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Bhattacharya, Utpal; Kumar, Amit; Visaria, Sujata; Zhao, Jing

## **Working Paper**

# Do women receive worse financial advice? An audit study in Hong Kong, China

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## **ONLINE APPENDIX**

ADB Economics Working Paper No. 684

## DO WOMEN RECEIVE WORSE FINANCIAL ADVICE? AN AUDIT STUDY IN HONG KONG, CHINA

Utpal Bhattacharya, Amit Kumar, Sujata Visaria, and Jing Zhao June 2023

Notes:

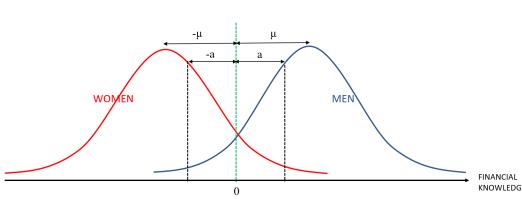
In this publication, "\$" refers to United States dollars, unless otherwise stated. ADB recognizes "Hong Kong" as Hong Kong, China.

## **Appendix A: A Generalized Model**

#### A. Gender Difference in Expected Financial Knowledge

We analyze the advisor's perception of the financial knowledge of their male and female clients in a generalized model. In particular, we show that if financial knowledge follows a normal distribution, a different range condition will ensure that the gender difference in expected financial knowledge of securities firm (SF) clients is smaller than that of financial planner firm (FP) clients.

Appendix Figure A1 assumes that the financial knowledge of male (blue curve) and female (red curve) clients follow the normal distributions  $N(\mu, \sigma)$  and  $N(-\mu, \sigma)$ , respectively. A positive  $\mu$  ensures that males have a higher mean financial knowledge than females.



Appendix Figure A.1

Source: Authors.

If financial knowledge  $x_{ig}$  lies above the cut-off a, the investor does not seek advice because highly knowledgeable investors will choose to make their product selection without assistance. We conjecture that those with moderate knowledge, i.e., with  $-a \le x_{ig} \le a$  find that their net benefit is larger if they visit securities firms, while those with low knowledge, i.e.,  $x_{ig} < -a$  find that the net benefit is greater if they visit financial planners.

For the left tail of the distributions, the expected financial knowledge of male and female clients is

$$E_m^L = E(X_m | X_m < -a) = \mu - \sigma \frac{\phi\left(\frac{-a - \mu}{\sigma}\right)}{\Phi\left(\frac{-a - \mu}{\sigma}\right)} = \mu - \sigma \frac{\phi\left(\frac{a + \mu}{\sigma}\right)}{1 - \Phi\left(\frac{a + \mu}{\sigma}\right)}$$

$$E_f^L = E(X_f | X_f < -a) = -\mu - \sigma \frac{\phi\left(\frac{-a + \mu}{\sigma}\right)}{\Phi\left(\frac{-a + \mu}{\sigma}\right)} = -\mu - \sigma \frac{\phi\left(\frac{a - \mu}{\sigma}\right)}{1 - \Phi\left(\frac{a - \mu}{\sigma}\right)}$$

For the middle part of the distributions, the expected financial knowledge of male and female clients is

$$E_m^M = E(X_m | -a \le X_m \le a) = \mu - \sigma \frac{\phi\left(\frac{a-\mu}{\sigma}\right) - \phi\left(\frac{-a-\mu}{\sigma}\right)}{\Phi\left(\frac{a-\mu}{\sigma}\right) - \Phi\left(\frac{-a-\mu}{\sigma}\right)} = \mu - \sigma \frac{\phi\left(\frac{a-\mu}{\sigma}\right) - \phi\left(\frac{a+\mu}{\sigma}\right)}{\Phi\left(\frac{a-\mu}{\sigma}\right) + \Phi\left(\frac{a+\mu}{\sigma}\right) - 1}$$

$$E_f^M = E(X_f | -a \le X_f \le a) = -\mu - \sigma \frac{\phi\left(\frac{a+\mu}{\sigma}\right) - \phi\left(\frac{-a+\mu}{\sigma}\right)}{\Phi\left(\frac{a+\mu}{\sigma}\right) - \Phi\left(\frac{-a+\mu}{\sigma}\right)} = -\mu + \sigma \frac{\phi\left(\frac{a-\mu}{\sigma}\right) - \phi\left(\frac{a+\mu}{\sigma}\right)}{\Phi\left(\frac{a-\mu}{\sigma}\right) + \Phi\left(\frac{a+\mu}{\sigma}\right) - 1}$$

Note that

$$E_m^M = -E_f^M$$

## B. The Range Condition of the Financial Knowledge Cutoff

For the left tail:

$$E_m^L - E_f^L = 2 \mu - \sigma \left(\frac{\phi\left(\frac{-a-\mu}{\sigma}\right)}{\Phi\left(\frac{-a-\mu}{\sigma}\right)} - \frac{\phi\left(\frac{-a+\mu}{\sigma}\right)}{\Phi\left(\frac{-a+\mu}{\sigma}\right)}\right)$$

To simplify notations, define

$$\lambda(x) = \frac{\phi(x)}{\Phi(x)}$$

Here,  $\lambda(x)$ , is the inverse mills ratio. It is well known that  $\lambda'(x) < 0$ . We want to compute:

$$\lim_{a \to \infty} \left( \frac{\phi(\frac{-a - \mu}{\sigma})}{\Phi(\frac{-a - \mu}{\sigma})} - \frac{\phi\left(\frac{-a + \mu}{\sigma}\right)}{\Phi\left(\frac{-a + \mu}{\sigma}\right)} \right) = \lim_{a \to \infty} \left(\lambda\left(\frac{-a - \mu}{\sigma}\right) - \lambda\left(\frac{-a + \mu}{\sigma}\right)\right)$$

Because  $\lambda(x)$  is continuous and differentiable, by applying the mean value theorem, we obtain

$$\lambda\left(\frac{-a-\mu}{\sigma}\right) - \lambda\left(\frac{-a+\mu}{\sigma}\right) = \lambda'(x)\left(-\frac{2\mu}{\sigma}\right),$$

where  $x \in (\frac{-a-\mu}{\sigma}, \frac{-a+\mu}{\sigma})$ . Note that as  $a \to \infty$ , we have  $x \to -\infty$ . And it is well-established (https://rpubs.com/FJRubio/IMR) that

$$\lim_{x \to -\infty} \lambda'(x) = -1$$

Thus,

$$\lim_{a \to \infty} \left(\lambda \left(\frac{-a - \mu}{\sigma}\right) - \lambda \left(\frac{-a + \mu}{\sigma}\right)\right) = \lim_{a \to \infty} \lambda'(x) \left(-\frac{2\mu}{\sigma}\right) = \lim_{x \to -\infty} \lambda'(x) \left(-\frac{2\mu}{\sigma}\right) = \frac{2\mu}{\sigma}$$

So, when  $a \to \infty$ ,  $E_m^L - E_f^L \to 0$ 

When 
$$a \to 0$$
,  $E_m^L - E_f^L \to 2 \mu - \sigma(\frac{\phi(\frac{-\mu}{\sigma})}{\Phi(\frac{-\mu}{\sigma})} - \frac{\phi(\frac{\mu}{\sigma})}{\Phi(\frac{\mu}{\sigma})}) \to 2 \mu - \sigma(\lambda(\frac{-\mu}{\sigma}) - \lambda(\frac{\mu}{\sigma})) > 2 \mu > 0$  as  $\lambda'(x) < 0$ .

#### For the middle part:

$$E_m^M - E_f^M = 2 E_m^M = -2 E_f^M = 2\mu + 2\sigma \left(\frac{\phi\left(\frac{a+\mu}{\sigma}\right) - \phi\left(\frac{a-\mu}{\sigma}\right)}{\Phi\left(\frac{a-\mu}{\sigma}\right) + \Phi\left(\frac{a+\mu}{\sigma}\right) - 1}\right)$$

It is easy to see that when  $a \to \infty$ ,  $E_m^M - E_f^M \to 2\mu$ 

It is also easy to see that when  $a \rightarrow 0$ , for the both distributions of the men and the women, the only realization of the random variable, "financial knowledge" in the range [-a,a] is zero.

