The European Journal of Finance

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rejf20

Risk taking in the context of financial advice: does gender interaction matter?

Jerome Monne, Janette Rutterford & Dimitris P. Sotiropoulos

To cite this article: Jerome Monne, Janette Rutterford & Dimitris P. Sotiropoulos (2024) Risk taking in the context of financial advice: does gender interaction matter?, The European Journal of Finance, 30:3, 249-268, DOI: 10.1080/1351847X.2023.2201471

To link to this article: https://doi.org/10.1080/1351847X.2023.2201471

THE EUROPEAN JOURNAL OF FINANCE
2024, VOL. 30, NO. 3, 249–268
https://doi.org/10.1080/1351847X.2023.2201471

Routledge
Taylor & Francis Group

Risk taking in the context of financial advice: does gender interaction matter?

Jerome Monne [a], Janette Rutterford[b] and Dimitris P. Sotiropoulos[b]

[a]Finance Department, ESSCA School of Management, Angers, France; [b]Finance Department, The Open University Business School, Milton Keynes, UK

ABSTRACT

This study tests a gender threat hypothesis whereby having a financial advisor of the opposite gender results in gender stereotypical risk attitudes in portfolio choice. We employ a unique dataset of 1,621 advised UK investors, combined with information on the gender of their financial advisors. Confirming the hypothesis, our results show that men advised by a woman take more risk than when advised by a man. Women advised by a man adopt a more cautious approach than when advised by a woman. When the gender threat is alleviated, that is when women are advised by women, and men are advised by men, we found no gender gap in risk-taking.

ARTICLE HISTORY
Received 22 July 2022
Accepted 4 April 2023

KEYWORDS
Behavioural finance; portfolio choice; attitude to risk; gender; financial advice; identity

JEL CLASSIFICATIONS
G4; G20; G40; D14; J16

1. Introduction

There is a growing volume of research arguing that investor behaviour can be explained by internalized social norms and identities (e.g. Booth and Nolen 2012; Carr and Steele 2010; D'Acunto 2019; Meier-Pesti and Penz 2008; and Weaver, Vandello, and Bosson 2013). Gender is a key element in these discussions. In finance, gender is usually considered as a major factor determining attitude towards risk. The empirical evidence suggests that on average men are relatively more aggressive in risk-taking than women (e.g. Barber and Odean 2001; Sundén and Surette 1998; Neelakantan and Chang 2010; Watson and McNaughton 2007). The issue of identity also highlights a new type of externality when people interact in different social settings: one person's social identity (based on age, gender, etc.) can have meaning for and evoke responses in others (Akerlof and Kranton 2000). This argument is particularly important when we look at risk taking in the context of financial advice, which essentially involves an interaction between an advisor and an investor. Only a few studies have explored this question: How do externalities with regard to gender influence financial decision making in this context? Does the gender of the advisor influence risk-taking decisions?

Drawing upon the identity literature and the concept of *gender threat* (Akerlof and Kranton 2000; Vandello et al. 2008), we develop the testable hypothesis that investors are more likely to conform to gender social norms with regard to risk taking if they interact with an advisor of the opposite gender. Gender threat occurs in situations in which one is 'threatened' by the possibility of acting on the basis of social norms assigned to the opposite gender (Vandello et al. 2008). We argue that in decisional contexts that are deemed masculine, as is that of risky financial investment, the presence of women may lead men to affirm their 'masculinity' (i.e. taking high risk) whereas the presence of men may lead women to behave 'femininely' (i.e. investing cautiously).

To test this hypothesis, this study exploits individual investment data relating to 1,621 advised UK investors, combined with information on the gender of their independent financial advisors (IFA) working in partnership with a large financial institution. The advising procedure is meant to help investors determine their portfolio

CONTACT Jerome Monne jerome.monne@essca.fr

risk tolerance or preference and is standardized. All clients start their investment meetings with their advisor by performing the same attitude-to-risk test. Clients eventually choose between portfolio types corresponding to five different levels of risk (i.e. from 'Defensive' to 'Aggressive'), with the risk level being automatically derived by the outcome of the attitude-to-risk test. In this regard, for a given investment time horizon, test scores are identical to portfolio choice. Our empirical approach consists of investigating the advisor gender effect among men and among women, and of verifying that shifting from a same-gender configuration to an opposite-gender configuration predicts a gender-specific stereotypical response in clients' portfolio risk taking. We also have data on other investment parameters chosen by clients (e.g. invested amounts, vehicles, targeted period of placement) as well as information on their age, income, wealth, and marital status. This allows us to control for investors' gender-based heterogeneity and relevant factors affecting portfolio risk taking.

Our findings show that risk preference is significantly affected by the gender of the advisor. Men advised by a woman take more risk on average than when advised a man, being strikingly more likely to choose the riskiest investment options. They thus adopt a stereotypical masculine behaviour. This result tallies nicely with the gender threat hypothesis on the men's side. On the other hand, women advised by a man adopt on average a more cautious approach than when advised by a woman. Here again, the shift in the risk preference follows a pattern that verifies the gender threat hypothesis on the women's side: having a male advisor makes female investors more likely to choose the more cautious investment option. A last striking result of our study is that we find no evidence of the so-called gender gap in investment risk taking in favour of men (Baeckström, Marsh, and Silvester 2021; Neelakantan and Chang 2010; Sundén and Surette 1998; Watson and McNaughton 2007) if we restrict the analysis to clients having an advisor of the same gender. This implies that, in the context of advised decision-making, riskier attitude exhibited by men compared to women could mainly be explained by cross-gender interactions.

Whereas our results indicate a good fit between the data and the gender threat hypothesis, the nature of our data does not enable us to formally test whether our estimations suffer from an endogeneity bias. Concerns about endogeneity mainly emerge from the fact that advisor assignment is not random, and hence we cannot rule out the possibility of reverse causality in the relationship between risk-attitude and the gender of the advisor. We provide in our analysis several empirical and theoretical arguments to defend the robustness of our results. This limitation of our empirical estimates invites future experimental research to randomize the assignment to advisor.

Only a few studies have investigated how gender interaction affects portfolio risk-taking in the context of financial advice. Jansen, Fischer, and Hackethal (2008), using survey data, and Söderberg (2013), in an experimental setting using photographs of adviser, also analysed the effect of the gender of the advisor on risk-taking but did not investigate whether these findings vary with the gender of the investor. They respectively found no effect and a positive effect of having a female as an advisor on the degree of risk aversion. Baeckström, Marsh, and Silvester (2021), in line with our results but based on survey data targeting extremely wealthy individuals (millionaires), found that women advised by a male advisor take less risk than when advised by a female advisor. However, they found no effect of the advisor's gender on male investor risk-taking behaviour. We add to their contribution by observing a larger sample that is more representative of the average investor in terms of wealth. In addition, we use administrative data from the field that presumably more accurately capture revealed preferences in the meeting room.[1] Finally, an additional difference enabled by our dataset lies in the use of a nonlinear approach that focuses more specifically on the change in the likelihood of selecting extremely risky or cautious portfolios since, we hypothesize, this is where 'overdoing gender' occurs.

Our results corroborate, but from another angle, the thesis of 'homophily' in the advising process demonstrated by Stolper and Walter (2019). The authors document the fact that advisees are more likely to follow financial advice from a bank advisor if the latter has, for instance, the same gender. Our results are similar in the sense that being with an advisor of the same gender seems to put individuals in a less threatening situation from an identity perspective. More generally, the paper contributes to the growing literature looking at how financial advisors can influence the investment choices of their clients (e.g. Agnew et al. 2018; Gennaioli, Shleifer, and Vishny 2015; Linnainmaa, Melzer, and Previtero 2016; Von Gaudecker 2015). Our study also contributes to the debate on the so-called gender gap in risk preference (Barber and Odean 2001;

Charness and Gneezy 2012; Halko, Kaustia, and Alanko 2012; Watson and McNaughton 2007; Filippin and Crosetto 2016; Eckel and Grossman 2008a) and its potential implications for investors' wealth accumulation (e.g. Sundén and Surette 1998; Neelakantan and Chang 2010).[2] It provides the first field evidence that gender concerns have real life consequences on investing behaviour, especially on risk taking. Finally, the paper relates to a growing literature that investigates the link between financial behaviour and social identity concerns, such as those based on gender (Carr and Steele 2010; Stolper and Walter 2019), religion (Benjamin, Choi, and Fisher 2016), ethnicity (Benjamin, Choi, and Joshua Strickland 2007), and occupation (Cohn, Fehr, and Maréchal 2017).

The remainder of the paper is organized as follows. Section 2 develops the theory supporting the gender threat hypotheses that we aim to test. Section 3 presents our dataset and explains the advisory context in which clients choose their portfolios. Section 4 contains our main empirical approach and results. The fifth section discusses the limitations of our main results. Section 6 presents additional results on the influence of opposite-sex advisor on the gender gap in risk-taking. Section 7 concludes the study.

2. Gender threat and portfolio risk taking

There is a growing strand of experimental research revisiting the question of gender differences in risk preference through the lens of gender concerns. The main idea comes from the seminal work of Akerlof and Kranton (2000), which explicitly sets out, in the context of general equilibrium, the influence of social identity on economic behaviour. There is a key insight in this work: in a social context, agents tend to behave according to internalized gender social norms that are at the origins of stereotypes. In the scope of investment risk taking, the literature clearly establishes the existence of a stereotypical view, in which women are *a priori* perceived as cautious whereas men would supposedly be more aggressive risk-takers (Carr and Steele 2010; Daruvala 2007; Eckel and Grossman 2008b; Booth and Nolen 2012; D'Acunto 2019). For instance, Eckel and Grossman (2008b) and Daruvala (2007) show with experimental data that, when asked to guess the risk attitude of individuals at a gambling task, women are significantly believed to be more risk averse than men. Eckel and Grossman (2008b) along with D'Acunto (2019) confirm that this stereotypical behaviour applies in the context of financial risk taking. In addition, recent studies provide evidence that the assignments to investment activities of household members are affected by gender norms, implying that male of the household is in charge (D'Acunto 2019; Ke 2021; Agunsoye et al. 2022). By contrast, gender norms maintain women in the role of day-to-day household budget management, and their views about financial investment tend to be disregarded. A key notion in this literature is the concept of *gender threat* (i.e. either masculinity or femininity threat) that occurs in situations in which one is threatened by the possibility of acting like the opposite gender (Vandello et al. 2008). Gender threat implies new types of externalities, because one person's social identity can have meaning for and evoke responses in others. This basically means that part of the everyday behaviour we experience with regard to risk taking could be the result of gender concerns when people with different genders interact in different roles in the financial advisory process.

