all risky assets defined as shares, mutual funds, corporate bonds, and put and call options; pension assets as well as other forms of nonfinancial wealth were excluded (e.g. net home equity).

There is also recent work seeking to assess different dimensions of trust beyond the traditional ‘trust in people’ WVS question. For instance, Burke and Hung (2016) explored the relationships between trust and behaviors related to utilizing professional financial advice. Using data from the American Life Panel, their measure included five items: trust in the stock market, banks, insurance companies, stockbrokers, and investment advisers. Lachance and Tang (2012) examined the association between trust and financial advice-seeking behavior using the U.S. National Financial Capability Study. The latter research included the generalized ‘trust in people’ question as well as one additional question exploring trust in the financial sector (“*I would trust financial professionals and accept what they recommend*”).

The present paper also contributes to the literature by broadening the set of outcomes considered, permitting us to evaluate whether and how trust impacts multiple aspects of older peoples’ economic behavior conducive to retirement security. The three domains on which we focus are: (1) pension plan participation and savings; (2) life, health and long-term care insurance coverage; and (3) capital market engagement and financial advice-seeking behavior. We undertake this analysis using a unique new dataset, the Singapore Life Panel (SLP®), which is a nationally representative survey on adults age 50-70 in the nation of Singapore. Using this, we first assess older Singaporeans’ overall level of trust in people using the WVS question, and we compare this to evidence from other countries. Second, we examine how the traditional WVS question stacks up against our more detailed trust questions eliciting respondent trust in insurance agents, bank financial advisors, non-bank financial advisors, civil servants, and Central Provident Fund (CPF) board officials. The CPF board is the primary government agency administering Singapore’s social security system. Third, we evaluate whether our results are associated with key factors driving older adults’ financial outcomes.

To preview our findings, we show that peoples' response to the overall WVS 'trust in people' question is generally uncorrelated with older household behaviors related to retirement saving, insurance coverage, or investment. Moreover, 'trust in people' is only weakly linked to respondent characteristics about which we have information in our dataset. By contrast, we find that trust in financial and governmental representatives is quite strongly associated with economic preparedness for retirement. For instance, trust in CPF officials is positively and significantly associated with higher pension balances and pension investing, holding other factors constant. Moreover, respondents significantly less confident in civil servants as well as bank and nonbank advisors are more likely to have withdrawn money from their CPF accounts once they may do so (at age 55). Turning to insurance behavior, we find that 'trust in people' is not a statistically significant determinant, but respondents who trust insurance agents are much more likely to have all types of insurance, including life, health, and long-term care coverage.

Our analysis of trust and engagement in the capital market also shows that the answers to the WVS question are uncorrelated with whether respondents invested in the stock market, and whether respondents sought financial advice from advisors. By contrast, trust in insurance agents does predict who invests in stocks and has a financial advisor, and trust in CPF officials is positively related to having a financial advisor. Additionally, financial literacy is generally positively related to trust, particularly trust in CPF officials, but those who are financially savvy are less trusting of insurance agents, bank advisors, and nonbank advisors. Consistent with prior literature, we also find that the more financially literate hold higher pension plan balances, are more likely to invest in the stock market, and are more likely to have health, long-term care, and life insurance coverage. These conclusions are robust to a detailed set of controls including education, income, risk preferences, self-reported health, financial confidence, and optimism.



In what follows, we first briefly describe the Singaporean pension system, followed by an overview of our dataset. Next we report our empirical findings, and we close with a discussion and conclusions.

## **2. An Overview of the Singaporean Retirement System**

Some empirical research has used micro data to analyze financial behavior of older Singaporeans, yet most prior analysis has explored pension system cost structures, investment patterns, and financial literacy (Fong et al., 2011; Koh et al. 2007, 2008, 2010, 2018). To date, no research of which we are aware has linked trust and older households' retirement preparedness in terms of pension saving, insurance coverage, and stock market participation. To set the stage, in this section we provide the background and context of the national pension scheme, insurance market and providers, and avenues for investing in stock markets in Singapore as they relate to our three main domains of interest.

### ***2.1 The Singaporean national pension scheme***

Singapore has a mandatory national defined contribution (DC) pension system administered by the CPF Board, a government statutory board (Koh et al. 2018). Formal sector employees as well as the self-employed must contribute to three accounts called the Ordinary, Special, and Medisave accounts. CPF contribution rates and allocation into the three accounts decline with age: persons age 55 or younger must contribute 20% of their monthly wages, and their employers 17%, to the CPF. The total 37% contribution is allocated as follows: 23 percentage points must be deposited into the Ordinary Account, 6 percentage points into the Special Account, and 8 percentage points into the Medisave Account for those age 35 and below. Allocation rates into the Special and Medisave account increase gradually with age, to nudge individuals to save

more for retirement and medical expenses. By contrast, contributions from workers age 65+ and their employers decline to 5% and 7.5% respectively; and allocations into the Ordinary, Special and Medisave accounts are 1%, 1%, and 10.5%, respectively. These contribution rates apply to wages up to an income ceiling of S\$6,000 per month.

Currently, CPF members earn a stable return of 3.5% per annum on money retained in their Ordinary Accounts, and up to 5% per annum on their Special and MediSave Accounts.<sup>3</sup> Additionally, Ordinary Account savings can be withdrawn to purchase homes, service mortgage payments, finance premiums for insurance protection, pay for children's tertiary education, and to invest in financial products to grow savings. The Special Account holds savings primarily for retirement; these funds cannot be withdrawn prior to the age of 55. In lieu of leaving their accumulations in their default CPF accounts, however, savers are permitted to invest a portion of their pension accumulations into several non-CPF financial products including unit trusts (mutual funds), insurance products, fixed deposits, bonds, and equities. This channel is known as the 'CPF Investment Scheme (CPFIS)'.

On turning age 55, participants may withdraw a portion of their CPF savings, after setting aside a stipulated retirement sum in a so-called Retirement Account managed by the government.<sup>4</sup> The full retirement sum is currently set at S\$171,000 (around US\$120,000) for CPF members who turned age 55 in 2018. How much a member can withdraw depends on his accumulated CPF cash balances as of age 55: if he has S\$5,000 or less, he may withdraw his entire accumulations, while if he has more than S\$5,000 but less than the stipulated retirement sum, he can withdraw S\$5,000.

---

<sup>3</sup> For balances exceeding \$20,000 in the Ordinary Account, the applicable interest rate is 2.5% per annum. For combined balances in Ordinary Account and Special Account exceeding \$60,000, the interest rate paid for the remaining balances in Special Account is 4% per annum.

<sup>4</sup> When a member reaches 55 years old, his or her Special and/or Ordinary Accounts savings are transferred to a Retirement Account. The Retirement Account holds the stipulated retirement sum, which increases yearly to adjust for inflation. Members may set aside half the stipulated amount if they have a sufficient property pledge. This retirement sum is converted to a life annuity to provide members with monthly lifelong payouts.

If he has accumulated more than the stipulated retirement sum, he can essentially withdraw any excess. To allow for greater flexibility, members also have the option to withdraw a lump sum of up to 20% of the savings in their Retirement Accounts when they attain age 65.<sup>5</sup>

For our analytical purposes, three outcome variables are of interest. The first is the total amount of pension wealth people hold in the CPF, defined as the sum of balances held in the Ordinary, Special, Medisave, and Retirement accounts, in addition to any balances deployed for investment through the CPFIS program. This is assessed at the household level (if both a respondent and spouse participated in the survey). The second is whether a respondent actively invested pension monies in financial instruments outside of the default CPF deposit accounts, that is, participated in the CPFIS program. The third outcome variable is whether the respondent partially withdrew his allowable pension accruals at age 55.