So, when 
$$a \to 0$$
,  $E_m^M - E_f^M \to 0$ 

We notice, therefore, that as a increases from 0 to  $+\infty$ ,  $(E_m^L - E_f^L)$  decreases from a number greater than  $2 \mu$  to 0, but  $(E_m^M - E_f^M)$  increases from 0 to  $2 \mu$ . As these are continuous functions, there must be at least one crossing point. Let the first crossing point be a\*. This implies that the range condition is

$$(E_m^L - E_f^L) > (E_m^M - E_f^M)$$
 if a < a\*

#### **Appendix B: Supplementary Tables**

Table B.1: Ex-Post Market-Adjusted Return by Type of Firm and Auditor's Gender

Panel A: Ex-Post Market-Adjusted Return by Firm Type

Ret (1) All Firms 0.25% p-value 0.5 221 Securities Firms (SF) 0.08% 0.83

p-value 194 Financial Planners (FP) 1.44% p-value 0.26 Ν 27 Diff (SF - FP) -1.36% 0.23 p-value

Panel B: Ex-Post Market-Adjusted Return by Firm Type and Auditor's Gender

|            | Ret (SF) | Ret (FP) |
|------------|----------|----------|
|            | (1)      | (2)      |
| Male       | 0.28%    | 2.97%    |
| Female     | -0.07%   | 0.04%    |
| Diff (M-F) | 0.35%    | 2.93%    |
| p-value    | 0.66     | 0.25     |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: Panel A of this table shows the difference in market-adjusted return (Ret) across firm types, and panel B shows the difference across the genders of auditors at each firm type. Market-Adjusted Return is calculated as the market-adjusted buy-and-hold return of the Hang Seng Index for the equally weighted portfolio of the products recommended by the advisor over a 3-month period from the date of the visit. pvalues are obtained from t-tests.

Source: Authors' calculations.

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Table B.2: Advice Quality Using Ex-post Returns: Financial Planners versus Securities Firms

|                                  | (1)             | (2)             | (3)             |
|----------------------------------|-----------------|-----------------|-----------------|
|                                  | Market-Adjusted | Market-Adjusted | Market-Adjusted |
|                                  | Return          | Return          | Return          |
| Financial Planner                | 1.363           | 1.051           | 1.088           |
|                                  | (1.130)         | (1.140)         | (1.153)         |
| High Risk Tolerance              |                 | -0.758          | -0.740          |
|                                  |                 | (0.747)         | (0.782)         |
| High Confidence                  |                 | 0.624           | 0.601           |
| -                                |                 | (0.737)         | (0.746)         |
| Domestic Outlook                 |                 | -1.399*         | -1.429*         |
|                                  |                 | (0.746)         | (0.774)         |
| Educated beyond Senior Secondary |                 |                 | -0.362          |
| School                           |                 |                 | (0.888)         |
| Net Worth above HK\$500,000      |                 |                 | 0.873           |
|                                  |                 |                 | (0.826)         |
| Age                              |                 |                 | 0.028           |
|                                  |                 |                 | (0.093)         |
| Constant                         | 0.084           | 0.786           | -0.559          |
|                                  | (0.395)         | (0.759)         | (3.795)         |
| Observations                     | 221             | 221             | 221             |
| R-squared                        | 0.007           | 0.029           | 0.035           |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the result of the regression of the ex-post performance of financial advice on the type of financial advisory firm. *Market-Adjusted Return* is the market-adjusted buy-and-hold return on the Hang Seng Index for the equally weighted portfolio of products recommended by the advisor over a 3-month period from the date of the visit. *Financial Planner* takes a value of 1 (0) if the financial advisory firm is a financial planner (securities firm). *High Risk Tolerance, High Confidence,* and *Domestic Outlook* take a value of 1 (0) if the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, at the time of the audit visit. *Educated beyond senior secondary school* takes a value of 1 if the auditor's education is higher than senior secondary school. *Net worth above HK\$500,000* takes the value of 1 if the net worth of the auditor is more than HK\$500,000. *Age* is the age of the auditor in years. Standard errors are clustered at the auditor level and reported in parentheses below the coefficients.

Table B.3: Advice Quality Using Ex-Post Returns: Firm Type and Gender Differences

|   |                   |                   | Market-Adju          | sted Retu         | rn                 |                     |
|---|-------------------|-------------------|----------------------|-------------------|--------------------|---------------------|
|   | Finan             | cial Planne       | er Firms             | Se                | curities Fi        | rms                 |
|   | (1)               | (2)               | (3)                  | (4)               | (5)                | (6)                 |
| Female Auditor                          | -2.931<br>(2.507) | -3.452<br>(2.732) | 3.838<br>(4.045)     | -0.345<br>(0.775) | -0.249<br>(0.772)  | -0.880<br>(0.870)   |
| High Risk Tolerance                     |                   | -2.967<br>(3.541) | -3.945<br>(3.419)    |                   | -0.591<br>(0.769)  | -0.662<br>(0.805)   |
| High Confidence                         |                   | 1.053<br>(3.723)  | 7.150<br>(5.330)     |                   | 0.801<br>(0.770)   | 0.641<br>(0.772)    |
| Domestic Outlook                        |                   | -0.486<br>(3.373) | 6.495<br>(5.873)     |                   | -1.479*<br>(0.772) | -1.786**<br>(0.792) |
| Educated beyond Senior Secondary School |                   |                   | 7.925<br>(6.167)     |                   |                    | -0.589<br>(0.922)   |
| Net Worth above HK\$500,000             |                   |                   | -2.560<br>(3.523)    |                   |                    | 0.862<br>(0.850)    |
| Age                                     |                   |                   | -0.925**<br>(0.399)  |                   |                    | 0.200*<br>(0.107)   |
| Constant                                | 2.966<br>(1.805)  | 3.771<br>(2.856)  | 29.733**<br>(13.037) | 0.278<br>(0.581)  | 0.789<br>(0.881)   | -6.903*<br>(4.130)  |
| Observations                            | 27                | 27                | 27                   | 194               | 194                | 194                 |
| R-squared                               | 0.052             | 0.086             | 0.295                | 0.001             | 0.027              | 0.055               |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the estimation result of the regression of the Market-Adjusted Return on the auditor's characteristics, estimated separately for the audit visits to the financial planner and securities firms. *Market Adjusted Return* is the buy-and-hold market-adjusted Hang Seng Index return for the equally weighted portfolio of the products recommended by the advisor over a 3-month period from the date of the visit. *Female Auditor* is an indicator that takes the value of 1 (0) for female (male) auditors. *High Risk Tolerance, High Confidence,* and *Domestic Outlook* take the value 1 (0) when the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, at the time of the audit visit. *Educated beyond senior secondary school* takes the value of 1 if the auditor's education is higher than senior secondary school. *Net worth above HK\$500,000* takes the value of 1 if the net worth of the auditor is more than HK\$500,000. *Age* is the age of the auditor in years. Standard errors are clustered at the auditor level and are reported in parentheses below the coefficients.

