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Risky reflections: Insights into the role of personality in financial risk-taking through risk elicitation comparisons and prior outcomes

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ABSTRACT

Risk preferences influence financial decision-making, yet inconsistencies exist in how personality traits predict risk-taking. This study examines how personality traits affect risk preferences across different measures and how they interact with prior financial outcomes to influence risk-taking behaviour. A general population sample of 357 participants completed the IPIP-NEO-120 personality inventory, self-reported risk attitude and market participation surveys, and engaged in a sequential investment simulation with feedback on prior outcomes. Correlational and regression analyses of the survey data show that extraversion positively correlates with self-reported risk-taking and stock market participation. Using multilevel mixed-effects models to analyse the experimental data, this study is the first to demonstrate that personality traits moderate the effect of prior financial outcomes on subsequent risk-taking in an investment simulation. Specifically, individuals with low extraversion become more risk-averse after higher returns, while those high in openness or conscientiousness take more risks following worse prior outcomes. These findings highlight the importance of considering both personality traits and prior outcomes in understanding financial risk-taking and offer insights into the interplay of individual and situational factors in financial decision-making. The study provides practical implications for investor education and investment management strategies.

1. Introduction

Risk preferences are fundamental to theoretical frameworks in economics and psychology and profoundly influence real-world financial decision-making (Dohmen et al., 2011; Markowitz, 1959; Pratt, 1964; Tversky & Kahneman, 1981). Research generally finds that risk-taking correlates positively with extraversion and sensation-seeking, and negatively with neuroticism, shyness, and conformity (Lauriola & Levin, 2001; Skeel et al., 2007).

Although personality traits are significant predictors of risk-taking behaviour, researchers argue that risk predictability depends on the elicitation methods used (Dohmen et al., 2011; Holt & Laury, 2002; Lejuez et al., 2002; Moncel et al., 2025; Nicholson et al., 2005). Self-reported questionnaires for measuring risk preferences are advantageous due to their simplicity and predictive validity (Dave et al., 2010). These survey methods involve asking respondents a single question or multiple items assessing their risk preferences or attitudes in studies predicting risky driving (Burns & Wilde, 1995), smoking (Jenks, 1992), and investment decisions (Blais & Weber, 2006). In contrast, experimental methods such as the Iowa Gambling Task (Bechara et al., 1994), the Balloon Analogue Risk Task (Lejuez et al., 2002), and lottery or game tasks (Eckel & Grossman, 2008; Holt & Laury, 2002) require higher respondent sophistication and comprehension, which may result in noisier data and mixed findings regarding their predictability of real-world behaviours (Charness et al., 2013; Skeel et al., 2007).

While many studies linking personality and risk attitudes use either surveys or experimental approaches, a growing number employ multiple elicitation methods to gain a more comprehensive understanding. However, studies using multiple risk measures have found weak or nonexistent correlations between questionnaire-based risk measures and lottery-choice task measures (Anderson & Mellor, 2009; Lönnqvist et al., 2015). Moreover, Lönnqvist et al. (2015) found that personality is related to risk captured by questionnaires but not to risk in lottery-choice tasks. Similarly, Millroth et al. (2020) discovered that cognitive ability correlates more strongly with behavioural risk measures than personality does. These findings highlight the need for an integrative

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approach to risk elicitation to gain a deeper understanding of how personality predicts risk-taking under different environments and how it interacts with situational factors in experiments.

Furthermore, while prior outcomes' effects on risk-taking are studied in experiments, the extent to which personality influences risk-taking when prior outcomes are presented remains insufficiently explored. Prospect theory describes that decision-makers often prioritise avoiding losses over obtaining gains and are risk-seeking when facing losses and risk-averse when pursuing gains (Ackert et al., 2006; Kahneman & Tversky, 1979, 1984). Studies have found that prior outcomes impact subsequent decisions. Thaler and Johnson (1990) found that participants became more risk-seeking when earlier gains exceeded subsequent losses, perceiving losses as reductions of prior gains. Following prior losses, individuals exhibited greater risk-taking behaviour, driven by a desire to recover from setbacks (Staw, 1981; Weber & Zuchel, 2005).