2.1. Masculinity threat

A number of studies highlight the fact that, if male individuals in general, and investors in particular, feel their (socially determined) masculinity to be under threat, they will most likely develop greater aggression and a risk-taking attitude in an attempt to restore what they feel is challenged (Akerlof and Kranton 2000). An experimental study by Willer et al. (2013) shows that, when men receive feedback suggesting they are feminine, they are more likely to support war, adopt homophobic attitudes, and be interested in purchasing a sports utility vehicle. Meier-Pesti and Penz (2008) show, also via an experiment, that priming male participants with masculine role stereotypes leads them to greater financial risk taking. The experimental study of Weaver, Vandello, and Bosson (2013) supports this finding. When men are asked to perform tasks that are deemed 'unmanly' or 'feminine', they tend to feel threatened in their manhood. In order to restore their 'man status,' they are subsequently more likely to be more aggressive in their attitude to risk. D'Acunto (2019) shows, through lab experiments, that

threatening men's identity by priming masculinity with blog excerpts depicting male/female stereotypical traits also increased men's preference for risk.

A masculinity threat is more likely to occur in settings where men interact with women, if the role associated with that setting is that the men have 'high status.' Akerlof and Kranton (2000) give the example of men working in a 'man's job' who are likely to feel less like 'men' if a woman works with them. The authors suggest that this could lead men to *restore* their male identity by behaving aggressively towards their female co-worker; this may prevent her from doing her job. Subsequent research has further emphasized the fact that cross-gender interaction in the workplace can exacerbate the masculinity threat when women are successful and threaten the status of men in a context of gender hierarchy (e.g. Berdahl 2007; Maass et al. 2003). Authors show that this entails 'restoring' behaviour under the form of aggression and harassment by men.

It is thus very likely that a similar masculinity threat and corresponding 'restoring behaviour' may occur in the configuration of male investors being advised by a woman. A female advisor may unconsciously be perceived by some man investors as challenging the masculine gender hierarchy of social norms in finance and risk-taking. This masculinity threat will lead men to be more aggressive in their investment risk choices in an attempt to restore their socially prescribed social status. The affirmation of a male identity may not just consist in increasing the degree of portfolio risk-taking, for instance by passing from a low risk to a moderate risk portfolio. The masculinity threat may instead result in 'overdoing gender' (Willer et al. 2013). We thus expect that, to fully alleviate the masculinity threat, men may conspicuously display the uncontested riskiest attitude. This leads to the following hypothesis:

> Hypothesis 1: Male investors advised by a woman are more likely to choose the riskiest portfolio types than male investors advised by a man.

2.2. Femininity threat and women's stereotype threat

As with the masculinity threat, there can be a similar 'femininity threat,' which would drive women to behave in accordance with femininity social norms by showing more cautiousness. A femininity threat would mainly work through women's internalized fear that they would incur a social penalty if violating gender norms by behaving counter-stereotypically (Akerlof and Kranton 2000; Vandello et al. 2008). Such fear is especially likely to occur in male-dominated arenas, or male gender-typed tasks. We previously mentioned potential violent reactions coming from man against female co-workers when the work is deemed being a 'man's job' (Akerlof and Kranton 2000); or women's greater risk of being harassed by men in the workplace when their career is successful (e.g. Berdahl 2007; Maass et al. 2003). In a less extreme fashion, there is evidence in the organizational context that women succeeding in male job tasks, or at leadership positions (that are deemed to require masculine qualities) receive less recognition, face hostility and are perceived as less likable, due to a perceived deficit in nurturing and socially sensitive communal attributes that is implied by their success (Heilman et al. 2004; Heilman and Okimoto 2007; Rudman and Phelan 2008). Rudman et al. (2012) demonstrate that women behaving counter-stereotypically with the aim of occupying leadership positions are at risk of backlash for challenging the established gender hierarchy. Research shows as a consequence that in such contexts, women gain social benefits (e.g. likability) from avoiding the adoption of a self-promoting attitude and instead showing modesty and communality, potentially at the expense of their economic (career) interests (Heilman and Okimoto 2007; Moss-Racusin and Rudman 2010). Interaction with men can be key in triggering a femininity threat. In a more general context, the avoidance of counter-stereotypical attitudes is found in the study by Snyder, Tanke, and Berscheid (1977) who developed and tested the concept of behavioural confirmation which posits that women tend to behave in a more feminine way when interacting with a man whom they believe is attracted to them. Schwartz-Ziv (2017) found that female directors behave in a less active and authoritarian way when women are in minority in attendance at a company board meeting, as compared to when the board composition is more balanced.[3] Closer to the context of our study of risky decision-making, Booth and Nolen (2012) show that performing a gambling task in a mixed-sex environment tends to decrease the risk-taking attitude of female students. For the authors, the cautiousness of girls exhibited in the presence of boys is a way to affirm their femininity by conforming to perceived expectations of girls' behaviour and consequently making less risky choices

if they perceive risk avoidance as a feminine trait. The context of an advised risky investment decision where a woman is advised by a man contains all the elements that may lead women to conform to gender norms due to a gender threat: It both occurs in a male-dominated area (risk-taking and finance) and it is done in the presence of a man.

Besides the femininity threat, a related mechanism of gender concerns may further lead women to behave more cautiously in the context of investment decision making: such as when women are under a *stereotype threat*, as described by Carr and Steele (2010). The authors show, in a lab experiment, that priming gender concerns by asking women to record their gender before performing an investment task leads them to take less risk than women in the non-primed condition. In the latter non-primed condition, the study finds no gender difference in risk preferences. The authors argue that these results are due to women believing to have relatively 'low status' with respect to financial skills compared with men. Consequently, the salience of their gender entails ego-depletion and anxiety, which is at the origin of cognitive impairment. In this situation, women tend to rely on their intuition which in this case is to adopt a cautious attitude.

The literature shows that the stereotype threats entailed by performing a 'man's task' are exacerbated if women have to do it while interacting with men. Inzlicht and Ben-Zeev (2000) examine women's performance in a maths exam in the presence of male students. Taking a maths exam is a gender stereotyped activity because women are supposedly less good at maths. The authors report that women's performance in the exam progressively decreased as the proportion of men in the room increased. Similarly, the experimental study of Lee, Kim, and Vohs (2011) shows that the picture of a man, rather than the picture of a woman, on an advertisement for financial services can increase female participants' anxiety and reduce their willingness to purchase the service in question. These studies suggest that female investors advised by a man could feel some discomfort and anxiety due to stereotype threat. As suggested in Carr and Steele (2010), this should arguably lead women to adopt a more cautious attitude than if they were advised by a woman. On the basis of the existing research on both femininity threat and stereotype threat, we formulate our second hypothesis as follows:

> Hypothesis 2: Female investors advised by a man are more likely to choose the least risky portfolio types than female investors advised by a woman.

Here again, we expect that the gender threat, intensified by the stereotype threat, would result in women 'overdoing' their femininity to alleviate the threat, and retreating to the *most* cautious attitude (Willer et al. 2013).

3. Data

For our empirical investigation, we use a unique dataset based on individual advised investment decisions taken from March to August 2017 by 1,621 clients of a large UK investment advisory firm. Financial advisors from the firm are regulated advisors, that is they are approved and authorized by the Financial Conduct Authority (FCA) in the UK. They have obtained a qualification and meet requirements to ensure they are providing suitable advice. In our sample, the names of individual investors and advisors were fully anonymized and only a numerical identifier for each one was provided by the firm. The sample comprises 708 women (43.7 percent) and 878 men (54.2 percent) investors. For the remaining 2.2 percent of the clients in our sample there are no details about their gender. The average age of clients in the sample is 57.9 years and the majority of them are married (61.0 percent). For 944 clients in our dataset the level of income (*Income*) is also available. The average net annual income in our sample is £ 30,072. 1,048 clients disclosed the value of their personal gross wealth (*Assets*). The average gross wealth for this sample is £300,415.[4] A description and summary statistics of variables used in this study are provided in Tables 1 and 2 respectively. The proportion of investors advised by a woman is 9 percent and is equal across men and women investors, as shown through a chi-2 test. A description and summary statistics of variables used in this study are provided in Tables 1 and 2 respectively. A contingency table showing the distribution of investors across gender depending on the gender of the advisor is provided in Table 3, as well as the relevant chi-2 test.

Advisory meetings are face-to-face. Investors eventually choose among five pre-defined fully managed portfolios, reflecting five different levels of risk exposure. These portfolios are explicitly labelled as follows: *Defensive*,

Table 1. Description of variables.