Table B.4: Advice Quality and Type of Firm – A Multinomial Logit Regression

| Dependent Variable                      | Undiversified | Advice (UA) | Home-Biased | Advice (HB) |
|---|---------------|-------------|-------------|-------------|
| Category                                | No Advice     | UA          | No Advice   | НВ          |
|   | (1)           | (2)         | (3)         | (4)         |
| Financial Planner                       | -0.684*       | -0.973***   | -0.525      | -0.544*     |
|   | (0.375)       | (0.319)     | (0.378)     | (0.310)     |
| High Risk Tolerance                     | 0.981***      | 0.351       | 0.285       | -0.932***   |
|   | (0.289)       | (0.268)     | (0.222)     | (0.247)     |
| High Confidence                         | -0.413        | 0.257       | -0.484*     | 0.192       |
|   | (0.319)       | (0.238)     | (0.291)     | (0.219)     |
| Domestic Outlook                        | 0.870***      | 0.104       | 1.152***    | 0.625***    |
|   | (0.323)       | (0.224)     | (0.283)     | (0.235)     |
| Educated beyond Senior Secondary School | 0.393         | 0.127       | 0.292       | -0.120      |
|   | (0.393)       | (0.400)     | (0.273)     | (0.283)     |
| Net Worth above HK\$500,000             | 0.007         | -0.281      | -0.123      | -0.549**    |
|   | (0.377)       | (0.330)     | (0.308)     | (0.266)     |
| Age                                     | -0.041        | 0.004       | -0.062**    | -0.034      |
|   | (0.033)       | (0.028)     | (0.027)     | (0.024)     |
| Constant                                | 0.815         | -0.057      | 2.004*      | 2.013*      |
|   | (1.265)       | (1.143)     | (1.102)     | (1.048)     |
| Observations                            | 463           | 463         | 463         | 463         |
| Pseudo R <sup>2</sup>                   | 0.050         | 0.050       | 0.061       | 0.061       |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the estimation result of the regression of *Undiversified Advice* and *Home-Biased Advice* on the type of advisor using multinomial logit, where the dependent variable has three possible categories: *No Advice, Undiversified (Home-Biased) Advice, Not Undiversified (Not Home-Biased) Advice.* The last category is the reference category for each dependent variable. *Financial Planner* is a dummy variable taking the value of 1 (0) if the advisor is from a financial planner firm (securities firm). *High Risk Tolerance, High Confidence,* and *Domestic Outlook* take the value 1 (0) when the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, at the time of the audit visit. *Educated beyond senior secondary school* takes the value of 1 if the auditor's education is higher than senior secondary school. *Net worth above HK\$500,000* takes the value of 1 if the net worth of the auditor is more than HK\$500,000. *Age* is the age of the auditor in years. Standard errors are clustered at the auditor level and are reported in parentheses below the coefficients.

Table B.5: Gender Difference in Advice Quality and Type of Firm – A Multinomial Logit Regression

| Dependent Variable                      | U             | ndiversified A | Advice (UA) |         | Home-Biased Advice (HB) |              |           |           |  |
|---|---------------|----------------|-------------|---------|-------------------------|--------------|-----------|-----------|--|
| ·                                       | Financial Pla | anner Firms    | Securities  | s Firms | Financial P             | lanner Firms |           | es Firms  |  |
| Category                                | No Advice     | UA             | No Advice   | UA      | No Advice               | HB           | No Advice | HB        |  |
|   | (1)           | (2)            | (3)         | (4)     | (5)                     | (6)          | (7)       | (8)       |  |
| Female Auditor                          | 0.741         | 2.414***       | -0.686      | -0.323  | 0.460                   | 1.847**      | -0.538    | -0.042    |  |
|   | (0.787)       | (0.759)        | (0.424)     | (0.340) | (0.763)                 | (0.722)      | (0.407)   | (0.268)   |  |
| High Risk Tolerance                     | 2.198***      | 1.519**        | 0.737**     | 0.169   | 1.431*                  | -0.399       | 0.033     | -1.060*** |  |
|   | (0.831)       | (0.624)        | (0.337)     | (0.302) | (0.841)                 | (0.730)      | (0.220)   | (0.231)   |  |
| High Confidence                         | -1.456        | 0.982          | -0.334      | 0.238   | -1.392                  | 1.218*       | -0.440    | 0.151     |  |
|   | (1.092)       | (0.729)        | (0.375)     | (0.286) | (1.043)                 | (0.624)      | (0.334)   | (0.247)   |  |
| Domestic Outlook                        | 0.487         | 0.421          | 0.912**     | 0.169   | 0.677                   | 0.855        | 1.222***  | 0.749***  |  |
|   | (0.781)       | (0.567)        | (0.407)     | (0.280) | (0.799)                 | (0.610)      | (0.327)   | (0.235)   |  |
| Educated beyond Senior Secondary School | 1.199         | 1.649**        | 0.113       | -0.024  | 1.330                   | 1.846**      | -0.030    | -0.318    |  |
|   | (0.998)       | (0.841)        | (0.525)     | (0.490) | (1.058)                 | (0.855)      | (0.314)   | (0.240)   |  |
| Net Worth above HK\$500,000             | -0.556        | -1.205         | 0.025       | -0.234  | -0.731                  | -1.695***    | -0.071    | -0.440    |  |
|   | (0.877)       | (0.733)        | (0.432)     | (0.392) | (0.842)                 | (0.611)      | (0.335)   | (0.288)   |  |
| Age                                     | 0.036         | -0.070         | -0.032      | 0.006   | 0.054                   | -0.044       | -0.071**  | -0.062**  |  |
|   | (0.110)       | (0.065)        | (0.048)     | (0.040) | (0.107)                 | (0.076)      | (0.035)   | (0.025)   |  |
| Constant                                | -3.297        | -0.509         | 0.936       | 0.131   | -3.513                  | -0.161       | 2.814**   | 3.218***  |  |
|   | (4.040)       | (2.220)        | (1.746)     | (1.567) | (4.107)                 | (3.168)      | (1.291)   | (0.872)   |  |
| Observations Pseudo R <sup>2</sup>      | 75            | 75             | 388         | 388     | 75                      | 75           | 388       | 388       |  |
|   | 0.177         | 0.177          | 0.039       | 0.039   | 0.152                   | 0.152        | 0.067     | 0.067     |  |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the estimation result of the regression of *Undiversified Advice* and *Home-Biased Advice* on the gender of the auditor using multinomial logit, where the dependent variable has three possible categories: *No Advice, Undiversified (Home-Biased) Advice, Not Undiversified (Not Home-Biased) Advice.* The last category is the reference category for each dependent variable. Columns (1)–(4) show the results of regressing *Undiversified advice*, while Columns (5)–(8) show the results of the regression of *Home-Biased Advice* on the auditor's gender, estimated separately for the audit visits to financial planner and securities firms. *Female Auditor* is an indicator that takes the value of 1 (0) for female (male) auditors. *High Risk Tolerance, High Confidence,* and *Domestic Outlook* take the value 1 (0) if the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, during the audit visit. *Educated beyond senior secondary school* and *Net worth above HK\$500,000* are indicator variables. *Age* is the age of the auditor in years. Standard errors are clustered at the auditor level and are reported in parentheses below the coefficients.

Source: Source: Authors' calculations.

Table B.6: Gender Difference and Auditor's Attributes in Financial Planner Visits – A Multinomial Logit Regression

| Dependent Variable (V)             | Undiversified | Advice (UA)        | Undiversified | Advice (UA) | Home-Biased  | Advice (HB) |
|------------------------------------|---------------|--------------------|---------------|-------------|--------------|-------------|
| Dependent Variable (Y)             | No Advice     | UA                 | No Advice     | UA          | No Advice    | HB          |
| Independent Variable/Attribute (X) | X = Risk 7    | X = Risk Tolerance |               | fidence     | $X = O\iota$ | ıtlook      |
|                                    | (1)           | (2)                | (3)           | (4)         | (5)          | (6)         |
| Prd. Pr. [Male, Low X]             | 0.153**       | 0.121*             | 0.511***      | 0.057       | 0.250**      | 0.285**     |
|                                    | (0.069)       | (0.066)            | (0.094)       | (0.044)     | (0.116)      | (0.116)     |
| Prd. Pr. [Male, High X]            | 0.419***      | 0.137              | 0.057         | 0.221***    | 0.291***     | 0.191       |
|                                    | (0.125)       | (0.088)            | (0.058)       | (0.074)     | (0.108)      | (0.121)     |
| Prd. Pr. [Female, Low X]           | 0.171**       | 0.289***           | 0.266***      | 0.286***    | 0.169***     | 0.384***    |
|                                    | (0.086)       | (0.096)            | (0.103)       | (0.095)     | (0.062)      | (0.1)       |
| Prd. Pr. [Female, High X]          | 0.386***      | 0.538***           | 0.138         | 0.596***    | 0.298**      | 0.531***    |
|                                    | (0.144)       | (0.131)            | (0.097)       | (0.114)     | (0.146)      | (0.099)     |
| Among High X: [Female – Male]      | 1.759         | 3.202***           | 1.883         | 2.157***    | 1.351        | 2.375**     |
|                                    | (1.137)       | (1.1)              | (1.611)       | (0.829)     | (1.191)      | (1.107)     |
| Among Low X: [Female – Male]       | 0.442         | 1.199              | -0.74         | 1.719       | -0.341       | 0.354       |
|                                    | (0.835)       | (0.863)            | (0.733)       | (1.111)     | (0.837)      | (0.823)     |
| Among Females: [High – Low] X      | 2.882**       | 2.670***           | -0.161        | 1.398       | 1.702        | 1.478*      |
|                                    | (1.323)       | (1.027)            | (1.332)       | (0.939)     | (1.069)      | (0.771)     |
| Among Males: [High – Low] X        | 1.565**       | 0.667              | -2.783**      | 0.959       | 0.01         | -0.543      |
|                                    | (0.737)       | (0.999)            | (1.102)       | (1.018)     | (0.939)      | (1.098)     |
| Demographic Controls               | Yes           | Yes                | Yes           | Yes         | Yes          | Yes         |
| Observations                       | 75            | 75                 | 75            | 75          | 75           | 75          |
| R-squared                          | 0.131         | 0.131              | 0.129         | 0.129       | 0.083        | 0.083       |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: The top half of the table shows the predicted probabilities (Prd. Pr.) that auditors of each combination of gender and attribute receive *Undiversified Advice* in columns (1) through (4) and *Home-Biased Advice* in columns (5) and (6), when they visit financial planners. The regression model is a multinomial logit, where the dependent variable has three possible categories: *No Advice, Undiversified Advice (UA), Not Undiversified Advice* in columns (1) through (4); and *No Advice, Home-Biased Advice* (HB), *Not Home-Biased Advice* in columns (5) and (6). The last category is the reference category in each column. The probabilities are obtained from the regression equation (5). The key independent variable/attribute (X) is an indicator variable that takes the value of 1 (0) for *High (Low) Risk Tolerance* in columns (1) and (2), *High (Low) Confidence* in columns (3) and (4), and *Domestic (International) Outlook* in columns (5) and (6). *Demographic Controls* include a dummy for auditor's education (=1 if Educated beyond senior secondary school), a dummy for net worth (=1 if *Net Worth above HK\$500,000*) and auditor's age (in years). The bottom half of the table shows the difference in the predicted probability and t-test for the difference in the respective dependent variable across the gender of auditors with a particular attribute, and across particular attributes of auditors for a given gender. Standard errors are clustered at the auditor level and are reported in parentheses below the coefficients.