## ***2.2 Insurance market and providers***

Life insurance plays an important role in retirement planning because it can help the surviving spouse (and other family members) cope with income needs when one spouse passes away. Studies have also found that the purchase of life insurance is welfare-enhancing (see, e.g., Hong and Ríos-Rull 2007). In Singapore, individuals can purchase life insurance from a wide selection of insurance companies and intermediaries licensed by the Monetary Authority of Singapore.<sup>6</sup> Life insurance policies must be purchased using private savings.

All Singaporeans are covered by a basic health insurance plan called MediShield Life, which helps pay for large hospital bills and selected costly outpatient treatments such as dialysis for kidney disease and chemotherapy for cancer. Additional health coverage come in two forms:

---

<sup>5</sup> This permitted 20% lump sum withdrawal takes into account any amounts that previously withdrawn at age 55.

<sup>6</sup> Providers of term and whole life insurance include AIA, AXA, Great Eastern Life, Prudential, Tokio Marine, NTUC Income, Manulife, and others.

an add-on to MediShield Life, and/or other general private health insurance. Because MediShield Life only covers treatments in in public hospital lower-class wards, some individuals purchase add-on plans that cover costs in higher-class wards in public or private hospitals.<sup>7</sup> Such add-on plans are offered and managed by select private insurers appointed by the Ministry of Health (e.g. AIA, AVIVA, Great Eastern Life, and NTUC Income). Other general private health insurance coverage – either group or individual – can be provided by employers or self-purchased from any commercial insurer.

The third type of insurance coverage we examine is long-term care insurance. Singaporeans may either purchase the product directly from the private market, or opt into the government-run ElderShield scheme when they turn age 40. The latter was introduced in 2002 as a basic long-term care insurance scheme targeted at old-age severe disability, established by the Ministry of Health to create general public awareness of the need for long-term care insurance and protection.<sup>8</sup> Although CPF members with a MediSave Account are automatically enrolled in ElderShield at the age of 40, they may choose to opt out of the scheme.

For our analysis of insurance coverage for old age, we focus on three outcomes of interest. The first is whether a respondent has any whole life insurance coverage; the second is whether a respondent has any additional private health coverage over and above the government-provided basic health insurance plan; and the third is whether the respondent has long-term care insurance purchased either directly from the private market or through the ElderShield scheme.

### ***2.3 Investment and capital markets***

---

<sup>7</sup> These add-on medical insurance plans are also known locally as Integrated Shield Plans, and offers additional benefits on top of that provided by MediShield Life

<sup>8</sup> There is no underwriting for the ElderShield program. An insured becomes eligible for payouts if he or she is unable to perform three or more Activities of Daily Living independently, with or without mobility aids. The scheme provides a monthly cash payout up to a maximum period of 72 months.

Singapore is a well-established financial hub in the Asia-Pacific region with deep and liquid capital markets for debt, equity, and foreign exchange. In particular, the Singapore Exchange is the preferred listing location for almost 800 foreign and domestic companies in diverse sectors such as real estate, shipping, offshore marine, and infrastructure. Accordingly, one behavior we can investigate pertinent to retirement security is stock market participation, since households who hold no stocks at all forego the equity risk premium. Following Van Rooij et al. (2012), we consider both direct holdings of stocks and indirect holdings via participation in mutual funds; the latter include managed funds and unit trusts, which in turn, hold shares, bonds, and other assets. Singaporeans can invest in stocks or mutual funds using both non-pension and pension monies. Retail customers must open accounts with authorized brokers to gain access to buy and sell stocks/funds using their private assets. Another channel is to invest using CPF savings. As noted above, the CPF Investment Scheme permits savers to invest their pension monies in an array of financial instruments including stocks, bonds, and mutual funds, subject to the CPF member meeting certain saving balance thresholds.<sup>9</sup>

Since obtaining good advice on asset allocation can be crucial for financial and retirement wellbeing, a related economic behavior we examine is whether our older respondents tend to seek advice from a financial advisor before investing their savings. Prior work has shown that obtaining some retirement investment advice can lead to improved decision-making, particularly for the less financially literate (Goldstein et al. 2008; Kim et al. 2016). Accordingly, we focus on two outcomes: whether people participate in the stock market (owns stocks and/or mutual funds), and whether people seek advice from financial advisors before investing.

---

<sup>9</sup> CPF members can invest their pension accumulations under the CPF Investment Scheme only after setting aside \$20,000 in their Ordinary Account (OA) and/or \$40,000 in their Special Account (SA). In addition, investment of CPF-OA savings in stocks or shares is capped at 35% of investible savings.

### 3. Data

#### *3.1 The Singapore Life Panel*

The Singapore Life Panel (SLP®) is an ongoing high-frequency internet survey<sup>10</sup> fielded by the Centre for Research on the Economics of Ageing (CREA) at the Singapore Management University.<sup>11</sup> Monthly interviews track individual and household circumstances and behavior longitudinally for a representative cohort of Singaporean citizens and permanent residents age 50-70 when recruited in 2015.<sup>12</sup> The survey includes many state-of-the-art and globally harmonized questions on a large range of topics eliciting information on respondents' circumstances (e.g., their health and labor force status, their expectations and preferences, government program participation, and so on), as well as information on household-level variables (such as monthly information on household expenditures across 44 categories). Panel members are compensated for each survey they complete in the form of a grocery store voucher (values range between \$10 and \$25 depending on the expected length of the monthly survey). Analysis of the panel along several dimensions has shown that it is representative of the Singaporean population, and attrition rates are low.<sup>13</sup>

Three modules are central to the present study. First, we fielded a special module including trust questions in March of 2018, which we discuss in the next subsection. Second, we previously fielded a financial literacy module using the “Big Three” questions developed and implemented in

---

<sup>10</sup> Respondents who need assistance can call the helpdesk and complete the survey over the phone or they can ask for personal assistance by arranging an in-person meeting with a student assistant at a local library or at the CREA office. About 3% of interviews are completed over the phone every month and about 1% with in-person assistance.

<sup>11</sup> For additional information on the SLP® see Vaithianathan et al. (2018) and Koh et al. (2018).

<sup>12</sup> All data are anonymized so no personal identification of individuals or households is feasible.

<sup>13</sup> For additional information on the survey see <https://crea.smu.edu.sg/singapore-monthly-panel>.

over two dozen countries to date by Lusardi and Mitchell (2014).<sup>14</sup> Third, the SLP periodically elicits a detailed inventory of each respondent's household assets and debts outside and inside their pension accounts. Since some assets are individually-owned such as CPF balances, each respondent first reports on his own CPF assets first, and on the spouse's CPF account as well (if any).<sup>15</sup> In some households, the respondent's spouse is also a study participant, so in that case, both partners are asked to provide the financial information.<sup>16</sup> The analytic sample for this study consists of  $N=5,729$  persons age 50-70 in December 2015 who answered the trust, financial literacy, and asset /income questions in January/February of 2017, and the trust questions fielded in March of 2018.<sup>17</sup>

### ***3.2 Measures of trust***

Six trust questions collected via the special SLP trust module are our main explanatory variables. Per the WVS, we define the *TrustPeople* variable as follows: “*Generally speaking, would you say that when dealing with people, most people can be trusted?*” (coded 1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree). Panel A of Table 1 shows that older Singaporean respondents score 2.84 out of a 5 maximum points on the *TrustPeople* question, or approximately 57% on a 0-100% scale. This is similar to the score for the same question in the American Life Panel (Balloch et al. 2015), although the latter sample included respondents of all

---

<sup>14</sup> As noted in Lusardi and Mitchell (2014), these questions were designed to be simple, relevant, brief, and sufficient to permit comparisons across people. These same questions have been added to other U.S. surveys 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 18 countries. See also Lusardi and Mitchell (2008, 2011).