Demographic variables	
Female advisor	A dummy variable taking the value 1 if the client is advised by a woman, and 0 otherwise.
Female investor	A dummy variable taking the value 1 if the client is a woman, and 0 otherwise.
No gender reported	A dummy variable taking the value 1 if the client did not report his/her gender, and 0 otherwise.
Age	The age of the clients in years
Assets ($N = 1048$)	Amount of assets individually owned (excluding Initial savings amount), available for 1,048 clients.
Income ($N = 944$)	Yearly net labour earnings, available for 944 clients.
Marital status	
Civil partners	A dummy variable taking the value 1 if the client is a in a civil union, and 0 otherwise.
Co-habiting	A dummy variable taking the value 1 if the client is cohabiting, and 0 otherwise.
Divorced or separated	A dummy variable taking the value 1 if the client is divorced or separated (single with children), and 0 otherwise.
Married	A dummy variable taking the value 1 if the client is married, and 0 otherwise.
Single	A dummy variable taking the value 1 if the client is single, and 0 otherwise.
Widow	A dummy variable taking the value 1 if the client is a widow or a widower, and 0 otherwise
Investment characteristic	
Investment amount	Initial amount invested in the portfolio by clients, in £.
Regular amount	Regular (monthly) amount invested and committed to be invested in the portfolio by clients, in £.
GIA	A dummy variable taking the value 1 if the client holds a General Investment Account (GIA), and 0 otherwise
ISA	A dummy variable taking the value 1 if the client holds a Individual Savings Account (ISA), and 0 otherwise
SIPP	A dummy variable taking the value 1 if the client holds a Self-Invested Personal Pension (SIPP), and 0 otherwise
Other vehicles	A dummy variable taking the value 1 if the client holds other vehicle(s) than those mentioned above, and 0 otherwise.
Time frame cat. A	A dummy variable taking the value 1 if the client has obtained a score below 14 to the questions measuring the time frame of his/her investment. Indicates the shortest time frame, and 0 otherwise. Not applicable in our dataset.
Time frame cat. B	A dummy variable taking the value 1 if the client has obtained a score between 4–14 to the questions measuring the time frame of his/her investment. Indicates an intermediate time frame, and 0 otherwise.
Time frame cat. C	A dummy variable taking the value 1 if the client has obtained a score between 15–30 to the questions measuring the time frame of his/her investment. Indicates an intermediate time frame, and 0 otherwise.
Risk and portfolio variables	
ATR cat 1	A dummy variable taking the value 1 if the client has a score to the Attitude To Risk (ATR) test from 0 to 15, and 0 otherwise.
ATR cat. 2	A dummy variable taking the value 1 if the client has a score to the Attitude To Risk (ATR) test from 16 to 35, and 0 otherwise.
ATR cat. 3	A dummy variable taking the value 1 if the client has a score to the Attitude To Risk (ATR) test from 36 to 55, and 0 otherwise.
ATR cat. 4	A dummy variable taking the value 1 if the client has a score to the Attitude To Risk (ATR) test from 56 and 85, and 0 otherwise.
ATR cat. 5	A dummy variable taking the value 1 if the client has a score to the Attitude To Risk (ATR) test above 85, and 0 otherwise.
Defensive	A dummy variable taking the value 1 if the client has chosen a portfolio *Defensive* (the least risky portfolio offered by the firm), and 0 otherwise.
Cautious	A dummy variable taking the value 1 if the client has chosen a portfolio *Cautious* (the second to least risky portfolio offered by the firm), and 0 otherwise.
Balanced	A dummy variable taking the value 1 if the client has chosen a portfolio *Balanced* (the third to least risky portfolio offered by the firm), and 0 otherwise.
Capital growth	A dummy variable taking the value 1 if the client has chosen a portfolio *Capital growth* (the second riskiest portfolio offered by the firm), and 0 otherwise.
Aggressive	A dummy variable taking the value 1 if the client has chosen a portfolio *Aggressive* (the riskiest portfolio offered by the firm), and 0 otherwise.

Cautious, *Balanced*, *Capital Growth*, and *Aggressive*. Aside of varying risk levels (induced by the portfolio assets breakdown), the products sold by the firm are very similar, with similar fee structure, and to our knowledge, an advisor has no personal interest in selling one or the other portfolio type. The final portfolio choice directly arises from a pre-defined procedure that advisors are required (by the firm) to follow. The key idea is that the advisor asks investors to complete an attitude to risk (ATR) test in the form of a questionnaire and to define the time horizon of their investment. The portfolio choice is automatically derived from the outcome of the test (and the chosen time horizon for the investment). The purpose of this procedure is that the level of risk chosen truly reflects the preferences of the investors, as revealed by the test. This significantly limits the influence of advisors' belief about investors' risk preferences that could sometimes be biased, especially at the gender level

Table 2. Summary statistics.

	Observation	Mean	Standard Deviation	Minimum	Maximum
Demographic variable					
Female advisor	1,621	0.09	0.28	0	1
Female investor	1,621	0.44	0.50	0	1
No gender reported	1,621	0.02	0.15	0	1
Age	1,621	57.9	14.81	7[a]	94
Assets	1048	300,415	386,687	0	4,796,580
Income	944	30,072	42,979	0	1,080,000
Civil partners	1,621	0.00	0.04	0	1
Co-habiting	1,621	0.07	0.25	0	1
Divorced or separated	1,621	0.07	0.26	0	1
Married	1,621	0.61	0.49	0	1
Single	1,621	0.15	0.36	0	1
Widow	1,621	0.10	0.30	0	1
Investment characteristics					
Investment amount	1,621	50,276	75,382	0	1,100,000
Regular amount	1,621	85	285	0	4,000
GIA	1,621	0.26	0.44	0	1
ISA	1,621	0.7	0.46	0	1
SIPP	1,621	0.29	0.45	0	1
Other vehicles	1,621	0.02	0.14	0	1
Time frame cat. B	1,621	0.15	0.36	0	1
Time frame cat. C	1,621	0.85	0.36	0	1
Risk and portfolio variables					
ATR cat. 1	1,621	0.04	0.20	0	1
ATR cat. 2	1,621	0.21	0.41	0	1
ATR cat. 3	1,621	0.27	0.45	0	1
ATR cat. 4	1,621	0.43	0.50	0	1
ATR cat. 5	1,621	0.04	0.18	0	1
Defensive	1,621	0.04	0.20	0	1
Cautious	1,621	0.21	0.41	0	1
Balanced	1,621	0.34	0.47	0	1
Capital growth	1,621	0.37	0.48	0	1
Aggressive	1,621	0.03	0.18	0	1

[a]The youngest and only investor below 18 is 7 years old (investing in a *Junior ISA*)
Note: The table provides the number of observations, mean, standard deviation, minimum and maximum of variables in the dataset. All variables are defined in Table 1.

Table 3. Investor gender and advisor gender – contingency table.

		Adviser gender		
		Woman	Man	Total
Investor gender	Woman	65	643	708
		9.18%	90.82%	100%
	Man	75	803	878
		8.54%	91.46%	100%
	Total	140	1,446	1,586
		8.83%	91.17%	100%

Pearson Chi2(1) = 0.199; p-value = 0.656, we do not reject the null hypothesis of equality.

(Bucher-Koenen et al. 2021; Roszkowski and Grable 2005). The advisor's role at this stage is thus not to provide a recommendation about risk but to guide the investor by making sure that the test questions are correctly understood.

The ATR test is a standard test using eight psychometric questions helping investors to self-assess their tolerance of possible fluctuations in their portfolio value and determine their preferred long-term trade-off between risk and return. The questionnaire is available in section A1 of the appendix. The questionnaire was designed by the financial firm Morningstar. It is in compliance with the suitability obligations dictated by the Market in

Table 4. Firm portfolio choice algorithm based on Attitude to Risk (ATR) score.

			Time Frame Score		
			1–3	4–14	15–30
			Time frame cat. A	Time frame cat. B	Time frame cat. C
Your Attitude to Risk Score (ATR)	0–15	ATR cat. 1	No Suitable Investment	Defensive	Defensive
	16–35	ATR cat. 2	No Suitable Investment	Cautious	Cautious
	36–55	ATR cat. 3	No Suitable Investment	Balanced	Balanced
	56–85	ATR cat. 4	No Suitable Investment	Balanced	Capital Growth
	86 +	ATR cat. 5	No Suitable Investment	Balanced	Aggressive

Financial Instruments Directive (MiFID), which requires financial institutions to collect 'information as is necessary for the firm to understand the essential facts about the customer (§ 35, 1)' and to elicit the customers' 'preferences regarding risk taking, his risk profile, and the purpose of the investment (§ 35, 4).' The questions used for the ATR test are similar to the subjective measures of risk tolerance analysed in previous studies. The literature has provided evidence that such questionnaires based on self-assessment are quite efficient in measuring risk tolerance (Hoffmann, Post, and Pennings 2013; Nosić and Weber 2010; Roszkowski 1992; Roszkowski, Davey, and Grable 2005; Schooley and Worden 1996). For instance, they tend to have a higher explanatory power for individuals' investing behaviour than more complex quantitative measures, like those based on lottery choice (Hoffmann, Post, and Pennings 2013; Nosić and Weber 2010). As in the study of Hoffmann, Post, and Pennings (2013), the ATR questionnaire uses a multiple (rather than a single) items approach, which leads to a more reliable measure of risk tolerance. It also allows to elicit the same attitude with several questions using different wordings or ways to present the context of risk taking, which is a way to increase the reliability of the measure (Hoffmann, Post, and Pennings 2013). With eight questions, the questionnaire is also longer than those used in previous studies using survey data. This is arguably more appropriate to capture an attitude that is complex (Roszkowski, Davey, and Grable 2005; Marinelli, Mazzoli, and Palmucci 2017). Another notable difference of the ATR questionnaire used by the analysed firm is that for some questions investors are asked to express their attitude towards risk by imagining real investment decisions (e.g. see questions 1 and 2, section A1 of the appendix), whereas the above cited studies rather focus on questions that asks investor to report their willingness to take risk.

Investors obtain an ATR score and are sorted by the firm's software into five categories, that we name *ATR cat 1, ATR cat 2, ATR cat 3, ATR cat 4, ATR cat 5*, ordered from the lowest to the highest level of risk tolerance. The preferred time frame for the investment is measured using two additional questions. The first question concerns when investors plan to first draw money from their investment account; the second concerns the time during which they will be withdrawing money from their investment account (unless they plan to do a 'one off withdrawal'). Once again, answers are converted into a score which divides investors into three categories, where *Time frame cat. A* is the category for the shortest time frame and *Time frame cat. C* the one for the longest time frame. In our sample, no clients are in *Time frame cat. A* which is considered too short term to be suitable for investing in stocks and shares. Table 4 shows the algorithm used by the advisory firm to combine the ATR category and the time frame category in order to provide the final guidance as to which of the five portfolios advised clients should choose. As previously mentioned, the portfolio choice made by clients is then automatically based on the guidance derived from the algorithm. In this dataset, there is no discrepancy between the outcome of the test and the risk-level of the portfolio.