Source: Source: Authors' calculations

Table B.7: Advice Quality and Type of Firm (Standard Errors Clustered at Branch Level)

|  | Und                  | diversified Ad       | vice                 | Hon                 | ne-Biased Ad         | lvice                |
|--|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
|  | (1)                  | (2)                  | (3)                  | (4)                 | (5)                  | (6)                  |
| Financial Planner                          | -0.156***<br>(0.057) | -0.151***<br>(0.054) | -0.150***<br>(0.055) | -0.050<br>(0.058)   | -0.072<br>(0.053)    | -0.073<br>(0.053)    |
| High Risk Tolerance                        |                      | -0.007<br>(0.043)    | -0.021<br>(0.047)    |                     | -0.202***<br>(0.036) | -0.232***<br>(0.040) |
| High Confidence                            |                      | 0.110**<br>(0.046)   | 0.104**<br>(0.047)   |                     | 0.091*<br>(0.047)    | 0.092*<br>(0.050)    |
| Domestic Outlook                           |                      | -0.050<br>(0.045)    | -0.064<br>(0.046)    |                     | 0.029<br>(0.045)     | 0.013<br>(0.047)     |
| Educated beyond Senior<br>Secondary School |                      |                      | -0.002<br>(0.052)    |                     |                      | -0.049<br>(0.052)    |
| Net Worth above<br>HK\$500,000             |                      |                      | -0.065<br>(0.043)    |                     |                      | -0.099*<br>(0.052)   |
| Age  |                      |                      | 0.005<br>(0.006)     |                     |                      | -0.000<br>(0.006)    |
| Constant                                   | 0.410***<br>(0.028)  | 0.383***<br>(0.050)  | 0.214<br>(0.229)     | 0.397***<br>(0.029) | 0.440***<br>(0.048)  | 0.525**<br>(0.254)   |
| Observations                               | 463                  | 463                  | 463                  | 463                 | 463                  | 463                  |
| R-squared                                  | 0.014                | 0.030                | 0.035                | 0.001               | 0.053                | 0.067                |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the estimation result of the regression on *Undiversified Advice* and *Home-Biased Advice* on the advisor type. *Financial Planner* is a dummy variable taking the value of 1 (0) if the advisor is from a financial planner firm (securities firm). *High Risk Tolerance, High Confidence,* and *Domestic Outlook* take the value 1 (0) if the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, during the audit visit. *Educated beyond senior secondary school* takes the value of 1 if the auditor's education is higher than senior secondary school. *Net worth above HK\$500,000* takes the value of 1 if the net worth of the auditor is more than HK\$500,000. *Age* is the age of the auditor in years. Standard errors are clustered at the branch level and are reported in parentheses below the coefficients.

Table B.8: Gender Difference in Advice Quality and Type of Firm (Standard Errors Clustered at Branch Level)

|  |                    |                    | Undiversi          | fied Advice         | )                   |                   |                     |                    | Home-E              | Biased Adv          | ice                  |                      |
|--|--------------------|--------------------|--------------------|---------------------|---------------------|-------------------|---------------------|--------------------|---------------------|---------------------|----------------------|----------------------|
|  |                    | ial Planne         |                    |                     | curities Firm       |                   | Financ              | ial Planne         |                     |                     | Securities Fi        |                      |
|  | (1)                | (2)                | (3)                | (4)                 | (5)                 | (6)               | (7)                 | (8)                | (9)                 | (10)                | (11)                 | (12)                 |
| Female Auditor                                   | 0.233**<br>(0.096) | 0.243**<br>(0.100) | 0.308**<br>(0.115) | 0.034<br>(0.052)    | 0.037<br>(0.051)    | 0.011<br>(0.058)  | 0.204**<br>(0.092)  | 0.202**<br>(0.094) | 0.256**<br>(0.099)  | 0.070<br>(0.050)    | 0.072<br>(0.050)     | 0.051<br>(0.059)     |
| High Risk<br>Tolerance                           |                    | 0.119<br>(0.091)   | 0.132<br>(0.092)   |                     | -0.028<br>(0.048)   | -0.040<br>(0.054) |                     | -0.160<br>(0.109)  | -0.159<br>(0.108)   |                     | -0.209***<br>(0.038) | -0.236***<br>(0.044) |
| High Confidence                                  |                    | 0.137<br>(0.117)   | 0.218<br>(0.132)   |                     | 0.106**<br>(0.050)  | 0.099*<br>(0.050) |                     | 0.164<br>(0.105)   | 0.263**<br>(0.103)  |                     | 0.079<br>(0.053)     | 0.082<br>(0.056)     |
| Domestic Outlook                                 |                    | -0.047<br>(0.098)  | 0.007<br>(0.104)   |                     | -0.051<br>(0.051)   | -0.064<br>(0.051) |                     | 0.026<br>(0.120)   | 0.083<br>(0.136)    |                     | 0.031<br>(0.049)     | 0.023<br>(0.052)     |
| Educated beyond<br>Senior<br>Secondary<br>School |                    |                    | 0.151<br>(0.094)   |                     |                     | -0.007<br>(0.060) |                     |                    | 0.217*<br>(0.109)   |                     |                      | -0.066<br>(0.059)    |
| Net Worth above<br>HK\$500,000                   |                    |                    | -0.131<br>(0.083)  |                     |                     | -0.052<br>(0.052) |                     |                    | -0.238**<br>(0.108) |                     |                      | -0.072<br>(0.060)    |
| Age  |                    |                    | -0.009<br>(0.015)  |                     |                     | 0.005<br>(0.007)  |                     |                    | -0.003<br>(0.016)   |                     |                      | -0.004<br>(0.008)    |
| Constant   | 0.135**<br>(0.051) | 0.048<br>(0.085)   | 0.324<br>(0.519)   | 0.393***<br>(0.033) | 0.378***<br>(0.055) | 0.250<br>(0.263)  | 0.243***<br>(0.060) | 0.220*<br>(0.114)  | 0.254<br>(0.639)    | 0.361***<br>(0.036) | 0.413***<br>(0.055)  | 0.674**<br>(0.290)   |
| Observations R-squared                           | 75<br>0.072        | 75<br>0.120        | 75<br>0.151        | 388<br>0.001        | 388<br>0.016        | 388<br>0.019      | 75<br>0.046         | 75<br>0.095        | 75<br>0.152         | 388<br>0.005        | 388<br>0.058         | 388<br>0.070         |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the estimation result of the regression on *Undiversified Advice* and *Home-Biased Advice* on the auditor's gender. Columns (1)–(6) show the results of the regression on *Undiversified advice*, while columns (7)–(12) show the results of the regression on *Home-Biased advice* on the auditor's gender, estimated separately for the audit visits to financial planner and securities firms. *Female Auditor* is an indicator that takes the value of 1 (0) for female (male) auditors. *High Risk Tolerance*, *High Confidence*, and *Domestic Outlook* take the value 1 (0) if the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, during the audit visit. *Educated beyond senior secondary school* and *Net worth above HK\$500,000* are indicator variables. *Age* is the age of the auditor in years. Standard errors are clustered at the branch level and are reported in parentheses below the coefficients.