Much remains to be uncovered about the interactions between individual heterogeneity, such as personality, and decision-makers' treatment of prior outcomes in risk-taking behaviour. Sekścińska and Rudzinska-Wojciechowska (2023) find that models including psychological variables explain more variance than those with only demographic variables in loss or gain domains. Emotions, such as positive and negative affect, can alter sensitivity to losses and gains (Franken et al., 2006). Participants in a positive mood are more affected by prior outcomes than those in a neutral mood (Romanus et al., 1996). Moreover, personality traits moderate financial risk behaviours. Research shows personality traits moderate the relationships between equity risk-bearing and strategic risk-taking among CEOs (Benischke et al., 2019). Neuroticism moderates the effects of secondary psychopathy and narcissism on risk-taking (Grover & Furnham, 2021). Interactions between personality, such as conscientiousness, extraversion, neuroticism, and risk tolerance influence investment biases (Singh et al., 2023). These findings highlight the importance of considering personality traits as moderating variables that can impact financial risk behaviours. Examining the joint influence of personality and prior outcomes on risk-taking is important for advancing the understanding of real-world risk-related decision-making. Our approach of using quantified prior financial outcomes in simulated investment tasks allows us to capture financial decision-making processes in an environment that approximates real-world scenarios.

To address these gaps, this study integrates personality traits and quantified prior performance to examine their predictive power for risk preferences in a feedback-based investment simulation. We hypothesise that personality traits will correlate with self-reported financial risk-taking, predict real-world market participation, and moderate the relationship between prior outcomes and risk-taking. Individuals with different traits may interpret and respond to investment feedback in systematically distinct ways, reflecting personality-driven differences in sensitivity to prior outcomes. Using multilevel models, we contribute to the literature by providing the first evidence that personality moderates the impact of prior outcomes on subsequent risk-taking. Our findings shed light on the complex interplay between personality traits and situational factors in financial decision-making.

2. Method

2.1. Participants

We collected valid data from 357 participants (163 women, 194 men) aged 22 to 67 (M = 34.66, SD = 7.96), recruited via Sojump, a Shanghai-based market research company that is suitable for reaching nationally diverse Chinese samples (Del Ponte et al., 2024). Among these participants, 238 (67 %) reported stock market participation, making our sample particularly well-positioned to effectively complete an investment simulation. Ethical approval was obtained from the corresponding author's university, and informed consent was secured from all participants. Participants completed the IPIP-NEO-120 personality test, questionnaires on demographics, risk attitudes, and investment behaviours, and participated in an asset allocation experiment. All components were conducted online via a dedicated webpage designed specifically for this research.

2.2. Personality test

We used the IPIP-NEO-120, a short version of the IPIP-NEO (International Personality Item Pool Representation of the NEO PI-R™), containing 120 items measuring the five personality factors: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Items were measured on a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The IPIP-NEO-120 has been employed in published literature (Lo et al., 2005; Miller & Lynam, 2012) and reliably represents the five major domains and the thirty facets of the Five-Factor Model (Johnson, 2014). After completing the questionnaires and experiments, participants received a personality analysis report based on the Five-Factor model.

2.3. Self-reported risk-taking and investment behaviour

Risk-taking can be measured via self-reported approaches, such as single-item questions or multi-item scales (Dohmen et al., 2011; Lauriola & Weller, 2018). We directly asked participants about their investment risk preferences on a five-point Likert scale ranging from "very low risks" to "very high risks." To capture real-life financial risk-taking behaviour, we administered a questionnaire on stock market behaviour, asking whether participants traded in the equity market, the amount invested in the market, and their transaction frequency.

2.4. Risk-taking in the investment simulation

We designed an experiment where participants engaged in decontextualised sequential portfolio allocation simulations with financial incentives. Participants received a flat compensation of 10 RMB (approximately 1.5 USD) for participation and a performance-dependent reward averaging 21 RMB (around 3 USD). Performance-related payoffs were used to promote realistic investment behaviour (Baltussen et al., 2012; Lee, 2007).