Finally, we also have information on the characteristics of the investment choices made by clients. We know the total amount invested in the portfolio (*Investment amount*) and any regular sums of money that they plan to save every month through standing orders (*Regular amount*). We also have the investment vehicle picked by investors. They have four main options: a Self-Invested Personal Pension (*SIPP*) that is a UK government-approved personal pension scheme; an Individual Saving Account (*ISA*); a General Investment Account (*GIA*); or a combination of these vehicles.[5]

4. Empirical method and results

4.1. Baseline approach

To measure the effect of an advisor of different gender, we estimate the following multinomial logit model:

$$P(Portfolio) = \begin{cases} Defensive \\ Cautious \\ Balanced \\ Growth \\ Aggressive \end{cases} = \Lambda \left[\begin{array}{l} \alpha_0 + \alpha_1 \cdot FemaleAdvisor + \alpha_2 \cdot FemaleInvestor \\ +\alpha_3 \cdot (FemaleAdvisor \times FemaleInvestor) + \alpha_4 \cdot X + \alpha_5 \cdot Y + \varepsilon \end{array} \right] \quad (1)$$

where *Portfolio* is a categorical variable with five outcomes corresponding to the type of portfolio chosen by investors. *Female advisor* is a binary variable taking the value 1 if investors are advised by a woman, 0 otherwise. *Female investor* is a binary variable taking the value 1 if an investor is a woman. **X** and **Y** are vectors containing, respectively, demographic variables (i.e. *Age*, Marital status dummies) and investment characteristics (i.e. Time frame category dummies, *Investment amount*,[6] *Regular amount*, Investment vehicle dummies). Controlling for the investment characteristics allows us to obtain results that are independent of these aspects of portfolio choice and hence accurately reflect risk-attitudes.[7] The variables *Income* and *Assets* are not included in **X** due to missing values, but their controlling power will be proxied by other variables present in regressions, starting with invested amounts (*Investment amount*). In addition, anticipating our discussion on exogeneity, we note that for the data for which *Income* and *Assets* are available, these two variables are homogeneously distributed across groups with different advisor gender (see Table 7).

Estimating the interaction effect of *Female advisor* and *Female investor*, along with their main effects, will allow us to predict the probability of choosing one of the existing portfolios associated with each of the four combinations of advisor-advisee relationship that are: (i) *male investor advised by a man* (α_0), (ii) *male investor advised by a woman* ($\alpha_0 + \alpha_1$), (iii) *female investor advised by a man* ($\alpha_0 + \alpha_2$), and (iv) *female investor advised by a woman* ($\alpha_0 + \alpha_1 + \alpha_2 + \alpha_3$). For this interpretation to be correct, all other covariates (i.e. variables in X and Y) are mean-centered. A multinomial logit model is preferred to an ordered logit model because it is consistent with our hypotheses whereby the choice of extreme categories of risk is meaningful in terms of restoring one's gender identity. It is therefore essential to have a proper estimate for each risk category rather than only one estimate for all risk categories as is the case with ordinal logit regression.

4.2. Baseline results

Table 5 reports the distribution of investors by level of (portfolio) risk-preference for the four investor-advisor possible combinations. The results of the t-tests provide strong support for our hypotheses. When male investors are advised by a woman, they are more likely to choose the riskiest type of portfolios (those labelled as *Aggressive*) as compared to when they are advised by a man. On the other hand, we also see that when a woman is advised by a man, she is more likely to choose the most cautious portfolio (*Defensive*) or the second least risky one (*Cautious*). Also, women advised by men tend to forego the *Balanced* portfolios.

Regression results for Equation (1) are shown in detail in Table 6. To simplify their interpretation, the estimation results are also reported in Figure 1. As expected, the estimation results are consistent with those in Table 5. The inclusion of extra control variables generates more precise estimates of the effect we are investigating and as assumed by the exogeneity of the gender advisor variable (*Female advisor*), they have a weak impact on the estimation of the coefficients of our main effects. When a man is advised by a woman, he is 11.8 percentage points more likely to pick the *Aggressive* portfolio, than when he is when advised by a man. This result is statistically significant at the 1 percent level and is evidence in favour of *Hypothesis 1*. A female gender identity for the advisor has a behavioural effect on male investors that supports the masculinity threat hypothesis whereby male investors would be more likely to become risk aggressive in response to a perceived masculinity threat in relation to their social identity. The choice of the *riskiest* portfolio in this configuration is particularly meaningful and offers compelling evidence of a masculinity restoring attitude. On the woman investors' side, the likelihood of

picking the most aggressive portfolio when advised by a woman is not significantly different than when advised by a man. This is evidence of an effect that is specific to the configuration man investor/woman advisor, and not a general effect triggered by woman advisor.

On the other side of the risk spectrum, the probability that female investors choose the most cautious portfolio (*Defensive*) when advised by a man increases by 5.9 percentage points as compared to when they are advised by a woman. This result is striking because the probability that a female investor will choose the most defensive portfolio is null when female investors are advised by a woman. This result validates *Hypothesis 2* that is that women confirm stereotype and show extreme caution when advised by a man. Female investors are also more likely to pick the second least risky type of portfolio (*Cautious*) when advised by a man (this effect is significant at the 5 percent level) but in this case the effect is not specific to female investors. Indeed, in Figure 1 we see that male investors are also less likely to pick the *defensive* or the *cautious* portfolio when advised by a female (these effects are statistically significant at the 5 and 10 percent levels respectively). By comparing the differential effect of shifting from a male to a female advisor between men and women, we find for the second least cautious portfolio (*Cautious*) that the effect is not statistically different (Wald test: H0: 6.7% [SE = 3.7%] = 11.2% [SE = 4.4%]; p-value = 0.72, not rejecting H0) but that it is statistically different when considering the most cautious portfolio (*Defensive*) (Wald test: H0: −2.6% [SE = 1.4%] = −5.9% [SE = 0.9%]; p-value = 0.05, rejecting H0). This implies that having a female advisor reduces the number of investors who choose these cautious portfolios in general (for both men and women investors), but that when considering the *most* cautious portfolio the effect is especially strong for women investors. This provides further indication that individuals respond to concerns that are specific to their gender, as depicted in the theoretical framework.

4.3. Unobserved heterogeneity at the advisor level

To make sure that our results are not driven by unobserved heterogeneity at the advisor level, we estimate conditional (fixed effects) logit models (McFadden 1973). We run five distinct regressions, using each portfolio type as binary dependent variable. There is no other alternative since there is no *good* specification to estimate fixed effects in multinomial logit model. This approach provides *within* estimators of the gender effect with one intercept for each advisor. The results provide no estimation of the main effect of the advisor gender (*Female advisor*) since it is invariant at the advisor level, but it is still possible to analyse the interaction term between *Female advisor* × *Female investor*. We can thus verify whether there is a varying advisor gender effect depending on investor gender that is consistent with the one found in our baseline results. Results are provided in Appendix Table A1. The coefficients of the interaction term (*Female advisor* × *Female investor*) for both the *Defensive* and

Table 5. Distribution of investors by portfolio.

	Male investors			Female investors		
	Advised by a man	Advised by a woman		Advised by a man	Advised by a woman	
	$N = 803$	$N = 75$	t-test p-value	$N = 643$	$N = 65$	t-test p-value
Aggressive	0.04	0.15	0.00***	0.02	0.02	0.79
	[0.19]	[0.36]		[0.14]	[0.12]	
Capital growth	0.41	0.44	0.66	0.32	0.32	0.94
	[0.49]	[0.50]		[0.47]	[0.47]	
Balanced	0.34	0.28	0.30	0.32	0.48	0.01***
	[0.47]	[0.45]		[0.47]	[0.50]	
Cautious	0.17	0.12	0.23	0.28	0.18	0.09*
	[0.38]	[0.33]		[0.45]	[0.39]	
Defensive	0.04	0.01	0.28	0.06	0.00	0.05**
	[0.19]	[0.12]		[0.23]	[0.00]	

Note: The table shows the distribution (proportion) of investors by portfolio depending on the investor gender and the advisor gender. Standard deviations are in brackets. We provide the p-values from t-tests of the difference in means between having a female advisor and having a male advisor. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively. Adding the number of observations for Male investors to that of Female investors does not give the number of observations for the full sample due to some investors not reporting their gender.

Table 6. Regression results.

	1	2	3	4	5
Observations = 1621	Defensive	Cautious	Balanced	Capital growth	Aggressive
Intercept (α_0)	0.0383***[a]	0.183***	0.351***	0.393***	0.0348***
	[0.007]	[0.013]	[0.016]	[0.015]	[0.006]
Female advisor (α_1)	−0.0263*	−0.0671*	−0.0680	0.0430	0.118***
	[0.014]	[0.036]	[0.047]	[0.055]	[0.041]
Female investor (α_2)	0.0204*	0.0827***	−0.0334	−0.0561**	−0.0136
	[0.012]	[0.021]	[0.024]	[0.024]	[0.008]
Female advisor × Female investor (α_3)	−0.0324*	−0.0471	0.160**	0.0330	−0.113**
	[0.017]	[0.057]	[0.076]	[0.085]	[0.050]
Not recorded (Gender)	0.0240	−0.216*	0.131*	0.0396	0.0216
	[0.451]	[0.056]	[0.093]	[0.625]	[0.386]
Age	0.00154***	0.00573***	−0.000884	−0.00598***	−0.000407
	[0.000]	[0.000]	[0.305]	[0.000]	[0.260]
Co-habiting	−0.0107	−0.0680	0.0194	0.0262	0.0332**
	[0.660]	[0.161]	[0.671]	[0.558]	[0.015]
Divorced or separated	0.00365	−0.0446	0.0582	0.00921	−0.0264
	[0.843]	[0.244]	[0.155]	[0.837]	[0.379]
Single	0.000867	0.00493	0.00818	−0.0350	0.0210*
	[0.957]	[0.870]	[0.806]	[0.283]	[0.069]
GIA	9.49e-09	4.85e-08	5.52e-08	0.000000608**	−0.000000721*
	[0.869]	[0.774]	[0.776]	[0.022]	[0.059]
ISA	0.00362	0.0132	0.0109	−0.0581*	0.0304*
	[0.780]	[0.592]	[0.712]	[0.061]	[0.067]
SIPP	−0.0336**	0.0656*	−0.0337	−0.0128	0.0144
	[0.025]	[0.056]	[0.400]	[0.738]	[0.361]
Other vehicles	0.0281	0.0307	−0.0795*	−0.0211	0.0418**
	[0.143]	[0.441]	[0.091]	[0.621]	[0.012]
Time frame cat. B	0.0125	0.170***	0.150*	0.0927	−0.425***
	[0.689]	[0.008]	[0.082]	[0.339]	[0.000]
Investment amount	0.252***	1.108***	2.025***	−3.169***	−0.216***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Regular amount	−0.0000945*	−0.000189	0.0000421	0.000247***	−0.00000629
	[0.096]	[0.169]	[0.700]	[0.000]	[0.693]

[a]Interpretation of coefficients: *0.0383* (α_0) is the probability for a male investor advised by a male advisor to choose the portfolio *Defensive*, this is the baseline; *−0.0263* (α_1) is the marginal effect of having a female advisor compared to the baseline (male investor); *−0.0203* (α_2) is the marginal effect of being a female investor compared to the baseline (male advisor). *−0.0323* (α_3) is the difference between the marginal effect of having a female advisor among men investors and that same effect among women investors. See Figure 1 for a graphical representation.
Note: This table reports the estimation of the multinomial logit model depicted in Equation (1). Each column reports the estimates for one category of the dependent variable *Portfolio*. Coefficients are average marginal effects, and they can be interpreted as in a linear regression. Covariates are mean-centred. Robust standard errors are reported in brackets. Pseudo R-squared is 0.15. Variable *Married* and *Time frame cat. C* are omitted to avoid perfect multicollinearity. Variables *Civil Union* and *Widow(er)* are removed to enable the convergence of the model. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

the *Aggressive* portfolio types are not only very consistent with those estimated in the baseline results (Table 6) but show even stronger significance.