<sup>15</sup> Because spouses of married study participants are not systematically included as respondents in their own right, it is important to obtain the complete inventory of household assets and income from each respondent.

<sup>16</sup> In that event, we use both observations in our analyses, adjusting standard errors to account for clustering at the household level.

<sup>17</sup> We use the 2017 rather than the 2016 asset measures as the 2017 survey instrument added questions on the detailed allocation of assets within peoples' CPF accounts.

ages; it is a bit lower than U.S. statistics reported by Glaeser et al. (2000) who surveyed all ages but that survey was conducted over two decades ago (1972-1994). It is worth noting that there is substantial heterogeneity across countries: thus Ortiz-Espina and Roser (2017) found in more recent surveys that over 60% of residents in Northern European countries as well as in China felt that that people could be trusted, while fewer than 10% of respondents in developing countries in Latin America were of that opinion.

*Table 1 here*

We also asked respondents regarding their levels of trust in persons who worked for particular financial institutions, including CPF officials, insurance agents, civil servants, and bank as well as nonbank financial advisors. The specific wording of the questions was as follows: “*How much trust do you have in each of the following types of individual?*” where the categories included CPF officials, insurance agents, civil servants, bank financial advisors, and nonbank financial advisors. (Response categories were coded 1=do not trust at all; 2=do not trust much; 3=neutral; 4=trust somewhat; and 5=trust completely).

Panel A of Table 1 summarizes results, where we find the highest level of trust is reported for CPF officials (*TrustCPF*), with a mean score of 3.67 out of 5 (73% on a 0-100% scale). Confidence in civil servants (*TrustCivilServants*) is just slightly lower, at 3.29 (66%).<sup>18</sup> Far lower scores are reported for insurance agents (*TrustIns*) and bank financial advisors (*TrustBank*), with mean scores of 2.79 (56%). At the bottom of the trust ranking was nonbank financial advisors (*TrustNonBankFA*), who scored only 2.56 (51%). Panel B of Table 1 indicates that all trust variables are positively correlated, but the *TrustPeople* variable is less strongly correlated with respondents’ reported trust levels in representatives of financial institutions. This could suggest

---

<sup>18</sup> To facilitate cross-comparisons, the mean scores are also expressed on a 0-100% scale for each Trust variable.



that respondents' financial behaviors might be better assessed using questions that capture trust in financial service representatives, rather than simply the WVS 'trust in people' metric. Nevertheless, in what follows, we explore both types of trust measures since *TrustPeople* is what has been used in many prior studies.

### ***3.3 Other controls & correlations to trust measures***

Aside from the trust measures, we include in our empirical analysis socio-demographic, wealth, health, financial knowledge, risk attitudes, and other control variables to account for possible attitudinal differences across respondents. Our measure of financial knowledge uses the "Big Three" questions that test key concepts underlying economic saving and investment decisions (Lusardi and Mitchell 2008, 2014).<sup>19</sup> Specifically, SLP® respondents were asked (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.]***
- *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.]***
- *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. **[True, False, Don't know.]***

Using these three questions, financial literacy has previously been found to enhance retirement planning and saving (Lusardi and Mitchell 2007), increase precautionary savings (de Bassa Scheresberg 2013), spur participation in the stock market (Van Rooij et al. 2012), boost investment returns (Clark et al. 2017), and strengthen understanding of insurance (Brown et al. 2017). Accordingly, we construct the *FinLit* score by adding each person's number of correct answers.<sup>20</sup>

---

<sup>19</sup> The Big Three financial literacy questions perform well in the population at large, though more detailed and sophisticated questions have been devised for more financially-savvy subpopulations; see Clark et al. (2017).

<sup>20</sup> Sample descriptive statistics appear in Online Appendix Table A1.

We also control on respondent age (grouped in bins of age 55-59, 60-64, and 60-69, with age 50-54 as the reference category), on the argument that as people near and enter retirement, they may become more familiar with certain institutions – e.g. the pension system – compared to younger people. As is conventional, we also include indicators for sex, marital status, the number of living children, and educational levels (primary or less (ref. group), secondary, and post-secondary). People with health problems may also be more alert to some financial institutions such as the pension system, so we capture this with a dummy variable taking on the value of 1 if the respondent indicated he was in fair/poor health. Homeowners and those currently working are also likely to be more financially attuned to financial institutions, so we control on these attributes as well. Finally, we make note of whether respondents indicated that they managed the household finances (fully (ref. group), partially, or no), and we include measures of level of confidence on knowledge regarding household finances, having a long financial planning horizon (defined as 5+ years), as well as general and financial risk preferences.<sup>21</sup>

Table 2 correlates the six different trust measures and the vector of respondent attributes. A first observation is that the WVS overall *TrustPeople* variable is not systematically linked to many of the controls. For instance, it is uncorrelated with respondents' financial literacy scores, age, marital status, wealth levels, or the indicators of risk preferences and planning horizons. Moreover, the explained variance for the *TrustPeople* equation is lower than for most other trust equations (i.e., the R-squared is below all but that in the last column). By contrast, four of our five SLP trust measures are significantly correlated with the financial literacy scores. Interestingly, the signs differ: the more financially literate score higher on *TrustCPFofficials*, but lower when it

---

<sup>21</sup> The SLP financial risk preference question is phrased as follows: “Some people have a different willingness to take risks, depending on the context and situation. On the same scale from 0 to 10, how willing are you to take risks when it comes to financial decisions, like saving and investments? (where 0 is not at all willing to take risk and 10 is very willing to take risks).” In addition, we control on but do not report coefficients for ethnicity.

comes to trusting insurance agents, bank advisors, and nonbank financial advisors. There is also no significant relation between trust in civil servants as a whole and financial literacy. In any event, the significant FinLit coefficients are quantitatively small: for instance, someone who correctly answers one additional FinLit question is about 1% more likely to trust CPF officials (0.049/3.67), 1% less likely to trust insurance agents, and 2% less likely to trust financial advisors.

*Table 2 here*

Other differences are worth noting between the factors associated with the *TrustPeople* variable versus trust in financial representatives. Most salient is the fact that optimists (those who self-report facing the future in a very confident, confident, or somewhat confident manner) tend to be more trusting of people in general, and financial professionals in particular. Poor/fair self-reported health has a negative association with all trust measures. People age 60-70 are more likely to trust CPF officials and civil servants, compared to the younger age group. Women tend to be somewhat more trusting than men across many categories; also, women trust institutional representatives more than people in general. Better-educated persons do not differ systematically from the less educated.

#### **4. Multivariate Results**

Our empirical regressions focus on how the general and detailed trust variables we have measured relate to the three domains most relevant to retirement security, namely pension plan participation and savings; life, health and long-term care insurance purchases; and capital market engagement. Marginal effects are reported for probit regressions and coefficients for linear regressions. For brevity, we highlight only the results for the key trust variables as well as financial literacy scores. A full set of estimates is provided in the Online Appendix.

**Trust and Pension Saving:** Table 3 reports results for three multivariate models of respondent behavior regarding their pension savings. The first column links these variables to the size of peoples' pension assets, measured by households' total CPF balances.<sup>22</sup> The mean value of CPF assets is S\$260,000. The second column indicates whether respondents participate in the CPF Investment Scheme (that is, the held market-based assets instead of leaving the money to accumulate in the CPF default savings account); only 18% of the respondents indicate that they do. The third column explores the attributes of respondents who had withdrawn retirement assets from the CPF at age 55, as permitted; here we see that 47% of those eligible did.

*Table 3 here*

A first lesson from the Table is that, in no case, is the *TrustPeople* variable statistically significantly associated with any of the pension behaviors. By contrast, *Trust CPF officials* and *Trust insurance agents* are both predictive of larger household CPF balances. Respondents who trust CPF representatives have approximately 10% larger CPF balances (.026/.26) than counterparts who do not, and this holds even after controlling on other factors included in our multivariate model such as age, education, health, risk preferences, and so on. Respondents who indicate they trust insurance agents have about 6% larger household CPF balances (.016/.26) than those who do not.