Table B.9. Gender Difference and Auditor's Attributes in Financial Planner Visits (Standard Errors Clustered at Branch Level)

| Dependent Variable (Y)             | Undiversif | ied Advice | Undiversif | ied Advice | Home-Bia | sed Advice |
|------------------------------------|------------|------------|------------|------------|----------|------------|
| Independent Variable/Attribute (X) | X = Risk   | Tolerance  | X = Coi    | nfidence   | X = 0    | utlook     |
|                                    | (1)        | (2)        | (3)        | (4)        | (5)      | (6)        |
| Prd. Pr. [Male, Low X]             | 0.136**    | 0.121      | 0.100      | 0.038      | 0.278*** | 0.288***   |
|                                    | (0.065)    | (0.082)    | (0.07)     | (0.069)    | (0.084)  | (0.091)    |
| Prd. Pr. [Male, High X]            | 0.133      | 0.141      | 0.176**    | 0.205**    | 0.211*** | 0.187**    |
|                                    | (0.089)    | (0.089)    | (0.09)     | (0.093)    | (0.073)  | (0.077)    |
| Prd. Pr. [Female, Low X]           | 0.280***   | 0.286***   | 0.273***   | 0.276***   | 0.429*** | 0.395***   |
|                                    | (0.091)    | (0.103)    | (0.089)    | (0.091)    | (0.121)  | (0.136)    |
| Prd. Pr. [Female, High X]          | 0.538***   | 0.543***   | 0.500***   | 0.544***   | 0.471*** | 0.527***   |
|                                    | (0.132)    | (0.133)    | (0.147)    | (0.159)    | (0.153)  | (0.176)    |
| Among High X: [Female – Male]      | 0.405***   | 0.402***   | 0.324**    | 0.339**    | 0.26     | 0.340*     |
|                                    | (0.133)    | (0.125)    | (0.145)    | (0.154)    | (0.162)  | (0.178)    |
| Among Low X: [Female – Male]       | 0.144      | 0.165      | 0.173      | 0.238**    | 0.151    | 0.106      |
|                                    | (0.122)    | (0.152)    | (0.112)    | (0.099)    | (0.14)   | (0.16)     |
| Among Females: [High – Low] X      | 0.258*     | 0.257*     | 0.227      | 0.268      | 0.042    | 0.132      |
|                                    | (0.143)    | (0.142)    | (0.175)    | (0.185)    | (0.219)  | (0.25)     |
| Among Males: [High – Low] X        | -0.003     | 0.019      | 0.076      | 0.167      | -0.067   | -0.101     |
|                                    | (0.112)    | (0.133)    | (0.124)    | (0.127)    | (0.099)  | (0.129)    |
| Demographic Controls               | No         | Yes        | No         | Yes        | No       | Yes        |
| Observations                       | 75         | 75         | 75         | 75         | 75       | 75         |
| R-squared                          | 0.112      | 0.118      | 0.109      | 0.135      | 0.049    | 0.088      |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level

Notes: The top half of the table shows the predicted probabilities (Prd. Pr.) that auditors of each combination of gender and attribute receive *Undiversified Advice* in columns (1) through (4) and *Home-Biased Advice* in columns (5) and (6), when they visit financial planners. The probabilities are obtained from the regression equation (5). The key independent variable/attribute (X) is an indicator variable that takes the value of 1 (0) for *High (Low) Risk Tolerance* in columns (1) and (2), *High (Low) Confidence* in columns (3) and (4), and *Domestic* 

(International) Outlook in columns (5) and (6). Demographic Controls include a dummy for the auditor's education (=1 if educated beyond senior secondary school), a dummy for net worth (=1 if net worth above HK\$500,000) and auditor's age (in years). The bottom half of the table shows the difference in the predicted probability and t-test for the difference in the respective dependent variable across the auditors' gender with a particular attribute, and across particular attributes of auditors for a given gender. Standard errors are clustered at the branch level and are reported in parentheses below the coefficients.

Table B.10: Gender Difference in Advice Quality and Type of Firm (Firm FE with Standard Errors Clustered at Auditor Level)

|   |                    |                    | Undiversi           | fied Advice         | 1                   |                    | Home-Biased Advice                       |                   |                     |                     |                      |                      |
|---|--------------------|--------------------|---------------------|---------------------|---------------------|--------------------|--|-------------------|---------------------|---------------------|----------------------|----------------------|
|   | Financ             | cial Planne        | er Firms            | Se                  | curities Firi       | ms                 | Financial Planner Firms Securities Firms |                   |                     |                     |                      | ms                   |
|   | (1)                | (2)                | (3)                 | (4)                 | (5)                 | (6)                | (7)                                      | (8)               | (9)                 | (10)                | (11)                 | (12)                 |
| Female Auditor                          | 0.292**<br>(0.112) | 0.301**<br>(0.114) | 0.375***<br>(0.130) | 0.038<br>(0.055)    | 0.039<br>(0.052)    | 0.017<br>(0.066)   | 0.262**<br>(0.126)                       | 0.254*<br>(0.137) | 0.322**<br>(0.143)  | 0.067<br>(0.058)    | 0.068<br>(0.048)     | 0.054<br>(0.045)     |
| High Risk Tolerance                     |                    | 0.117<br>(0.094)   | 0.136<br>(0.099)    |                     | -0.013<br>(0.055)   | -0.021<br>(0.056)  |  | -0.183<br>(0.141) | -0.192<br>(0.133)   |                     | -0.177***<br>(0.051) | -0.194***<br>(0.053) |
| High Confidence                         |                    | 0.081<br>(0.122)   | 0.167<br>(0.109)    |                     | 0.138**<br>(0.057)  | 0.132**<br>(0.058) |  | 0.080<br>(0.166)  | 0.200<br>(0.125)    |                     | 0.078<br>(0.062)     | 0.088<br>(0.059)     |
| Domestic Outlook                        |                    | -0.062<br>(0.150)  | 0.023<br>(0.148)    |                     | -0.075<br>(0.060)   | -0.085<br>(0.055)  |  | 0.071<br>(0.143)  | 0.170<br>(0.112)    |                     | 0.010<br>(0.052)     | 0.009<br>(0.054)     |
| Educated beyond senior secondary school |                    |                    | 0.214*<br>(0.106)   |                     |                     | 0.011<br>(0.071)   |  |                   | 0.279**<br>(0.125)  |                     |                      | -0.047<br>(0.048)    |
| Net Worth above HK\$500,000             |                    |                    | -0.139<br>(0.128)   |                     |                     | -0.049<br>(0.072)  |  |                   | -0.284**<br>(0.107) |                     |                      | -0.061<br>(0.056)    |
| Age                                     |                    |                    | -0.005<br>(0.013)   |                     |                     | 0.005<br>(0.006)   |  |                   | -0.000<br>(0.019)   |                     |                      | -0.005<br>(0.006)    |
| Constant                                | 0.111<br>(0.069)   | 0.056<br>(0.148)   | 0.126<br>(0.432)    | 0.391***<br>(0.041) | 0.365***<br>(0.058) | 0.198<br>(0.255)   | 0.220**<br>(0.100)                       | 0.222<br>(0.191)  | 0.139<br>(0.744)    | 0.363***<br>(0.045) | 0.409***<br>(0.077)  | 0.652***<br>(0.218)  |
| Observations<br>R-squared               | 74<br>0.240        | 74<br>0.263        | 74<br>0.302         | 388<br>0.148        | 388<br>0.167        | 388<br>0.170       | 74<br>0.216                              | 74<br>0.249       | 74<br>0.328         | 388<br>0.189        | 388<br>0.221         | 388<br>0.229         |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: This table shows the estimation result of the regression on *Undiversified Advice* and *Home-Biased Advice* on the auditor's gender. These specifications include firm fixed effects. Columns (1)–(6) show the results of the regression on *Undiversified advice*, while Columns (7)–(12) show the results of the regression on *Home-Biased advice* on the auditor's gender, estimated separately for the audit visits to financial planner and securities firms. *Female Auditor* is an indicator that takes the value of 1 (0) for female (male) auditors. *High Risk Tolerance*, *High Confidence*, and *Domestic Outlook* take the value 1 (0) if the auditor plays an avatar of high (low) risk tolerance, high (low) confidence, and domestic (international) outlook, respectively, at the time of the audit visit. *Educated beyond senior secondary school* and *Net worth above HK\$500,000* are indicator variables. *Age* is the age of the auditor in years. Standard errors are clustered at the auditor level and are reported in parentheses below the coefficients.