5. Discussion and limitations

5.1. Exogeneity between risk-taking and advisor's gender

Despite the fact that, in this study, clients can freely choose their advisor, the findings from our analysis rely on the assumption that the gender of the advisor – the *Female advisor* dummy variable – is exogenous to risk-taking. Put simply, we assume that the gender of the advisor affects individuals' preferences – specifically risk-taking preferences – and not *vice versa*. We offer three strands of reasons for why we believe it is the case.

First, there are ways to inspect the exogeneity of the advisor gender variable in our sample. Table 7 shows that investors, either male or female, have very similar demographic and investment characteristics, regardless of the gender of their advisor. The normalized differences between male-advised and female-advised investors does not

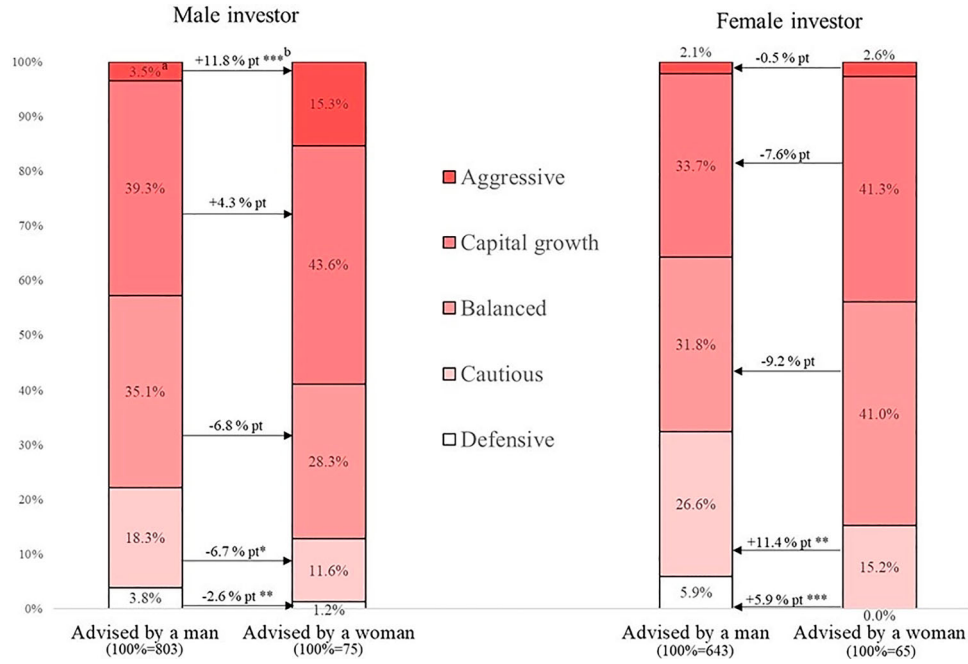

Figure 1. Summary of our baseline regression results.
Note: This figure displays the breakdown of probabilities (bars) that a client invests in one type of *Portfolio* (from *Defensive* to *Aggressive*) conditional to his/her gender and to the gender of his/her advisor, estimated using the multinomial logistic model of Equation (1). The regression results are shown in Table 6. Arrows indicates the change in percentage points in the probability that an investor (male or female) chose one type of portfolio when shifting from being advised by a man to being advised by a woman. The ∗, ∗∗, and ∗∗∗ marks denote statistical significance at the 10%, 5%, and 1% levels, respectively, using robust standards errors. [a]3.5% of male investors advised by a male advisor chose the portfolio Aggressive. [b]The probability that a man investor chose the portfolio Aggressive is 11.8 percentage points higher when advised by a female advisor compared to when advised by a male advisor. The change is significant at the 1% level.

exceed the rule of thumb cut-off value of 0.25. This suggests no sensitivity in statistical inference made on the advisor gender effect due to a non-random distribution in these variables (Imbens and Wooldridge 2009). The is evidence against simultaneity bias. Most compelling is the clear homogeneity across groups (male-advised versus female-advised) in variables that are known to correlate with risk preferences like *Age*, *Income*, *Assets,* or *Initial investment*. If, *ex-ante*, risk preferences biased the selection process of individuals for one specific gender rather than the other, this should be reflected by these variables. Finally, if risk preferences related to gender concerns influenced how investors decided the gender of their advisors, this bias would most certainly appear in the gender combinations between investors and advisors. Using a chi-2 test, we find no evidence that men are more likely to be advised by an advisor of a specific gender compared to women (see Table 3, Pearson Chi2(1) = 0.199; p-value = 0.656).

Second, a series of studies have also argued that the gender of the advisor is not an important factor in investors' advisor selection. Most recently, Baeckström, Marsh, and Silvester (2021) offer some empirical evidence of this exogeneity argument. In the same vein as ours, their study investigates how the gender of the advisor affects risk-taking, using survey data of millionaires' investment decisions. They find their results to be robust even when tested among sub-samples of respondents who are less likely able to choose their advisor, and by extension, to choose the gender of their advisor. Other studies corroborate the view that advisor gender does not affect the choice of an advisor. Using a survey-experiment analysis, Sommer, Lim, and MacDonald (2018) found no specific preference of US respondents for one or the other gender in the choice of financial advisor, neither among men nor women. Results from the experimental study by Agnew et al. (2018) also suggest that, based on first impressions, the gender of the advisor plays a negligible role in the trust granted to financial advisors, whereas trust is undoubtedly a key element of the choice of an advisor.

Table 7. Difference in means of observed variables.

	Male investor ($N = 878$)				Female investor (N = 708)			
	Advised by a man	Advised by a woman	t-test *p*-value	Normalized difference [a]	Advised by a man	Advised by a woman	t-test *p*-value	Normalized difference
	$N = 803$	$N = 75$			$N = 643$	$N = 65$		
Demographic								
Age	56.60	57.85	0.47	−0.06	59.15	60.09	0.64	−0.04
	[14.18]	[15.17]			[15.48]	[16.27]		
Assets (N = 1048)	295,904	205,813	0.11	0.21	310,659	294,183	0.79	0.03
	[385,678]	[177,912]			[409,898]	[331,938]		
Income (N = 944)	35,081	28,261	0.40	0.12	22,642	25,790	0.53	−0.11
	[53,451]	[19,715]			[23,401]	[15,799]		
Civil partners	0.00	0.00	0.76	0.04	0.00	0.02	0.05	−0.11
	[0.04]	[0.00]			[0.04]	[0.12]		
Co-habiting	0.07	0.01	0.05	0.21	0.07	0.03	0.20	0.14
	[0.26]	[0.12]			[0.26]	[0.17]		
Divorced or separated	0.06	0.04	0.56	0.05	0.09	0.12	0.61	−0.05
	[0.23]	[0.20]			[0.28]	[0.33]		
Married	0.70	0.73	0.53	−0.05	0.50	0.37	0.05	0.18
	[0.46]	[0.45]			[0.50]	[0.49]		
Single	0.14	0.16	0.65	−0.04	0.16	0.20	0.35	−0.08
	[0.35]	[0.37]			[0.36]	[0.40]		
Widow	0.03	0.05	0.21	−0.09	0.19	0.26	0.14	−0.13
	[0.16]	[0.23]			[0.39]	[0.44]		
Investment characteristics								
Investment amount	53,274	56,584	0.74	−0.03	45,053	55,708	0.21	−0.12
	[82,982]	[75,164]			[66,243]	[62,890]		
Regular amount	104	108	0.92	−0.01	66	18	0.14	0.17
	[312]	[326]			[261]	[81]		
GIA	0.24	0.21	0.65	0.04	0.30	0.31	0.84	−0.02
	[0.43]	[0.41]			[0.46]	[0.47]		
ISA	0.65	0.57	0.18	0.11	0.75	0.82	0.27	−0.11
	[0.48]	[0.50]			[0.43]	[0.39]		
SIPP	0.35	0.4	0.35	−0.08	0.21	0.09	0.02	0.24
	[0.48]	[0.49]			[0.41]	[0.29]		
Other vehicles	0.02	0.03	0.63	−0.04	0.02	0.09	0.00	−0.24
	[0.14]	[0.16]			[0.12]	[0.29]		
Time frame cat. B	0.14	0.16	0.56	−0.05	0.16	0.23	0.13	−0.13
	[0.34]	[0.37]			[0.36]	[0.42]		
Time frame cat. C	0.86	0.84	0.56	0.05	0.84	0.77	0.13	0.13
	[0.34]	[0.37]			[0.36]	[0.42]		

Note: This table provides the mean and standard deviation (in brackets) of observed variables depending on investor gender and the advisor gender. N is the number of observations for each sub-sample. We provide the *p*-values from *t*-tests of the difference in means, and the normalized difference in means, between having a female advisor and having a male advisor. NB: Adding the number of observations for Male investors to that of Female investors does not give the number of observations for the full sample due to some investors not reporting their gender.