A second finding is that respondents who trust CPF officials are 1.4% ( $p < 0.05$ ) more likely to have invested through the CPFIS program. The more financially literate are also 5% ( $p < 0.01$ ) more likely to actively invest their pension monies. The other five trust measures are not statistically associated with pension balances.

---

<sup>22</sup> This includes balances held in the Ordinary, Special, Medisave, and Retirement accounts, plus any balances deployed for investment through the CPFIS program. This variable is assessed at the household-level (if both the respondent and spouse participated in the survey).

Third, we show that people who say they trust CPF officials administering Singapore's pension fund are not significantly more likely to withdraw their lump sum pension savings; those who trust civil servants and bank financial advisors are also about 4-5% ( $p < 0.05$ ) less likely to withdraw their CPF monies. By contrast, respondents lacking confidence in civil servants and bank financial advisors are more likely to withdraw pension money at age 55, and respondents who say they trust non-bank financial advisors are 5% ( $p < 0.05$ ) more likely to withdraw pension monies at age 55. Examples of non-bank financial advisors include securities brokers, mortgage brokers, management consultants, and freelance financial advisors. In contrast to the two other pension behaviors examined, people taking CPF withdrawals at age 55 are not differentially financially savvy.

**Trust and Insurance Behaviors:** Table 4 focuses on insurance coverage among the older households: three measures are of particular interest for retirement security. Column 1 explores whether older respondents have whole life insurance coverage; about 50% indicated that they do. In Column 2, we examine whether respondents have private health coverage over and above the government-provided MediShield Life, and 91% said they do. The final column asks about long-term care insurance coverage; 53% of the sampled respondents report they have such insurance, purchased either directly from private providers or through the government-directed ElderShield scheme.

*Table 4 here*

As with the pension-related outcomes, the WVS *TrustPeople* variable is again statistically insignificant for all of the insurance outcomes, whereas trust in specific types of financial sector representatives are more informative. As expected, respondents reporting trust in insurance agents are more likely to have insurance coverage and the magnitudes are substantial: 8.4% higher

likelihood of coverage for whole life insurance, 2.5% higher likelihood of coverage for health insurance, and 4.6% higher likelihood of coverage for long-term care insurance ( $p < 0.01$  for all coefficients). People distrusting bank financial advisors are generally less likely to hold insurance coverage of all sort. Thus respondents who trust bank financial advisors are about 4% less likely to have life insurance or long-term care insurance coverage. The other trust variables are generally less consistent predictors. We also note that respondents' financial literacy scores are positively and significantly associated with having life and long-term care insurance coverage. Here too, magnitudes are reasonably large: for instance, the more financially savvy are 5.6% ( $p < 0.01$ ) more likely to have life insurance coverage. The implication is that insurance purchases are correlated with trust in insurance agents, yet in Singapore, the level of trust in insurance agents is fairly low. Accordingly, the insurance industry may be able to enhance retirement security by enhancing trust in agents, via more professional standards and more transparent compensation practices.

**Trust and Capital Market Engagement:** Finally, we turn to an examination of the relationship between trust and stock market participation, as well as use of financial advice. Table 5 summarizes results of multivariate probit regressions, and again we note that the *TrustPeople* variable is not significantly correlated with either outcome. The lack of association between *TrustPeople* and stock market participation is somewhat surprising, as studies in Spain, Italy, and the Netherlands have documented a positive relationship between the VWS measure of trust and investment in risky assets (e.g. Guiso et al. 2008, El-Attar and Poschke 2011). One explanation for the difference is that European versus Asian countries have had different historical exposures to capital markets. In Singapore, in particular, the majority of private saving is managed by the CPF

which is a government agency. An additional explanation could be that our sample is limited to those age 50-70, whereas other studies included respondents from younger age groups.<sup>23</sup>

*Table 5 here*

The evidence shows that stock market participation is higher for those who trust insurance agents, but lower for those who trust bank financial advisors. Specifically, a respondent who states that he trusts insurance agents is 3.9% ( $p < 0.01$ ) more likely to invest in stocks, while those who trust bank financial advisors are 4.8% ( $p < 0.01$ ) less likely to undertake such an investment. It seems clear that people who trust bank representatives prefer leaving their assets in bank accounts perceived to be safer than risky stock investing. The results also show that more financially literate respondents are more likely to invest in the stock market, by 24% (.081/.33) per additional answer correct. These observed effects are not due to spurious correlation with omitted wealth or education variables, as these are included in the set of additional controls (see the Online Appendix).

A positive relationship between more nuanced trust measures, compared to the WVS question, and usage of financial advice has also been found in US data (Hanna 2011; Lachance and Tang 2012).<sup>24</sup> The same holds in our data: thus the final column of Table 5 shows that use of financial advice is not only positively associated with trust in bank financial advisors, but also trust in insurance agents and CPF officials. Specifically, a respondent has a 3.2% ( $p < 0.01$ ) greater chance of using a financial advisor if he trusts bank financial advisors. The corresponding impact of trust in insurance agents is 1.6% ( $p < 0.05$ ). Trust in CPF officials also boosts the likelihood of using financial advice by 1.7% ( $p < 0.01$ ). We also note that those scoring higher in the financial literacy quiz are not differentially likely to seek advice.

---

<sup>23</sup> For example, Guiso et al. (2008) used a dataset where all members of the households 16 years of age and above were interviewed.

<sup>24</sup> Lachance and Tang (2012) assessed institution-based trust using responses to the following: “I would trust financial professionals and accept what they recommend.”

## 5. Conclusions and Implications

To date, no other study has linked trust measures with older households' behaviors predictive of retirement financial success including retirement account accumulation and withdrawals, insurance protection, and capital market engagement. This paper therefore contributes to the literature on trust and economic behavior in several ways. Drawing on a special trust module in the SLP® survey, we provide new evidence that trust in financial and governmental representatives is positively associated with not only greater pension wealth balances, but also a higher likelihood of having life, health, and long-term care insurance coverage. Further, older adults who trust insurance agents and bank financial advisors also are more likely to participate in stock markets and seek financial advice from professionals. Our results are robust to the inclusion of control variables.

We also document that trusting institutional representatives appears to be measure quite different attitudes than does the “trust people in general” World Values Survey question. We show that *TrustPeople* is not systematically linked to respondents' age, sex, marital status, wealth levels, risk preferences, and financial planning horizons. By contrast, reported trust in financial professionals and government officials is strongly associated with financial literacy scores, employment status, and knowledge regarding household finances. Moreover, the *TrustPeople* variable is not associated with retirement security outcomes including pension plan saving and investment, insurance coverage, stock market participation, and use of financial advice. This is particularly important as the older population becomes a dominant segment of society.

Additionally, we show that financial literacy influences older adults' financial decisions regarding pension plan participation and savings; life, health and long-term care insurance



purchases; and capital market engagement. More financially knowledgeable respondents have higher pension wealth balances and are more likely to invest outside of the default CPF accounts, and they are also more likely to invest in the stock market. Financially savvy older adults also tend to have life insurance and long-term care insurance coverage.

Singaporeans' financial behaviors clearly differ systematically in terms of their confidence in people generally versus confidence in agent of financial institutions. Nevertheless, our discussion of empirical findings interprets the estimated effects as associations rather than causal effects, as we lack a direct causal test of directionality. Supportive of the causal view, however, is recent experimental evidence from Costa-Gomes et al. (2014) substantiating a causal link between peoples' trust beliefs and their investment behaviors. Additionally, prior research on financial literacy and retirement wellbeing also detects a causal relationship (Lusardi and Mitchell 2014). In other words, we have reason to conclude that peoples' trust attitudes and their levels of financial literacy are among the factors predictive of successful retirement.