Table B.11: Gender Difference and Auditor's Attributes in Financial Planner Visits (Firm FE with Standard Errors Clustered at Auditor Level)

| Dependent Variable (Y) Independent Variable/Attribute (X) |          | ied Advice<br>Tolerance |          | ïed Advice<br>nfidence |          | sed Advice<br>Outlook |
|---|----------|-------------------------|----------|------------------------|----------|-----------------------|
| masperiasine variable, naribute (71)                      | (1)      | (2)                     | (3)      | (4)                    | (5)      | (6)                   |
| Prd. Pr. [Male, Low X]                                    | 0.112    | 0.084                   | 0.095    | 0.029                  | 0.228    | 0.210**               |
|   | (0.088)  | (0.073)                 | (0.113)  | (0.089)                | (0.153)  | (0.105)               |
| Prd. Pr. [Male, High X]                                   | 0.109    | 0.12                    | 0.131    | 0.157                  | 0.213    | 0.19                  |
|   | (0.102)  | (0.104)                 | (0.097)  | (0.101)                | (0.145)  | (0.132)               |
| Prd. Pr. [Female, Low X]                                  | 0.323*** | 0.336***                | 0.340*** | 0.343***               | 0.440*** | 0.389***              |
|   | (0.09)   | (0.111)                 | (0.092)  | (0.108)                | (0.113)  | (0.114)               |
| Prd. Pr. [Female, High X]                                 | 0.568*** | 0.579***                | 0.484*** | 0.535***               | 0.538*** | 0.653***              |
|   | (0.119)  | (0.136)                 | (0.144)  | (0.161)                | (0.088)  | (0.103)               |
| Among High X: [Female – Male]                             | 0.459*** | 0.459**                 | 0.354**  | 0.378**                | 0.324*   | 0.463**               |
|   | (0.163)  | (0.175)                 | (0.159)  | (0.168)                | (0.168)  | (0.181)               |
| Among Low X: [Female – Male]                              | 0.211    | 0.252*                  | 0.245    | 0.313*                 | 0.213    | 0.18                  |
|   | (0.128)  | (0.149)                 | (0.155)  | (0.168)                | (0.185)  | (0.164)               |
| Among Females: [High – Low] X                             | 0.245    | 0.243                   | 0.145    | 0.192                  | 0.097    | 0.263*                |
|   | (0.147)  | (0.158)                 | (0.168)  | (0.173)                | (0.143)  | (0.151)               |
| Among Males: [High – Low] X                               | -0.003   | 0.037                   | 0.036    | 0.127                  | -0.014   | -0.02                 |
|   | (0.132)  | (0.130)                 | (0.156)  | (0.143)                | (0.218)  | (0.159)               |
| Demographic Controls                                      | No       | Yes                     | No       | Yes                    | No       | Yes                   |
| Observations R-squared                                    | 74       | 74                      | 74       | 74                     | 74       | 74                    |
|   | 0.271    | 0.294                   | 0.251    | 0.286                  | 0.22     | 0.295                 |

<sup>\*\*\*, \*\*,</sup> and \* denote statistical significance at the 1%, 5%, and 10% level.

Notes: The top half of the table shows the predicted probabilities (Prd. Pr.) that auditors of each combination of gender and attribute receive *Undiversified Advice* in columns (1) through (4) and *Home-Biased Advice* in columns (5) and (6), when they visit financial planners. The probabilities are obtained from the regression equation (5). The key independent variable/attribute (X) is an indicator variable that takes the value of 1 (0) for *High (Low) Risk Tolerance* in columns (1) and (2), *High (Low) Confidence* in columns (3) and (4), and *Domestic (International) Outlook* in columns (5) and (6). These specifications include firm fixed effects. *Demographic Controls* include a dummy for

the auditor's education (=1 if educated beyond senior secondary school), a dummy for net worth (=1 if *Net Worth above HK\$500,000*) and auditor's age (in years). The bottom half of the table reports the difference in the predicted probability and t-test for the difference in the respective dependent variable across auditors' gender with a particular attribute, and across particular attributes of auditors for a given gender. Standard errors are clustered at the auditor level and are reported in parentheses below the coefficients.

## Appendix C: Study Design in Detail

## C.1 Identifying Financial Advisory Firms in Hong Kong, China

Our goal was to conduct an audit study of financial advisory firms that provide advice to retail investors. Given our research question, we were specifically interested in local advisory firms and wanted to avoid multinational firms whose policies and internal rules may be set at the international level. We took a careful approach to identify our sampling frame. As described in the main text of the paper, the Securities and Futures Ordinance of Hong Kong, China requires individuals to obtain a Type 4 license from the Hong Kong Securities and Finance Commission (SFC) before they can become bona fide financial advisors. We started with the list of all individuals with active Type 4 licenses available on the SFC website as of 18 February 2017. This list also includes the name of the firm for which the advisors work, so we could identify all firms where licensed advisors work. After removing multinational firms and firms for which contact information was not available and treating all firms that belong to the same parent company as a single firm, we obtain a list of 847 individual firms.

Not all firms in this list may be available to provide financial advice to retail clients. To ensure that a firm provides financial advice to retail customers by appointment, we assigned our bilingual research assistant to contact all 847 firms in the summer of 2018. She contacted each of the 847 firms individually by phone or email. She used a free-flowing script in Cantonese and posed as a potential retail customer. In this way, we were able to narrow down the list of potential firms to 90 individual firms. Some of these 90 firms had multiple branches. We had a sampling frame of 191 company branches.

<sup>&</sup>lt;sup>1</sup> Specifically, we removed firms from our sampling frame for the following reasons: no response from the firms to our calls/emails within 2 weeks after two follow-ups (118), the firm does not accept retail clients (386), the firm only offers a trading platform but no advice (64), the firm requires customers to make an initial deposit before receiving advice (12), the firm only accepts new clients on referral (37), the firm belongs to the same parent company as another firm in our sampling frame (34), the firm sells only very specific products such as gold (33), the firm has ceased operations or does not offer appointments (30), and the firm is a bank that provides advice only to its account holders (43).

## C.2 Selection of Company Branches to Audit

A pilot study we conducted in 2017 with a sample of 30 firms provided important insights into the structure of the financial advice industry in Hong Kong, China and the types of questions advisors ask potential clients, and allowed us to refine our visit protocol and empirical design. The statistics from this pilot study informed the power calculations for our final study. These calculations indicated that a sample size of 427 visits would ensure 80% power to detect a gender difference in advice quality of 13 percentage points.

In anticipation that some of the visits may fail for unforeseen operational reasons, we selected 111 branches from 74 firms in the initial assignment, while keeping 80 branches from 22 firms in reserve. Note that the sum of the number of firms in the initial assignment and the reserve exceeds 90 firms. This is because firms with multiple branches can be in both the initial assignment and reserve.

We created 594 branches × auditor random assignments, linking 32 auditors to 111 firm-branches of 74 firms. We planned to replace each of these 111 branches in the initial assignment with a branch in reserve if a visit failed during the audit. The distribution of visits planned and actual visits is shown in Table C.1.