Third, we interviewed two advisors from the investment company studied in this paper, a male and a female advisor, about how their clients chose them. Both advisors reported the very same process. 'Word-of-mouth' and 'recommendations by friends or relatives' were the main channels through which clients chose them.[8] Since arguably, trust is the most crucial criterion for the choice of an advisor, positive feedback from trustworthy friends or relative would little likely be offset by subaltern prior considerations, if existing, based on the gender of the advisor. Also, the gender of the advisor did not appear as a criterion in clients' choices of advisor, according to the interviewees.

A standard method to address simultaneity bias in empirical research is the use of an instrumental variable (IV). Unfortunately, we could not identify any IV on the basis of the information we have in our data. We believe that the supportive evidence we offer above is perhaps enough to address concerns. A strong simultaneity bias would have appeared in balance between groups in observables, in other relevant studies, or – most importantly

– in the interviews with the advisors. Although this evidence cannot rule out from a statistical point of view the simultaneity bias between risk taking and gender choice of advisor, it still offers reasonable support for our claim. We acknowledge that the client's assignment to an advisor is not random, but we have good reasons to believe that the advisor gender variable (*Female advisor*) is not endogenous to the explanation of clients' attitude towards risk.

5.2. Subjective versus objective measure of risk tolerance

One of the characteristics of the administrative data used in this study is that, due to the advising procedure implemented during the meetings between investors and their advisors, the portfolio choice of clients automatically reflects the outcome of the attitude to risk test (combined with the preferred time horizon for the investment). However, in other advising settings, there may be some discrepancy between the *subjective* measure of risk tolerance (the result from answering a questionnaire, as in our study) and the *objective* measure of it (the actual asset allocations of investors). As a matter of fact, there are studies finding a positive and significant relationship between subjective and objective measures of risk tolerance, but not a perfect match (Chang, DeVaney, and Chiremba 2004; Hermansson 2018; Marinelli, Mazzoli, and Palmucci 2017; Martin 2011; Schooley and Worden 1996). We believe that the conclusions of our study are still generalizable to alternative advising settings.

The common element of the above studies is that they rely on survey data. This has several implications. First, they do not have information from the actual advisory meetings, where the advisor can deal with a lack of financial literacy. This would close the gap between subjective and objective risk tolerance (Marinelli, Mazzoli, and Palmucci 2017). Second, the collection of the subjective data occurs typically after the actual investment. This arguably feeds the discrepancy between the two measures. For instance, Hoffmann, Post, and Pennings (2013) and Hoffmann and Post (2017) show that self-reported risk preferences in surveys evolve with market conditions, and hence may not reflect past investment decisions. Third, a time distance between the test and the portfolio choice can distort the way the test is performed since it has no real purpose. In contrast, filling in the questionnaire with the objective of obtaining an informative self-assessment of risk preferences, for a decision that must be made immediately after the assessment, may certainly increase an investor's reliance on the outcome of the test.

5.3. Femininity and stereotype threat overlapping effect

With regard to women investors, our results do not allow us to disentangle the effect of the two mechanisms presented in our theoretical discussion. We have explained that both a *femininity threat* and a *stereotype threat* may lower risk-taking by women when advised by a man. According to our theoretical explanation, it is the gender threat (i.e. the femininity threat) that is the leading mechanism pushing women towards the *least* risky portfolio. This attitude is the most straightforward way to 'play' the typical woman's role and avoid the threat (Willer et al. 2013). We attribute a secondary role to the stereotype threat, which in our view comes to intensify the effect of the gender threat. The stereotype threat does not necessarily result in women choosing the *least* risky portfolio, but a *less* risky one. That said, we must admit that, from an empirical perspective, the two effects may overlap and that quantifying their individual contributions is impossible. Further research, especially an experimental methodology, may be able to separate the effects of each one of these two mechanisms.

6. Influence on the gender gap

One question that remains to be answered is to what extent there is an *a priori* 'gender gap' in risk taking or whether this observed gap is the result of externalities due to gender concerns in the context of advising interaction. In other words, are different risk preferences between men and women solely the result of investor-advisee interactions? According to our results, the short answer is yes. Table 8 reports the regression results for the

Table 8. Gender gap.

	OLS
Intercept (α_0)	4.080***
	[0.119]
Female advisor (α_1)	0.393***
	[0.097]
Female investor (α_2)	−0.200***
	[0.048]
Female advisor × Female investor (α_3)	−0.094
	[0.137]
Not Recorded (Gender)	0.168
	[0.153]
Age	−0.015***
	[0.002]
Civil Partner	0.757
	[0.522]
Co-habiting	0.167*
	[0.086]
Divorced or separated	0.011
	[0.083]
Single	−0.024
	[0.065]
Widow	−0.07
	[0.079]
GIA	−0.033
	[0.055]
ISA	0.024
	[0.077]
SIPP	0.06
	[0.085]
Other vehicles	−0.206
	[0.152]
Time frame cat. B	−0.500***
	[0.049]
Investment amount	-0.000
	[0.000]
Regular amount	0.000***
	[0.000]
Observations	1,621
R^2	0.17

Note**:** This table reports the OLS estimation of Equation (2). The dependent variable is *Portfolio (Portfolio = 1- Defensive;,..;5- Aggressive)*. Robust standard errors are reported in brackets. Variables *Married* and *Time frame cat. C* are omitted to avoid perfect multicollinearity. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

following estimation using OLS:[9]

$$\begin{aligned} Portfolio = {} & \alpha_0 + \alpha_1 \cdot FemaleAdvisor + \alpha_2 \cdot FemaleInvestor \\ & + \alpha_3 \cdot (FemaleAdvisor \times FemaleInvestor) + \alpha_4 \cdot X + \alpha_5 \cdot Y + \nu \end{aligned} \tag{2}$$

where *Portfolio* reflects the degree of risk of each portfolio: 1 = *Defensive*; 2 = *Cautious*; 3 = *Balanced*; 4 = *Portfolio growth*; 5 = *Aggressive*. The purpose of estimating this equation is to derive the effect of investor gender on the level of riskiness of the chosen portfolio, depending on whether investors have an advisor of the opposite gender or not. In our estimates, we maintain the same controls for X and Y. Figure 2 enables a more straightforward interpretation of our results as derived from the estimation of equation (2). Our results provide confirmation that the gender gap in investment risk taking is due to gender interactions in the advisory process. The gender gap in risk taking is 0.594 (i.e. $\alpha_1 - \alpha_2$; statistically significant at the level of 1%) in favour of male

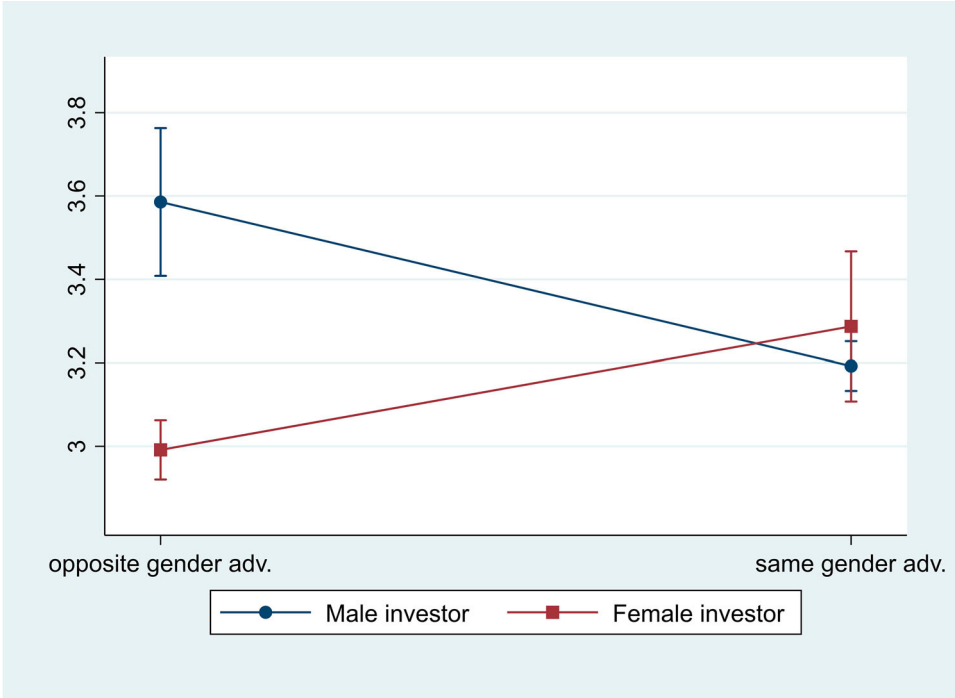

Figure 2. Gender gap in portfolio risk taking.
Note: This figure displays the level of risk chosen by male and female investors as measured by *Portfolio* (*Portfolio* = *1-Defensive;..; 5-Aggressive*) depending on whether they are advised by a person of the opposite gender (*opposite gender adv.*) or a person of the same gender (*same gender adv.*). Estimates come from Equation (2) in Table 8. Dots represent the estimates. Vertical bars represent the 95% confidence interval.

investors, when there is an advisor of the other gender. This gender gap disappears, in the sense that the effect becomes statistically insignificant, when the risk-taking decision is made after consulting an advisor of the same gender. The gender gap is 0.094 (i.e. $\alpha_1 + \alpha_2 + \alpha_3$) now in favour of the female investor, but the p-value is 0.32. This evidence suggests that when we investigate investment behaviour, the context of gendered interactions in the decision process may drive the final observed outcome.

7. Conclusion

In this study, we have argued that gender concerns of investors can influence their risk-taking attitude with respect to portfolio choice. We have posited that the gender of the financial advisor could exacerbate such concerns and that having an advisor of a different gender could increase investor reliance on gender stereotyped behaviours. In the context of financial advice, these concerns are made evident by men exhibiting risk 'aggression' when advised by a woman, and women exhibiting risk 'cautiousness' when advised by a man. Our empirical approach, using a sample of 1,621 advised UK investors, supports this assumption by showing that men advised by women are indeed more likely to adopt the riskiest type of portfolio offered by the investment firm. On the other hand, we find an increased preference for the most cautious portfolio by female investors advised by a man as compared to those advised by a woman. These results emphasize the importance of identity concerns influencing the behaviour of investors in advised investment decisions.