Given our results, one might ask what might be done to enhance retirement preparedness. Most critically, we note that older adults who distrust civil servants and bank financial advisors are also those who withdraw their CPF assets at age 55. Conversely, those who distrust non-bank financial advisors such as securities brokers, mortgage brokers, management consultants, and freelance financial advisors, are least likely to withdraw pension monies at age 55. In other words, distrust can help explain the apparently counter-intuitive observation that many Singaporeans cash out a portion of their CPF pension savings at age 55, despite the fact that their CPF accounts typically pay between 2.5% and 4% safe interest (Agarwal et al. 2018). Accordingly, making the CPF system more transparent and enhancing communications may reduce peoples' propensity to take pension lump sums prior to retirement.

Our findings regarding insurance behavior indicate that all three types of insurance coverage (life, health, and long-term care) are correlated with trust in insurance agents. Yet respondents indicate that their levels of trust in insurance agents are not high, and indeed they are lower than for CPF officials, civil servants, and bank financial advisors. It would appear that the insurance industry could assist the older population by upgrading professional practices and implementing more transparent compensation structures. Finally, enhancing financial literacy could also boost retirement preparedness, since we show the more financially sophisticated tend to be those holding life, health, and long-term care insurance. Accordingly, our findings will be of interest to policymakers seeking to enhance retirement security.

## References

- Agarwal, S., Pan, J. and Qian, W. (2018). 'Age of decision: Pension savings withdrawal and consumption and debt response,' SSRN Working Paper 2487658.
- Algan, Y., Cahuc, P. and Sangnier, M. (2016). 'Trust and the welfare state: The twin peaks curve,' *The Economic Journal*, vol. 126(593), pp. 861-883.
- Arrow, K. (1971). 'Gifts and exchanges', *Philosophy & Public Affairs*, vol. 1(4), pp. 343-62.
- Balloch, A., Nicolae, A. and Philip, D. (2015). 'Stock market literacy, trust, and participation', *Review of Finance*, vol. 19, pp. 1925-63.
- Bartling, B., Fehr, E. Huffman, D. and Netzer, N. (2018). 'The causal effect of trust', IZA Institute of Labor Economics Discussion Paper 1917.
- Beckmann, E. and Mare, D.S. (2017). 'Formal and informal household savings: How does trust in financial institutions influence the choice of savings instruments?' Foreign Research Division Working paper, Oesterreichische Nationalbank, Vienna, Austria.
- Brown, J.R., Kapteyn, A., Luttmer, E. and Mitchell, O. S. (2017). 'Cognitive constraints on valuing annuities', *Journal of the European Economic Association*, vol. 15(2), pp. 429-62.
- Burke, J. and Hung, A. (2016). 'Trust and financial advice', *RAND Working Paper no. WR-1075*, RAND Corporation, USA.
- Clark, R.L., Lusardi, A. and Mitchell, O.S. (2017). 'Financial knowledge and 401(k) investment performance', *Journal of Pension Economics and Finance*, vol. 16(3), pp. 324-47.
- Close, K. (2016). 'Almost nobody trusts financial institutions', *Money.com* <http://time.com/money/4293845/trust-financial-institutions-study/>
- Costa-Gomes, M.A., Huck, S. and Weizsaker, G. (2014). 'Beliefs and actions in the trust game: Creating instrumental variables to estimate the causal effect', *Games and Economic Behavior*, vol. 88, pp. 298-309.
- De Bassa Scheresberg, S. (2013). 'Financial literacy and financial behavior among young adults: Evidence and implications', *Numeracy*, vol. 6(2), pp. 1–21.
- Edelman (2018). *2018 Edelman Trust Barometer: Global Report*. <https://www.edelman.com/trust-barometer>
- El-Attar, M. and Poschke, M. (2011). 'Trust and the choice between housing and financial assets: Evidence from Spanish households', *Review of Finance*, vol. 15(4), pp. 727-56.
- Fong, J. H., Mitchell, O. S., and Koh, B. S. (2011). 'Longevity risk management in Singapore's national pension system', *Journal of Risk and Insurance*, vol. 78(4), pp. 961-981.
- Glaeser, E.L., Laibson, D.L., Scheinkman, J.A. and Soutter, C.L. (2000). 'Measuring trust', *Quarterly Journal of Economics*, vol. 115(3), pp. 811–46.
- Goldstein, D.G., Johnson, E. J. and Sharpe, W.F. (2008). 'Choosing outcomes versus choosing products: Consumer-focused retirement investment advice', *Journal of Consumer Research*, vol. 35(3), pp. 440-56.

- Guiso, L., Sapienza, P. and Zingales, L. (2008). 'Trusting the stock market', *Journal of Finance*, vol. 63, pp. 2557–600.
- Hanna, S.D. (2011). 'The demand for financial planning services', *Journal of Personal Finance*, vol. 10, pp. 36-62.
- Hong, J.H. and Ríos-Rull, J.V. (2007). 'Social Security, life insurance and annuities for families', *Journal of Monetary Economics*, vol. 54(1), pp. 118-40.
- Johnson, N. and Mislin, A. (2010). 'How much should we trust the world values trust questions?', *Economics Letters*, vol. 116, pp. 210-12.
- Kim, H., Maurer, R. and Mitchell, O.S. (2016). 'Time is money: Rational life cycle inertia and the delegation of investment management', *Journal of Financial Economics*, vol. 121(2), pp. 231-448.
- Knack, S. and Keefer, P. (1997). 'Does social capital have an economic payoff? A cross-country investigation', *Quarterly Journal of Economics*, vol. 112(4), pp. 1251-88.
- Koh, B.S., and Mitchell, O.S. (2010). 'What's on the menu? Included versus excluded investment funds for Singapore's central provident fund investors', *Pensions: An International Journal*, vol. 15(4), 276-286.
- Koh, B.S., Mitchell, O.S. and Fong, J.H. (2008). 'Cost structures in defined contribution systems: The case of Singapore's central provident fund', *Pensions: An International Journal*, vol. 13(1-2), pp. 7-14.
- Koh, B.S., Mitchell, O.S. and Rohwedder, S. (2018). 'Financial knowledge and portfolio complexity in Singapore', *The Journal of the Economics of Ageing*, in press, <https://www.sciencedirect.com/science/article/pii/S2212828X17300907>.
- Koh, B.S., Mitchell, O. S., Tanuwidjaja, T. and Fong, J. (2007). 'Investment patterns in Singapore's central provident fund', *Journal of Pension Economics and Finance*, vol. 7(1), pp. 1-29.
- Lachance, M.E. and Tang, N. (2012). 'Financial advice and trust', *Financial Services Review*, vol. 21(3), pp. 209-26.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1997). 'Trust in large organizations', *American Economic Review Papers and Proceedings*, vol. 87, pp. 333-8.
- Lusardi, A. and Mitchell, O.S. (2007). 'Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth' *Journal of Monetary Economics*, vol. 54(1), pp. 205-24.
- Lusardi, A. and Mitchell, O.S. (2008). 'Planning and financial literacy: How do women fare?', *American Economic Review*, vol. 98, pp. 413–17.
- Lusardi, A. and Mitchell, O.S. (2011). 'Financial literacy around the world: An overview', *Journal of Pension Economics and Finance*, vol. 10, pp. 497-508.
- Lusardi, A. and Mitchell, O.S. (2014). 'The economic importance of financial literacy: Theory and evidence', *Journal of Economic Literature*, vol. 52, pp. 5–44.
- Morrone, A., Tontoranelli, N. and Ranuzzi, G. (2009). 'How good is trust?', *OECD Statistics Working Paper 2009-02*.