**Table C.1: Sample Description** 

| -      |                    | Co    | nducted                               | d Visits  | ;   |     |   |     |      |            |      |
|--------|--------------------|-------|---------------------------------------|---|---|-----|---|-----|------|------------|------|
| Strata | Num<br>compa<br>(a | anies | Num. of<br>branches<br>per<br>company | Num. of<br>branches<br>per<br>company<br>selected (b) | Visits per branch (c) C) Num. of visits in strata (a × b × c) |     | ches per visits in Num. of er branch (a × b × Companies |     |      | Nun<br>Vis |      |
|        | FP                 | SF    |                                       |   |   | FP  | SF  | FP  | SF   | FP         | SF   |
| (1)    | (2)                | (3)   | (4)                                   | (5)   | (6)   | (7) | (8)   | (9) | (10) | (11)       | (12) |
| Large  | 0                  | 2     | 21                                    | 5   | 4   | 0   | 40  | 0   | 2    | 0          | 38   |
| Medium | 2                  | 10    | 3-8                                   | 2   | 4   | 24  | 152   | 2   | 9    | 26         | 114  |
| Small  | 12                 | 48    | 1-2                                   | 1   | 6   | 78  | 300   | 11  | 41   | 49         | 236  |
| Sum    | 14                 | 60    | -                                     | -   | -   | 102 | 492   | 13  | 52   | 75         | 388  |

Notes: This table shows the distribution of visits we initially assigned (columns 2–8) and the distribution of visits we successfully conducted (columns 9–12). *FP* and *SF* refer to financial planner firms and securities firms, respectively. Note that among the planned visits, we did not include branches and companies that we kept in reserve.

In the end, we conducted successful visits to 65 individual firms, corresponding to 102 branch offices. These 65 companies are the population of local financial advisory firms that catered to local retail investors in Hong Kong, China in 2018. Of these 65 firms, the vast majority, 52, are "securities firms," while the remaining 13 are "financial planners." Securities firms are either very large (2 of them have 21 branches each) or very small and boutique (41 of them have only 1 to 2 branches). Financial planners tend to be medium-sized (2 of them have 3 to 8 branches each) or very small and boutique (11 of them have only 1 to 2 branches). We do not know how many clients each firm actually has, but it is reasonable to assume that firms with a larger number of branch offices cater to a larger number of clients. Accordingly, we assigned more visits to the firms with more branches.

## C.3 Hiring Auditors

Our auditors were Hong Kong, China residents whose native language was Cantonese. For the auditor hiring advertisement, we set the following requirements:

- The number of auditors: 16 male and 16 female. This was decided based on our research budget.
- Age: 30–45 years
- Trading experience: Traded exchange securities between 0 and 6 times in the last year
- Income: Monthly household income (per adult earning member) must be between HK\$20,000 and HK\$60,000 (\$2,575 to \$7,725)
- Education: Below undergraduate degree is desirable (if with an undergraduate degree, then not from the eight prominent universities); subdegree and vocational degrees are acceptable. We tried to choose individuals with low literacy because, as explained earlier, this was part of our research plan.

We collected detailed information from each of the hired auditors on a variety of dimensions—such as income and education level, trading experience, etc.

#### C.4 Visit Protocol

Each auditor was given the list of companies assigned to them for that given month. The order in which they would visit the companies in that given month was up to them. The first step in the auditor's visit was to make an appointment. To standardize the appointment process, our research assistant first called a few financial advisors to set up an appointment. We recorded these appointment calls and provided samples to the auditors. Auditors were reminded to read through their profile instructions before the visit. Within 24 hours of the visit, auditors were required to complete an online bilingual questionnaire about the visit. They were also asked to collect the business card of the person they had spoken to.

Appendix D contains the Cantonese script and an English translation of the visit protocol.

## C.5 Operational Changes in Assignment During the Audit Study

As described in section C.2 of this data appendix, we scheduled 594 visits by 32 auditors to 111 branches over a 6-month period and kept 80 branches in reserve to replace the initial assignment for unforeseen operational changes. We conducted 515 audit visits. Of the 515 audits, we were unable to include 52 visits in our analysis. The reasons for disqualification, which are not mutually exclusive, are: auditors were told that the advisory firm did not offer a recommendation service (38), that only referred individuals could become clients (6), that advice could only be given after the auditor opened an account (6), and that advisors appeared to remember meeting an auditor before (6). Our final analysis is based on 463 visits to 102 unique branches of 65 unique companies.

## **Appendix D: Visit Protocol for Auditors (Chinese version)**

## 神秘訪客訪問規程

#### 訪問前

- 請了解: 您將會訪問證券公司還是理財公司? 您可以在Spot-On分配的任務中找到此信息。
- 請牢記: 您即將訪問公司的類型 (證券公司/理財公司) 的提問清單 (見下文) 。
- 請仔細閱讀及牢記您分配到的角色信息,并根據具體情境做出符合角色特征的合理 變化,請確保您對您所扮演的角色足夠熟悉。
- 請確保: 您的錄音設備正常工作且電池電量充足。

#### 訪問期間

- 這是一次非結構化的訪談。
- 您 (MS) 和理財顧問 (FA) 之間的對話應該自然——就好像您真的需要理財建議 一樣。
- 請確保清單中的所有問題都得到FA的解答。但是,請不要咄咄逼人,且不要暴露 神秘訪客的身份。
- 由於訪談是非結構化的,因此不會為您提供結構化的對話劇本。相反,我們會提供 一份提問清單。記住這份清單里的內容,以確保在訪談期間,你將會和理財顧問談 論到清單中的所有要點。對於要點被討論的順序,我們對此沒有特別的要求。
- 在訪問期間, FA可能會要求您填寫"風險承擔能力問卷", 請根據提供給您的樣本填寫。
- 以下是FA可能會詢問您的一些示例問題,以及我們對這些問題所設定的答案:
  - 問: 您想投資多少錢?
  - 答: "現在約為十萬港元,之後每月約為\$ x" (您可以根據您認為合理的情況 選擇x)。
  - 問: (如果您有孩子) "您的孩子/孩子們的教育目標是什麼?"
  - 答:"他/她想在香港學習,他/她將自籌資金"。

○ 問: 你的投資期限/目標是什麼?

答: "我計劃長期 - 退休"。

對於所有其他可能會被提問到的問題,包括您的教育程度,職業,收入及財富水平,個人/家庭情況,當前投資(如強積金和保險),交易經驗等,請根據您自己的真實情況自然而誠實地回答問題。當然,請記住不要透露您是Spot-On Insights的神秘顧客!

## 提問清單

由於訪談是非結構化的,且我們希望訪談如同真正的客戶與理財顧問交談一樣自然,您需要允許FA自由地提供建議。但是,請記住嘗試引導對話,以便涵蓋以下清單項目。

## A) 你必須向FA透露你的角色形象:

- 風險承擔能力 您要麼是低風險承擔能力(非常保守),要麼是高風險承擔能力 (非常大膽/積極)。
  - 填寫風險承擔能力問卷時,請根據提供給您的樣本填寫。
  - 低風險承承擔能力,請通過這樣說來暗示: "我想買翻D比較安全既產品。 我驚如果我買錯咗會蝕錢。我都可以接受一DD損失,但係太多就唔得。"
  - 高風險承承擔能力,請通過這樣說來暗示: "我唔介意個市唔好果陣會蝕錢,不過我就希望個市好果陣賺多D,所以有時蝕錢都可以接受既。"
- 信心水平 您要麼信心不足,要麼高度自信。
  - 信心不足,請通過這樣說來暗示: "我之前從未自己做過重要既財務決策, 我地屋企都係我父母/先生/太太話事。所以今次過來都係我需要你建議既原因。"
  - 高度自信,請通過這樣說來暗示: "我通常都係自己做財務決策,通常就唔會接受顧問既幫助。今次只不過系有個friend話咁重要既事一定要先問你地 D專業人士意見再做決定。"
- 本地/國際展望觀點 您要麼是本地展望觀點, 要麼是國際展望觀點。
  - 國際觀點,請通過這樣說來暗示:"我堂兄住係加拿大,我都林住以後可能

會搬過去加拿大。我都暫時未確定退休之後留唔留系香港。"

○ 本地觀點,請通過這樣說來暗示: "我系香港出世,以後都打算退休之後留 系香港。"**即使您有目前在國外的親戚,都請不要提及任何國外的親戚。** 

#### B) 你必須問這些問題:

Q1) 根據我的情況,您會推薦哪種金融產品?