Another striking finding of our study is that, when investors interact with an advisor of the same gender, the above-mentioned gender gap in portfolio risk preference disappears. This result suggests that identity concerns raised by having an advisor of a different gender are perhaps the most important factor driving the gender gap in attitude to risk in the context of advised investment. The results of our study have important implications with respect to the so-called gender wealth gap at retirement that gender differences in risk-taking contributes to

widen (e.g. Sundén and Surette 1998; Neelakantan and Chang 2010). Our analysis suggests that gender concerns emanating from cross-gender interaction in the context of financial advice contribute to the long-term gender wealth gap.

From an empirical perspective, one limitation of our study is related to causality. This is a limitation also existing in previous research that analyses the link between the gender of the advisor and portfolio choice (e.g. Baeckström, Marsh, and Silvester 2021). Despite the good fit between our data and the gender threat hypothesis and, whereas we provide evidence supporting our assumption that there is no simultaneity between risk taking and advisor selection, our dataset does not enable us to formally test whether endogeneity bias is completely absent from our results. Therefore, our study invites further research into the topic of financial advising interactions and risk taking. For instance, it would be interesting to see whether further research using survey data (in which an instrumental variable could be identified) or adopting an experimental design (that is, randomly assigning investors to advisors) would be able to replicate our results and offer more robust evidence that the link from the gender of the advisor to risk taking is indeed causal. Another possible extension of our study, following the spirit of the analysis of Hoffmann, Post, and Pennings (2013), would be to measure investors' risk preference at different points in time and see whether they change when the gender of the advisor changes.

From a practical perspective, an interesting feature of our data is that the final portfolio risk choice made by investors is determined by the outcome to the attitude-to-test risk and not by a recommendation from the advisor. This process is implemented with the purpose of limiting the biases that the advisors could induce with their own potential gender-stereotypical beliefs (Bucher-Koenen et al. 2021; Roszkowski and Grable 2005). It appears that further reflection is needed to deal with the issue of gender concerns and the way they affect financial decisions made during the advisory meeting.

A way forward would rely on efforts to deconstruct the traditional stereotypical views that still dominate risk-taking and financial investment (D'Acunto 2019; Ke 2021; Agunsoye et al. 2022). This is however a quite long-term objective. Shorter-term recipes could emerge from a behavioural economics viewpoint. For instance, it is well documented that social comparison could serve as a reference point for people to adjust their behaviour (Allcott and Kessler 2015; Allcott and Mullainathan 2010). With the help of appropriate data, advisors could explain to people with apparently cautious preferences that, on average, they can afford to take on more risk (within the same investment horizon). It could also be interesting to explore the solution offered by robo-advisors that have no specific assigned gender and hence may cancel out any issues emerging from gender concerns. However, this might raise other social concerns related to technophobia or trust. More generally, a recommendation would be to make financial advisors aware of the implication of such gender concerns on portfolio choice so that they could explain/discuss this behaviour to their clients. Awareness of the issue may eventually help individuals to take better financial decisions.

Notes

1. Risk preferences measured through a survey could be biased, especially if they are collected months after the advising meeting. We will return to this point in our discussion in the following sections.
2. Several studies have argued that one of the reasons for the wealth gap between men and women — in favour of the former — is that women hold less risky portfolios than men. A lower risk portfolio is expected to offer a lower return in the long run (Sundén and Surette 1998; Neelakantan and Chang 2010; Jianakoplos and Bernasek 1998; Arano, Parker, and Terry 2010; Watson and McNaughton 2007).
3. Recent studies emphasize however that women's presence at the board of directors has beneficial effects on the firms' performance (see e.g. Chen et al. 2019, 2018).
4. For comparison, the UK national average disposable income of a household in 2019 was £35,300 (Office for National Statistics, 2019). The UK national median net wealth in 2016 is £259,400 (Office for national statistics, 2018).
5. Investing via a SIPP allows tax rebates on contributions in exchange for limits on accessibility to funds (Savings become freely accessible after the age of 55 and savings drawn down are taxable as income after the first 25 percent has been drawn down tax free). When investing via ISAs, up to a maximum of £20,000 a year, clients are exempt from income tax and capital gains tax. Very few clients have chosen to invest through other vehicles like *Junior ISAs*, *Investment bonds*, or *off-shore bonds* (i.e. less than 2 percent of our sample).
6. We also estimated our regressions using the logarithm of *Investment amount*. The results are very similar and do not change our main argument.

7. Including time frame dummies implies that we could have used ATR categories (ATR cat 1, ATR cat 2, ATR cat 3, ATR cat 4, ATR cat 5.) as dependent variables in the model. Doing so leads to the same conclusions. We do not report the results in this paper but they are available upon demand.
8. The male advisor interviewee reported "all my clients are recommendations from other clients, family members, friends"; The female advisor interviewee reported: "predominantly, I don't do any networking or breakfast clubs (…), I don't need to do a lot of that because my clients introduce other clients. […] Really, it's looking after my existing clients, I get introductions from my existing clients."
9. Ordered logit estimation of equation (2) provide the same results.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Dr. Jerome Monne is Assistant Professor of Finance at ESSCA School of Management in France.

Dr. Janette Rutterford is Emeritus Professor of Finance and Financial History at the Open University Business School in the UK.

Dr. Dimitris P. Sotiropoulos is Senior Lecturer in Finance and Associate Dean for Research, Enterprise, and Scholarship at the Faculty of Business and Law of the Open University in the UK.

ORCID

Jerome Monne http://orcid.org/0000-0003-4491-2450

References

Agnew, Julie R., Hazel Bateman, Christine Eckert, Fedor Iskhakov, Jordan Louviere, and Susan Thorp. 2018. "First Impressions Matter: An Experimental Investigation of Online Financial Advice." *Management Science* 64 (1): 288–307. doi:10.1287/mnsc.2016.2590.

Agunsoye, Ariane, Jerome Monne, Janette Rutterford, and Dimitris P. Sotiropoulos. 2022. "How Gender, Marital Status, and Gender Norms Affect Savings Goals." *Kyklos* 75 (2): 157–183. doi:10.1111/kykl.12294.

Akerlof, George A., and Rachel E. Kranton. 2000. "Economics and Identity." *The Quarterly Journal of Economics* 115 (3): 715–753. doi:10.1162/003355300554881.

Allcott, Hunt, and Judd B. Kessler. 2015. "The Welfare Effects of Nudges: A Case Study of Energy Use Social Comparisons." Working Paper 21671. Working Paper Series. National Bureau of Economic Research. doi:10.3386/w21671.

Allcott, Hunt, and Sendhil Mullainathan. 2010. "Behavioral Science and Energy Policy." *Science* 327 (5970): 1204–1205. doi:10.1126/science.1180775.

Arano, Kathleen, Carl Parker, and Rory Terry. 2010. "Gender-Based Risk Aversion and Retirement Asset Allocation." *Economic Inquiry* 48 (1): 147–155. doi:10.1111/j.1465-7295.2008.00201.x.

Baeckström, Ylva, Ian W. Marsh, and Jo Silvester. 2021. "Financial Advice and Gender: Wealthy Individual Investors in the UK." *Journal of Corporate Finance*. Article no. 101882. doi:10.1016/j.jcorpfin.2021.101882.

Barber, Brad M., and Terrance Odean. 2001. "Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment." *The Quarterly Journal of Economics* 116 (1): 261–292. doi:10.1162/003355301556400.

Benjamin, Daniel J., James J. Choi, and Geoffrey Fisher. 2016. "Religious Identity and Economic Behavior." *The Review of Economics and Statistics* 98 (4): 617–637. doi:10.1162/REST_a_00586.

Benjamin, Daniel J., James J. Choi, and A. Joshua Strickland. 2007. "Social Identity and Preferences." Working Paper 13309. National Bureau of Economic Research. doi:10.3386/w13309.

Berdahl, Jennifer L. 2007. "Harassment Based on Sex: Protecting Social Status in the Context of Gender Hierarchy." *Academy of Management Review* 32 (2): 641–658. doi:10.5465/amr.2007.24351879.

Booth, Alison L., and Patrick Nolen. 2012. "Gender Differences in Risk Behaviour: Does Nurture Matter?" *The Economic Journal* 122 (558): F56–F78. doi:10.1111/j.1468-0297.2011.02480.x.

Bucher-Koenen, Tabea, Andreas Hackethal, Johannes Koenen, and Christine Laudenbach. 2021. "Gender Differences in Financial Advice." SSRN Scholarly Paper ID 2572961. Rochester, NY: Social Science Research Network. doi:10.2139/ssrn.2572961.

Carr, Priyanka B., and Claude M. Steele. 2010. "Stereotype Threat Affects Financial Decision Making." *Psychological Science* 21 (10): 1411–1416. doi:10.1177/0956797610384146.

Chang, C.-C., S. A. DeVaney, and S. T. Chiremba. 2004. "Determinants of Subjective and Objective Risk Tolerance." *Journal of Personal Finance* 3: 53–67.

Charness, Gary, and Uri Gneezy. 2012. "Strong Evidence for Gender Differences in Risk Taking." *Journal of Economic Behavior & Organization*, Gender Differences in Risk Aversion and Competition, 83 (1): 50–58. doi:10.1016/j.jebo.2011.06.007.