- Ortiz-Espina, E. and Roser, M. (2017). *Trust*. OurWorldinData.org.
- Sapienza, P., and Zingales, L. (2012). 'A trust crisis', *International Review of Finance*, vol 12 (2), pp. 123-131.
- Sapienza, P., Toldra-Simats, A. and Zingales, L. (2013). 'Understanding trust', *The Economic Journal*, vol. 123(573), pp. 1313-32.
- Slemrod, J.B. (2003). 'Trust in public finance', in S. Cnossen and H.W. Sinn, eds., *Public Finance and Public Policy in the New Century*, Cambridge, MA: MIT Press.
- Vaithianathan, R., Hool, B., Hurd, M.D., and Rohwedder, S. (2018). 'High-frequency internet survey of a probability sample of older Singaporeans: The Singapore Life Panel', *The Singapore Economic Review*, July, pp. 1–20.
- Van Rooij, M. C., Lusardi, A. and Alessie, R. J. (2012). 'Financial literacy, retirement planning and household wealth', *The Economic Journal*, vol. 122(560), pp. 449-478.
- Zak, P.J. and Knack, S. (2001). 'Trust and growth', *The Economic Journal*, vol. 111(470), pp. 295-321.

**Table 1. Descriptive Statistics for Trust in People and Financial Representatives****Panel A. Means and Standard Deviations**

	Mean	SD	
Trust People	2.84	0.87	Generally speaking, would you say that when dealing with people, most people can be trusted?
<i>Representatives of specific financial and public-sector institutions:</i>			
Trust CPF officials	3.67	0.88	How much trust do you have in CPF officials?
Trust Civil servants	3.29	0.80	How much trust do you have in Civil servants?
Trust Bank fin advisors	2.79	0.84	How much trust do you have in Bank financial advisors?
Trust Insurance agents	2.79	0.86	How much trust do you have in Insurance agents?
Trust Non-bank fin advisors	2.56	0.84	How much trust do you have in Financial advisors (non-bank)?

Notes: CPF = Central Provident Fund. The question fielded for 'Trust People' is identical to that used in the World Values Survey (WVS); see text. Other detailed questions regarding trust in the representatives of specific financial and governmental institutions are authors' own. These are ranked by their mean responses (in decreasing order).

**Panel B. Correlation Coefficients for Trust Variables**

Trust:	People (WVS)	CPF officials	Insur. agents	Civil servants	Bank fin. advisors
Trust People (WVS)	1				
Trust CPF officials	0.14 **	1			
Trust Insurance agents	0.21 **	0.37 **	1		
Trust Civil servants	0.20 **	0.61 **	0.45 **	1	
Trust Bank financial advisors	0.19 **	0.36 **	0.64 **	0.52 **	1
Trust Non-bank financial advisors	0.20 **	0.24 **	0.63 **	0.38 **	0.72 **

Notes: For variable definitions, see text and Panel A. \* Significant at 0.05 level, \*\* Significant at 0.01 level. Sample includes SLP® respondents age 50-70 who responded to the three financial literacy questions discussed in the text (N=5,729).

**Table 2. Factors Associated with Trust in People and in Financial Representatives (OLS models)**

	Trust People	Trust CPF officials	Trust Insur. agents	Trust Civil servants	Trust Bank fin. advisors	Trust Non-bank fin. advisors
Age (ref: age 50-54)						
55-59	-0.006	0.032	0.078 *	0.050	0.074 *	0.045
60-64	0.017	0.127 **	0.084 *	0.086 *	0.074	0.044
65-70	-0.015	0.165 **	0.077	0.137 **	0.080	0.010
Female	-0.024	0.051 *	0.059 **	0.033	0.048 *	0.017
Married	0.044	0.068	0.011	0.070 *	0.033	0.013
Num. living children	0.009	-0.028 *	0.001	-0.007	0.017	0.027 *
Education (ref: primary or no)						
Secondary	-0.086 *	0.112 **	0.043	-0.041	-0.023	0.014
Post-secondary	0.043	0.157 **	0.048	0.017	-0.045	0.019
FinLit score	-0.004	0.049 **	-0.035 *	0.011	-0.069 **	-0.063 **
Fair/poor health	-0.148 **	-0.100 **	-0.190 **	-0.130 **	-0.186 **	-0.201 **
Work for pay	-0.032	0.085 **	0.049 *	0.023	0.054 *	0.028
Own home	-0.098 *	-0.016	0.017	0.022	0.001	-0.026
Total net wealth (in S\$M)	0.010	0.021 **	-0.009	0.015 *	-0.002	-0.014
Manage HH finances (ref: Yes, fully)						
Partially	0.077 **	0.014	0.050	-0.010	0.003	0.028
No	0.049	0.019	-0.015	0.005	0.041	-0.001
Optimist	0.170 **	0.306 **	0.132 **	0.262 **	0.152 **	0.080 **
Knowledge regarding HH finances	-0.002	0.176 **	0.197 **	0.123 **	0.189 **	0.123 **
Longer-term financial planning horizon	0.017	-0.002	0.009	0.002	-0.047	-0.016
General risk preference	-0.001	0.022	-0.010	-0.005	0.008	-0.033
Financial risk preference	0.064	-0.017	0.039	-0.021	0.014	0.084
<i>N</i>	5,729	5,729	5,729	5,729	5,729	5,729
<i>R</i> <sup>2</sup>	0.035	0.080	0.038	0.058	0.041	0.032
<i>Mean of dep. variable</i>	2.84	3.67	2.79	3.29	2.79	2.56

Note: \* Significant at 0.05 level, \*\* Significant at 0.01 level. CPF = Central Provident Fund. Dummies also included for missing values of controls and ethnicity.

**Table 3. Multivariate Models of Pension Plan Behavior**

	<b>Total CPF balances (S\$1M)</b>	<b>Participate in CPF Investment Scheme</b>	<b>Withdraw CPF assets at age 55</b>
Trust People	-0.003 (0.004)	-0.004 (0.006)	-0.016 (0.013)
Trust CPF officials	0.026 ** (0.005)	0.014 * (0.007)	-0.001 (0.016)
Trust Insurance agents	0.016 ** (0.005)	0.011 (0.008)	0.031 (0.018)
Trust Civil servants	-0.010 (0.006)	-0.005 (0.008)	-0.039 * (0.019)
Trust Bank fin. advisors	-0.004 (0.006)	-0.013 (0.009)	-0.048 * (0.021)
Trust Non-bank fin. advisors	-0.010 (0.005)	0.002 (0.008)	0.046 * (0.019)
FinLit score	0.029 ** (0.004)	0.053 ** (0.006)	-0.018 (0.013)
<i>N</i>	5,645	5,610	2,538
<i>R</i> <sup>2</sup> / <i>Pseudo R</i> <sup>2</sup>	0.371	0.153	0.069
<i>Mean of dep. variable</i>	0.26	0.18	0.47
<i>SD of dep. variable</i>	0.27	0.38	0.50

Notes: \* Significant at 0.05 level, \*\* Significant at 0.01 level. CPF = Central Provident Fund. For column 1, coefficients and robust standard errors reported for OLS regression. The total CPF balances variable is expressed in dollar millions (mean of 0.26 thus indicates mean balances of S\$260,000). For columns 2 and 3, marginal effects and robust standard errors reported for probit regressions. Standard errors are clustered at household level. Other controls include age, education; sex, marital and children status, health, employment, own home, total net wealth, whether manage HH finances, optimist, knowledge regarding HH finances, planning horizon, risk preferences, and ethnicity; dummies included for missing values. Only main explanatory variables are shown here for brevity; see Online Appendix Table A2 for a full set of results.