對於每種產品,請提出問題/插入評論,例如:

Q2)"我不知道這個產品,你能解釋它是什麼嗎?"或"你能告訴我多一些關於這個產品的信息嗎?"

FA 告訴您有關該產品的更多信息後,請進行詢問:

Q3)"這個產品適合我是因為.....?"

#### 追問

1. 如果你在訪問一位理財顧問(FA):

如果 Q1 中 FA 推薦的產品是基金(你會從 Q2 的答案中得知),接下來請向 FA 提問:

- 如果你有本地展望,請問:
  - Q4a) "蘋果/微軟/谷歌/臉書 (Apple/Microsoft/Google/Facebook) 股票怎麼樣? 我所有的朋友都在談論它。"(請隨機選擇上述任何一支股票。)
- 如果你有國際展望,請問:
  - Q4a) "蘋果/微軟/谷歌/臉書 (Apple/Microsoft/Google/Facebook) 股票怎麼樣? 我所有的朋友都在談論它。"(請隨機選擇上述任何一支股票。)

如果 Q1 推薦的產品是股票(你會從 Q2 的答案中得知),請詢問:

- 如果你有本地展望,請問:
   Q4b)"領航全球股票基金/貝萊德全球股票基金怎麼樣?我所有的朋友都在 談論它。"(請隨機選擇上述任何一支基金。)
- 如果你有國際展望,請問:

- Q4b) "領航全球股票基金/貝萊德全球股票基金怎麼樣?我所有的朋友都在 談論它。"(請隨機選擇上述任何一**支**基金。)
- 2. 如果你在訪問一間證券公司:

如果 Q1 中 FA 推薦的產品是基金(你會從 Q2 的答案中得知),接下來請向 FA 提問:

- 如果你有本地展望,請問:
   Q4a)"騰訊/港鐵/中電/中華煤氣股票怎麼樣?我所有的朋友都在談論它。"
   (請隨機選擇上述任何一支股票。)
- 如果你有國際展望,請問:
   Q4a) "蘋果/微軟/谷歌/臉書 (Apple/Microsoft/Google/Facebook) 股票怎麼樣? 我所有的朋友都在談論它。" (請隨機選擇上述任何一支股票。)
   如果 Q1 推薦的產品是股票(你會從 Q2 的答案中得知),請詢問:
  - 如果你有本地展望,請問:
    Q4b) "盈富基金/恆生指數 ETF 怎麼樣? 我所有的朋友都在談論它。" (請
    隨機選擇上述任何一支基金。)
  - 如果你有國際展望,請問:
  - Q4b)"標準普爾500指數基金怎麼樣?我所有的朋友都在談論它。"

#### 訪問結束後

• 請在訪問後24小時內填寫神秘顧客訪談結束問卷。

如果您忘記和 FA 討論清單中的某個項目,您應該在填寫問卷時將與該項目相關的問題欄留空。

## Visit Protocol - English Version

#### **Before the Visit**

- Find out: Are you visiting a securities firm or a financial planner? You can find this information in your task assignment.
- Memorize the checklist (see below) for the appropriate firm type.
- Refresh your memory about your avatar and the synthetic elements that you
  must embody.
- Make sure that your recording device is working and has working batteries.

#### **During the Visit**

- This is an unstructured interview.
- The conversation between you (MS) and the financial advisor (FA) should flow naturally – as if you really want financial advice.
- Make sure that all your questions are answered. However, do not be aggressive and try not to blow your cover.
- Because the interview is unstructured, you are not provided a structured script.
  Instead, we provide a checklist. Memorize this checklist. Ensure that during the
  interview all the points in the checklist are revealed to the FA. The order in which
  they are revealed is not so important.
- During the visit, the FA may ask you to complete a Risk Profile Questionnaire. Please answer the questions according to the sample provided to you.
- Here are some sample questions you may receive from the FA, and our recommended answers to these questions.
  - O Q: How much do you want to invest?
  - A: "About HK\$100,000 now, and about \$x per month later on" (you can choose x according to what seems reasonable to you).
  - Q: (If you have children) "What is your goal for your child's/children's education?"
  - o A: "They want to study in Hong Kong, and will self-finance."
  - o Q: What is your investment horizon?
  - A: "I am planning for the long term -- my retirement."
- For all other elements, including your education, occupation, income and wealth level, personal/family situation, current investments (such as MPF and insurance), trading experience, etc., please answer the questions naturally and honestly, based on your own true situation. Of course, remember to not reveal that you are a mystery shopper.

## **Checklist for Mystery Shopper (Auditor)**

Since the interview is unstructured and meant to be as natural as if a true client were talking to a financial advisor, you must allow the FA to give advice freely. However, do

remember to try and steer the conversation such that the following checklist items are covered.

- A) You have to reveal your avatar:
- Risk tolerance You are either low risk tolerance (very conservative) or high risk tolerance (very bold/aggressive).
  - When filling out the Risk Profile Questionnaire, answer the questions according to the sample provided to you.
  - Low risk tolerance—signal this by saying: "I want to buy something that is safe. I worry that if I make a mistake then I will lose my money. I can tolerate a little loss but not much."
  - High risk tolerance—signal this by saying: "I don't mind if I lose money sometimes in bad times, but I want to make good money when the times are good. So I can afford to lose some money."
  - Confidence level You have either low confidence or high confidence.
    - Low confidence signal this by saying, "I have never made important financial decisions on my own before. In my household, my parents/spouse have always done this. That is why I need your advice."
    - High confidence signal this by saying, "I usually make financial decisions myself. I don't usually take the help of advisors. I am only here because my good friend insisted that I meet you before I make any decisions."
  - Domestic/International outlook You have either domestic outlook or international outlook.
    - International outlook signal this by saying, "My cousin lives in Canada and I am thinking maybe I will move to Canada. I am not sure that I want to retire here."
    - Local outlook signal this by saying, "I was born here and I intend to retire here." Do not mention any relatives that live abroad even if they do.
- B) You have to ask these questions:
  - Q1) Given my situation, which financial product(s) would you recommend for me?

For each product, ask questions/insert comments such as -

Q2) "I am not aware of this product, can you explain what it is?" or "Can you tell me a bit more about this product?"

After the FA tells you more about the product, then probe –

Q3) "And this product is good for me because...?"

#### **Probe**

- 1. If you are visiting a financial planner:
  - If the product recommended in Q1 is a fund (you will know this from the answer to Q2):
    - If you have Domestic Outlook, ask:

- Q4a) "What about something like Tencent/MTR/CLP Electric/TownGas? All my friends are talking about it." (Choose any **one** of the above stocks randomly.)
- If you have International Outlook, ask:
   Q4a) "What about something like Apple/Microsoft/Google/Facebook? All my friends are talking about it." (Choose any one of the above stocks randomly.)

If the product recommended in Q1) is a stock (you will know this from the answer to Q2):

- If you have Domestic Outlook, ask:
   Q4b) "What about something like Value Partners Fund/BOCHK Hong Kong Fund? All my friends are talking about it." (Choose any one of the above funds randomly.)
- If you have International Outlook, ask:
   Q4b) "What about something like Vanguard Global Equity fund/ Blackrock Global Equity Fund? All my friends are talking about it." (Choose any one of the above funds randomly.)
- If you are visiting a securities firm: If the product recommended in Q1 is an ETF, (you will know this from the answer to Q2):
  - If you have Domestic Outlook, ask:
     Q4a) "What about something like Tencent/MTR/CLP Electric/TownGas? All my friends are buying it." (Choose any one of the above stocks randomly.)
  - If you have International Outlook, ask:
     Q4a) "What about something like Apple/Microsoft/Google/Facebook? All my friends are buying it." (Choose any one of the above stocks randomly.)

If the product recommended in 1) is a stock (you will know this from the answer to Q2):

- If you have Domestic Outlook, ask:
   Q4b) "What about something like Tracker Fund of Hong Kong ETF / Hang Seng HSI ETF? All my friends are buying it."
- If you have International Outlook, ask:
   Q4b) "What about something like the S&P 500 ETF? All my friends are buying it."

#### After the Visit

Please fill out the Exit Questionnaire within 24 hours after the visit.
 If you forgot to communicate a particular checklist item, then you should leave that box blank.