Chen, Jie, Woon Sau Leung, and Kevin P. Evans. 2018. "Female Board Representation, Corporate Innovation and Firm Performance." *Journal of Empirical Finance* 48 (September): 236–254. doi:10.1016/j.jempfin.2018.07.003.
Chen, Jie, Woon Sau Leung, Wei Song, and Marc Goergen. 2019. "Why Female Board Representation Matters: The Role of Female Directors in Reducing Male CEO Overconfidence." *Journal of Empirical Finance* 53: 70–90. doi:10.1016/j.jempfin.2019.06.002.
Cohn, Alain, Ernst Fehr, and Michel André Maréchal. 2017. "Do Professional Norms in the Banking Industry Favor Risk-Taking?" *The Review of Financial Studies* 30 (11): 3801–3823. doi:10.1093/rfs/hhx003.
D'Acunto, Francesco. 2019. "Identity and Choice under Risk." *Available at SSRN 3466626*.
Daruvala, Dinky. 2007. "Gender, Risk and Stereotypes." *Journal of Risk and Uncertainty* 35 (3): 265–283. doi:10.1007/s11166-007-9024-7.
Eckel, Catherine C., and Philip J. Grossman. 2008a. "Men, Women and Risk Aversion: Experimental Evidence." *Handbook of Experimental Economics Results* 1: 1061–1073. doi:10.1016/S1574-0722(07)00113-8.
Eckel, Catherine C., and Philip J. Grossman. 2008b. "Forecasting Risk Attitudes: An Experimental Study Using Actual and Forecast Gamble Choices." *Journal of Economic Behavior & Organization* 68: 1–17. doi:10.1016/j.jebo.2008.04.006.
Filippin, Antonio, and Paolo Crosetto. 2016. "A Reconsideration of Gender Differences in Risk Attitudes." *Management Science* 62 (11): 3138–3160. doi:10.1287/mnsc.2015.2294.
Gennaioli, Nicola, Andrei Shleifer, and Robert Vishny. 2015. "Money Doctors." *The Journal of Finance* 70 (1): 91–114. doi:10.1111/jofi.12188.
Halko, Marja-Liisa, Markku Kaustia, and Elias Alanko. 2012. "The Gender Effect in Risky Asset Holdings." *Journal of Economic Behavior & Organization* 83 (1): 66–81. doi:10.1016/j.jebo.2011.06.011.
Heilman, Madeline E., and Tyler G. Okimoto. 2007. "Why Are Women Penalized for Success at Male Tasks?: The Implied Communality Deficit." *Journal of Applied Psychology* 92 (1): 81. doi:10.1037/0021-9010.92.1.81.
Heilman, Madeline E., Aaron S. Wallen, Daniella Fuchs, and Melinda M. Tamkins. 2004. "Penalties for Success: Reactions to Women Who Succeed at Male Gender-Typed Tasks." *The Journal of Applied Psychology* 89 (3): 416–427. doi:10.1037/0021-9010.89.3.416.
Hermansson, Cecilia. 2018. "Can Self-Assessed Financial Risk Measures Explain and Predict Bank Customers' Objective Financial Risk?" *Journal of Economic Behavior & Organization* 148 (April): 226–240. doi:10.1016/j.jebo.2018.02.018.
Hoffmann, Arvid O. I., and Thomas Post. 2017. "How Return and Risk Experiences Shape Investor Beliefs and Preferences." *Accounting & Finance* 57 (3): 759–788. doi:10.1111/acfi.12169.
Hoffmann, Arvid O. I., Thomas Post, and Joost M. E. Pennings. 2013. "Individual Investor Perceptions and Behavior During the Financial Crisis." *Journal of Banking & Finance* 37 (1): 60–74. doi:10.1016/j.jbankfin.2012.08.007.
Imbens, Guido W., and Jeffrey M. Wooldridge. 2009. "Recent Developments in the Econometrics of Program Evaluation." *Journal of Economic Literature* 47 (1): 5–86. doi:10.1257/jel.47.1.5.
Inzlicht, Michael, and Talia Ben-Zeev. 2000. "A Threatening Intellectual Environment: Why Females Are Susceptible to Experiencing Problem-Solving Deficits in the Presence of Males." *Psychological Science* 11 (5): 365–371. doi:10.1111/1467-9280.00272.
Jansen, Christian, René Fischer, and Andreas Hackethal. 2008. "The Influence of Financial Advice on the Asset Allocation of Individual Investors."
Jianakoplos, Nancy Ammon, and Alexandra Bernasek. 1998. "Are Women More Risk Averse?" *Economic Inquiry* 36 (4): 620–630. doi:10.1111/j.1465-7295.1998.tb01740.x.
Ke, Da. 2021. "Who Wears the Pants? Gender Identity Norms and Intrahousehold Financial Decision-Making." *The Journal of Finance* 76 (3): 1389–1425. doi:10.1111/jofi.13002.
Lee, Kyoungmi, Hakkyun Kim, and Kathleen D. Vohs. 2011. "Stereotype Threat in the Marketplace: Consumer Anxiety and Purchase Intentions." *Journal of Consumer Research* 38 (2): 343–357. doi:10.1086/659315.
Linnainmaa, Juhani T., Brian T. Melzer, and Alessandro Previtero. 2016. "The Misguided Beliefs of Financial Advisors." *The Journal of Finance* 76: 587–621. doi:10.1111/jofi.12995.
Maass, Anne, Mara Cadinu, Gaia Guarnieri, and Annalisa Grasselli. 2003. "Sexual Harassment Under Social Identity Threat: The Computer Harassment Paradigm." *Journal of Personality and Social Psychology* 85 (5): 853. doi:10.1037/0022-3514.85.5.853.
Marinelli, Nicoletta, Camilla Mazzoli, and Fabrizio Palmucci. 2017. "Mind the Gap: Inconsistencies Between Subjective and Objective Financial Risk Tolerance." *Journal of Behavioral Finance* 18 (2): 219–230. doi:10.1080/15427560.2017.1308944.
Martin, Terrance. 2011. "Financial Planners and the Risk Tolerance Gap." *Available at SSRN 2358736*.
McFadden, Daniel. 1973. "Conditional Logit Analysis of Qualitative Choice Behavior."
Meier-Pesti, Katja, and Elfriede Penz. 2008. "Sex or Gender? Expanding the Sex-Based View by Introducing Masculinity and Femininity as Predictors of Financial Risk Taking." *Journal of Economic Psychology* 29 (2): 180–196. doi:10.1016/j.joep.2007.05.002.
Moss-Racusin, Corinne A., and Laurie A. Rudman. 2010. "Disruptions in Women's Self-Promotion: The Backlash Avoidance Model." *Psychology of Women Quarterly* 34 (2): 186–202. doi:10.1111/j.1471-6402.2010.01561.x.
Neelakantan, Urvi, and Yunhee Chang. 2010. "Gender Differences in Wealth at Retirement." *The American Economic Review* 100 (2): 362–367. doi:10.1257/aer.100.2.362.
Nosić, Alen, and Martin Weber. 2010. "How Riskily Do I Invest? The Role of Risk Attitudes, Risk Perceptions, and Overconfidence." *Decision Analysis* 7 (3): 282–301. doi:10.1287/deca.1100.0178.
Roszkowski, Michael. 1992. *How to Assess a Client's Financial Risk Tolerance: The Basics*. Bryn Mawr, PA: The American College.
Roszkowski, Michael J., Geoff Davey, and John E. Grable. 2005. "Questioning the Questionnaire Method: Insights on Measuring Risk Tolerance from Psychology and Psychometrics." *Journal of Financial Planning* 18 (4): 68–76.

Roszkowski, Michael J., and John E. Grable. 2005. "Estimating Risk Tolerance: The Degree of Accuracy and the Paramorphic Representations of the Estimate." *Journal of Financial Counseling and Planning* 16 (2).

Rudman, Laurie A., Corinne A. Moss-Racusin, Julie E. Phelan, and Sanne Nauts. 2012. "Status Incongruity and Backlash Effects: Defending the Gender Hierarchy Motivates Prejudice Against Female Leaders." *Journal of Experimental Social Psychology* 48 (1): 165–179. doi:10.1016/j.jesp.2011.10.008.

Rudman, Laurie A., and Julie E. Phelan. 2008. "Backlash Effects for Disconfirming Gender Stereotypes in Organizations." *Research in Organizational Behavior* 28 (January): 61–79. doi:10.1016/j.riob.2008.04.003.

Schooley, Diane K., and Debra Drecnik Worden. 1996. "Risk Aversion Measures: Comparing Attitudes and Asset Allocation." *Financial Services Review* 5 (2): 87–99. doi:10.1016/S1057-0810(96)90003-7.

Schwartz-Ziv, Miriam. 2017. "Gender and Board Activeness: The Role of a Critical Mass." *Journal of Financial and Quantitative Analysis* 52 (2): 751–780. doi:10.1017/S0022109017000059.

Snyder, Mark, Elizabeth Decker Tanke, and Ellen Berscheid. 1977. "Social Perception and Interpersonal Behavior: On the Self-Fulfilling Nature of Social Stereotypes." *Journal of Personality and Social Psychology* 35 (9): 656. doi:10.1037/0022-3514.35.9.656.

Söderberg, Inga-Lill. 2013. "Relationships Between Advisor Characteristics and Consumer Perceptions." *International Journal of Bank Marketing* 31 (3): 147–166. doi:10.1108/02652321311315276.

Sommer, Matthew, Han Na Lim, and Maurice MacDonald. 2018. "Gender Bias and Practice Profiles in the Selection of a Financial Adviser." *Journal of Financial Planning* 31 (10): 38–47.

Stolper, Oscar, and Andreas Walter. 2019. "Birds of a Feather: The Impact of Homophily on the Propensity to Follow Financial Advice." *The Review of Financial Studies* 32 (2): 524–563. doi:10.1093/rfs/hhy082.

Sundén, Annika E., and Brian J. Surette. 1998. "Gender Differences in the Allocation of Assets in Retirement Savings Plans." *The American Economic Review* 88 (2): 207–211.

Vandello, Joseph A., Jennifer K. Bosson, Dov Cohen, Rochelle M. Burnaford, and Jonathan R. Weaver. 2008. "Precarious Manhood." *Journal of Personality and Social Psychology* 95 (6): 1325–1339. doi:10.1037/a0012453.

Von Gaudecker, Hans-Martin. 2015. "How Does Household Portfolio Diversification Vary with Financial Literacy and Financial Advice?" *The Journal of Finance* 70 (2): 489–507. doi:10.1111/jofi.12231.

Watson, John, and Mark McNaughton. 2007. "Gender Differences in Risk Aversion and Expected Retirement Benefits." *Financial Analysts Journal* 63 (4): 52–62. doi:10.2469/faj.v63.n4.4749.

Weaver, Jonathan R., Joseph A. Vandello, and Jennifer K. Bosson. 2013. "Intrepid, Imprudent, or Impetuous? The Effects of Gender Threats on Men's Financial Decisions." *Psychology of Men & Masculinity* 14 (2): 184–191. doi:10.1037/a0027087.

Willer, Robb, Christabel L. Rogalin, Bridget Conlon, and Michael T. Wojnowicz. 2013. "Overdoing Gender: A Test of the Masculine Overcompensation Thesis." *American Journal of Sociology* 118 (4): 980–1022. doi:10.1086/668417.