**Table 4. Multivariate Models of Insurance Coverage (Probit regressions)**

	<b>Any life insurance</b>		<b>Any health insurance</b>		<b>Any LTC insurance</b>	
Trust People	0.010 (0.009)		-0.001 (0.004)		-0.001 (0.009)	
Trust CPF officials	0.010 (0.011)		-0.001 (0.005)		0.025 (0.011)	*
Trust Insurance agents	0.084 (0.012)	**	0.025 (0.006)	**	0.046 (0.012)	**
Trust Civil servants	-0.035 (0.013)	**	-0.013 (0.006)	*	-0.019 (0.013)	
Trust Bank fin advisors	-0.041 (0.014)	**	-0.006 (0.006)		-0.036 (0.014)	*
Trust Non-bank fin advisors	0.015 (0.014)		-0.003 (0.007)		0.020 (0.013)	
FinLit score	0.056 (0.009)	**	-0.002 (0.004)		0.054 (0.009)	**
<i>N</i>	5,729		5,729		5,729	
<i>Pseudo R<sup>2</sup></i>	0.140		0.081		0.045	
<i>Mean of dep. variable</i>	0.50		0.91		0.53	
<i>SD of dep. variable</i>	0.50		0.29		0.50	

Notes: \* Significant at 0.05 level, \*\* Significant at 0.01 level. LTC=long-term care; CPF = Central Provident Fund. Marginal effects and robust standard errors reported. Standard errors are clustered at household level. Other controls include age, education; sex, marital and children status, health, employment, own home, total net wealth, whether manage HH finances, optimist, knowledge regarding HH finances, planning horizon, risk preferences, and ethnicity; dummies included for missing values. Only main explanatory variables are shown here for brevity; see Online Appendix Table A3 for a full set of results.

**Table 5. Multivariate Models of Capital Market Engagement** (Probit regressions)

	<b>Participate in stock market</b>	<b>Usually seek advice from financial adviser</b>
Trust People	-0.001 (0.009)	-0.003 (0.005)
Trust CPF officials	0.020 (0.011)	0.017 ** (0.006)
Trust Insurance agents	0.039 ** (0.012)	0.016 * (0.007)
Trust Civil servants	0.022 (0.013)	-0.018 * (0.007)
Trust Bank fin advisors	-0.048 ** (0.014)	0.032 ** (0.008)
Trust Non-bank fin advisors	-0.025 (0.013)	0.004 (0.008)
FinLit score	0.081 ** (0.009)	0.008 (0.005)
<i>N</i>	5,595	5,708
<i>Pseudo R<sup>2</sup></i>	0.241	0.053
<i>Mean of dep. variable</i>	0.33	0.10
<i>SD of dep. variable</i>	0.47	0.31

Notes: \* Significant at 0.05 level, \*\* Significant at 0.01 level. CPF = Central Provident Fund. Marginal effects and robust standard errors reported. Standard errors are clustered at household level. Other controls include age, education; sex, marital and children status, health, employment, own home, total net wealth, whether manage HH finances, optimist, knowledge regarding HH finances, planning horizon, risk preferences, and ethnicity; dummies included for missing values. Only main explanatory variables are shown here for brevity; see Online Appendix Table A4 for a full set of results.

## Online Appendix Tables

**Table A1. Sample descriptive statistics**

<b>Variable</b>	<b>Mean</b>	<b>Sd.</b>
Trust People	2.84	0.87
Trust CPF officials	3.67	0.88
Trust Insurance agents	2.79	0.86
Trust Civil servants	3.29	0.80
Trust Bank fin advisors	2.79	0.84
Trust Non-bank fin advisors	2.56	0.84
Age 50-54	0.12	0.32
Age 55-59	0.34	0.47
Age 60-64	0.30	0.46
Age 65-70	0.25	0.43
Female	0.53	0.50
Married	0.80	0.40
Num. living children	2.88	1.10
FinLit score	2.03	0.96
Education, primary or no	0.19	0.40
Education, secondary	0.42	0.49
Education, post-secondary	0.39	0.49
Fair/poor health	0.37	0.48
Work for pay	0.54	0.50
Home owner	0.87	0.34
Manage HH finances, fully	0.38	0.49
Manage HH finances, partially	0.46	0.50
Manage HH finances, no	0.15	0.36
Total net wealth (S\$1M)	1.18	1.59
Optimist	0.55	0.50
Knowledge regarding HH finances	0.80	0.40
Longer-term financial planning horizon	0.44	0.50
General risk preference	0.16	0.36
Financial risk preference	0.16	0.36
<i>N</i>	5,729	

**Table A2: Full Results for Multivariate Models of Pension Plan Behavior**

	CPF total balance (\$\$1M): OLS	Participate in CPF IS (0/1): Probit	Withdraw CPF assets at 55 (0/1): Probit
Trust People	-0.003 (0.004)	-0.004 (0.006)	-0.016 (0.013)
Trust CPF officials	0.026 ** (0.005)	0.014 * (0.007)	-0.001 (0.016)
Trust Insurance agents	0.016 ** (0.005)	0.011 (0.008)	0.031 (0.018)
Trust Civil servants	-0.010 (0.006)	-0.005 (0.008)	-0.039 * (0.019)
Trust Bank fin advisors	-0.004 (0.006)	-0.013 (0.009)	-0.048 * (0.021)
Trust Non-bank fin advisors	-0.010 (0.005)	0.002 (0.008)	0.046 * (0.019)
FinLit total score	0.029 ** (0.004)	0.053 ** (0.006)	-0.018 (0.013)
Age55-59	0.002 (0.009)	-0.007 (0.014)	-0.038 (0.235)
Age60-64	0.008 (0.010)	-0.045 ** (0.014)	-0.060 (0.236)
Age65-70	-0.043 ** (0.011)	-0.117 ** (0.012)	-0.006 (0.237)
Female	0.002 (0.004)	-0.018 * (0.008)	-0.133 ** (0.020)
Married	0.078 ** (0.008)	-0.013 (0.014)	0.006 (0.033)
# living children	-0.007 * (0.003)	-0.007 (0.005)	0.015 (0.011)
2ndry educ.	0.063 ** (0.006)	0.130 ** (0.020)	-0.052 (0.034)
Post-2ndry educ.	0.144 ** (0.011)	0.192 ** (0.022)	-0.143 ** (0.036)
Fair/poor health	0.009 (0.007)	-0.007 (0.010)	0.015 (0.023)
Work for pay	0.055 ** (0.007)	0.016 (0.009)	0.015 (0.022)
Own home	0.012 (0.010)	0.039 ** (0.014)	-0.025 (0.039)
Total net wealth (\$\$1M)	0.061 ** (0.008)	0.014 ** (0.003)	-0.024 ** (0.009)
Optimist	0.038 **	-0.002	-0.010

	(0.008)		(0.010)		(0.025)
R+Other mgs finances	0.029 **		-0.028 *		-0.016
	(0.008)		(0.013)		(0.034)
Other mgs finances	0.017 **		0.014		0.040
	(0.006)		(0.010)		(0.023)
FinConfident	0.010		0.037 **		-0.055
	(0.008)		(0.014)		(0.035)
LongHorizon	0.035 **		0.010		-0.080 **
	(0.007)		(0.010)		(0.022)
GenlRiskPrefer	0.001		-0.002		0.079
	(0.013)		(0.018)		(0.043)
FinRiskPrefer	-0.014		0.062 **		-0.051
	(0.013)		(0.022)		(0.043)
<hr/>					
N	5,645		5,610		2,538
Pseudo R-sq or R-sq	0.371		0.153		0.069
Dep. Var. Mean	0.256		0.178		0.467
Dep. Var. St. Dev.	0.273		0.383		0.499

Notes: See Table 3.

**Table A3: Full Results for Multivariate Models of Insurance Coverage**

	Any health coverage (0/1): Probit	Private health coverage (0/1): Probit	Any LTC insurance (0/1): Probit	Suppl. health ins. (Medishield, 0/1)	Eldershiel ins. (0/1): Probit	Any Life Ins. (0/1): Probit
Trust People	-0.001 (0.004)	0.009 (0.008)	-0.001 (0.009)	-0.002 (0.006)	-0.002 (0.009)	0.010 (0.009)
Trust CPF officials	-0.001 (0.005)	-0.007 (0.009)	0.025 * (0.011)	-0.001 (0.007)	0.024 * (0.011)	0.010 (0.011)
Trust Insurance agents	0.025 ** (0.006)	0.058 ** (0.010)	0.046 ** (0.012)	0.037 ** (0.008)	0.037 ** (0.012)	0.084 ** (0.012)
Trust Civil servants	-0.013 * (0.006)	-0.025 * (0.011)	-0.019 (0.013)	-0.015 (0.008)	-0.019 (0.013)	-0.035 ** (0.013)
Trust Bank fin advisors	-0.006 (0.006)	-0.032 ** (0.012)	-0.036 * (0.014)	-0.017 * (0.009)	-0.036 * (0.014)	-0.041 ** (0.014)
Trust Non-bank fin advisors	-0.003 (0.007)	0.008 (0.011)	0.020 (0.013)	0.003 (0.009)	0.023 (0.013)	0.015 (0.014)
FinLit total score	-0.002 (0.004)	0.014 * (0.007)	0.054 ** (0.009)	-0.012 * (0.005)	0.054 ** (0.009)	0.056 ** (0.009)
Age55-59	-0.002 (0.012)	-0.037 (0.022)	0.021 (0.023)	0.000 (0.016)	0.023 (0.023)	0.026 (0.023)
Age60-64	-0.036 * (0.015)	-0.105 ** (0.024)	-0.017 (0.025)	-0.044 * (0.018)	-0.009 (0.025)	-0.063 * (0.025)
Age65-70	-0.073 ** (0.018)	-0.209 ** (0.027)	-0.057 * (0.027)	-0.076 ** (0.020)	-0.046 (0.026)	-0.173 ** (0.026)
Female	-0.001 (0.006)	0.016 (0.011)	-0.018 (0.012)	0.003 (0.008)	-0.027 * (0.012)	0.022 (0.013)
Married	-0.004 (0.010)	-0.034 * (0.017)	-0.021 (0.021)	-0.002 (0.014)	-0.003 (0.021)	-0.022 (0.022)
# living children	0.011 ** (0.004)	0.016 * (0.006)	-0.004 (0.008)	0.016 ** (0.005)	-0.009 (0.008)	0.002 (0.008)
2ndry educ.	0.012 (0.009)	0.027 (0.017)	0.102 ** (0.020)	0.017 (0.013)	0.098 ** (0.020)	0.063 ** (0.021)
Post-2ndry educ.	0.016 (0.011)	0.054 ** (0.019)	0.123 ** (0.022)	0.020 (0.014)	0.124 ** (0.023)	0.192 ** (0.023)
Fair/poor health	-0.023 ** (0.008)	-0.057 ** (0.013)	0.021 (0.016)	-0.032 ** (0.010)	0.030 (0.016)	-0.005 (0.016)
Work for pay	0.052 ** (0.008)	0.161 ** (0.013)	0.078 ** (0.015)	0.050 ** (0.010)	0.075 ** (0.015)	0.091 ** (0.015)
Own home	0.016 (0.012)	0.061 ** (0.021)	0.020 (0.024)	0.010 (0.015)	0.016 (0.024)	0.110 ** (0.024)
Total net wealth (\$\$1M)	0.009 * (0.004)	0.015 * (0.007)	0.006 (0.009)	0.013 ** (0.005)	0.003 (0.009)	0.056 ** (0.009)

	(0.004)	(0.006)	(0.006)	(0.005)	(0.005)	(0.010)
Optimist	-0.011	0.001	-0.005	-0.018	-0.002	0.004
	(0.008)	(0.014)	(0.017)	(0.011)	(0.017)	(0.017)
R+Other mgs finances	-0.010	-0.005	0.007	-0.007	0.005	-0.005
	(0.010)	(0.018)	(0.020)	(0.013)	(0.020)	(0.022)
Other mgs finances	0.011	0.031 *	0.036 *	0.007	0.033 *	0.058 **
	(0.007)	(0.013)	(0.015)	(0.010)	(0.015)	(0.015)
FinConfident	0.031 **	0.066 **	0.067 **	0.029 *	0.061 **	0.087 **
	(0.011)	(0.019)	(0.022)	(0.015)	(0.022)	(0.022)
LongHorizon	0.008	0.017	-0.021	-0.003	-0.028	0.011
	(0.007)	(0.013)	(0.016)	(0.010)	(0.016)	(0.016)
GenlRiskPrefer	0.006	0.030	-0.031	0.024	-0.029	0.015
	(0.014)	(0.025)	(0.031)	(0.018)	(0.031)	(0.031)
FinRiskPrefer	0.002	-0.001	0.036	-0.013	0.029	0.016
	(0.015)	(0.027)	(0.031)	(0.021)	(0.031)	(0.032)
N	5,729	5,729	5,729	5,729	5,729	5,729
Pseudo R-sq	0.081	0.107	0.045	0.049	0.042	0.140
Dep. Var. Mean	0.910	0.735	0.534	0.862	0.500	0.496
Dep. Var. St. Dev.	0.286	0.441	0.499	0.345	0.500	0.500

Notes: See Table 4.

**Table A4: Full Results for Multivariate Models of Capital Market Engagement**

	R in stock market (0/1):Probit	R has Fin Adviser (0/1): Probit
Trust People	-0.001 (0.009)	-0.003 (0.005)
Trust CPF officials	0.020 (0.011)	0.017 ** (0.006)
Trust Insurance agents	0.039 ** (0.012)	0.016 * (0.007)
Trust Civil servants	0.022 (0.013)	-0.018 * (0.007)
Trust Bank fin advisors	-0.048 ** (0.014)	0.032 ** (0.008)
Trust Non-bank fin advisors	-0.025 (0.013)	0.004 (0.008)
FinLit total score	0.081 ** (0.009)	0.008 (0.005)
Age55-59	0.034 (0.023)	-0.013 (0.012)
Age60-64	0.060 * (0.025)	-0.017 (0.012)
Age65-70	0.039 (0.027)	-0.020 (0.013)
Female	0.015 (0.012)	0.022 ** (0.007)
Married	-0.043 * (0.022)	-0.002 (0.012)
# living children	-0.013 (0.008)	-0.005 (0.004)
2ndry educ.	0.225 ** (0.024)	-0.012 (0.011)
Post-2ndry educ.	0.342 ** (0.026)	-0.018 (0.013)
Fair/poor health	0.001 (0.016)	-0.002 (0.009)
Work for pay	-0.025 (0.015)	0.025 ** (0.008)
Own home	0.058 * (0.023)	0.007 (0.013)
Total net wealth (\$\$1M)	0.094 **	-0.001



	(0.010)	(0.003)
Optimist	0.013	0.006
	(0.016)	(0.009)
R+Other mgs finances	0.005	-0.017
	(0.020)	(0.011)
Other mgs finances	0.031 *	0.029 **
	(0.015)	(0.009)
FinConfident	0.076 **	0.009
	(0.021)	(0.012)
LongHorizon	0.047 **	0.008
	(0.015)	(0.009)
GenRiskPrefer	-0.024	-0.014
	(0.028)	(0.016)
FinRiskPrefer	0.154 **	0.027
	(0.032)	(0.019)
<hr/>		
N	5,595	5,708
Pseudo R-sq	0.241	0.053
Dep. Var. Mean	0.333	0.104
Dep. Var. St. Dev.	0.471	0.305
<hr/>		

Notes: See Table 5.