The portfolio allocation task comprised eight consecutive rounds of investment activities. The number of rounds (steps) was chosen to balance participant engagement and the need for sufficient data for robust statistical analysis. Participants started with 1000 points of virtual capital, which was adjusted after each round based on their previous performance. They received outcome feedback at the beginning of each round, showing their available capital resulting from prior allocations. This setup mirrors real investment decisions, where available capital is influenced by previous financial performance (excluding borrowing or shorting options). Unlike game theory experiments that use hypothetical or stated gain or loss scenarios (Weber & Zuchel, 2005), our design imitates reality by having participants make sequential investment decisions following realistic gains or losses. Within-subject variations were captured using multilevel analysis, and portfolio risk was measured based on the combinations of assets to which participants allocated their capital.

In each investment step, participants allocated their capital among three risky assets with varying risk levels and a risk-free asset, mimicking real-life choices including holding cash. The options included a high-risk, high-return asset; a medium-risk, medium-return asset; a low-risk, low-return asset; and cash. Participants were provided with a series of ten historical return observations for each asset in tabular form to illustrate asset volatility, indicating that investing in riskier assets could lead to high returns or significant losses.

Asset returns and standard deviations (risks) were generated without trend components or correlations among assets. This controlled environment allowed us to isolate the effect of personality and prior outcomes on investment risk-taking by eliminating confounding factors

such as seeking higher returns through trend estimation (Bianchi et al., 1999) or cross-correlation estimation (Campbell et al., 1997). The riskiness of each investment choice was measured as the standard deviation of the constructed portfolio in each step. We quantified prior gains or losses by comparing investment results at each step to the performance in the previous step of the simulation.

2.5. Data analytic approach

To examine the predictability of personality on self-reported and real-life risk-taking, we used Pearson correlations to provide an overview of relationships between variables, followed by linear and logistic regressions controlling for participants' age and gender. We standardised the personality variables and log-transformed the investment amounts in respondents' trading accounts.

To investigate risk preferences and personality in the investment experiment, we employed multiple regressions for continuous measures and logistic regressions for categorical dependent variables. Linear mixed-effects (LME) models were used with steps nested within participants (level 1) and personality invariant across steps (level 2). Intraclass correlation values, 0.42 for the null model, 0.30 for the model with linear and quadratic time, and 0.29 for the model with personality variables and prior outcomes, supported our use of LME (LeBreton & Senter, 2008). We tested models with linear time (i.e., sequential steps in the investment experiment), quadratic time, and serial correlation among time points. The models were fitted with maximum likelihood estimation using the lmer function from the lme4 package in R. We identified the final model using likelihood ratio tests via ANOVA comparisons of nested models (Lewis et al., 2011).

3. Results

3.1. Descriptive statistics and Pearson correlations

Table 1 presents the descriptive statistics and correlations for risk measures, real-life investor behaviours, and personality traits. Experimental risk-taking levels correlate with self-reported risk preferences ($r = 0.20$, $p < .001$). However, participants taking greater risks in the experiment do not necessarily trade shares more frequently ($r = 0.12$, $p = .073$) or transact heavily in the stock market ($r = 0.02$, $p = .779$). In contrast, self-reported risk measures are positively related to risk preferences in real financial decisions, such as larger stock market investments ($r = 0.24$, $p < .001$) and more frequent transactions ($r = 0.16$, $p = .013$). These results suggest that real-life investment behaviours, which serve as proxies for socioeconomic status or market familiarity, correlate mainly with self-reported risk-taking rather than with risk-taking observed in experiments.

3.2. Regression results

Table 2 shows regression analysis results where extraversion positively correlates with self-reported risk-taking preference (b = 0.18, t(349) = 3.13, $p = .002$), while neuroticism negatively predicts it (b = −0.13, t(349) = −2.25, $p = .025$). Certain personality traits also predict real-world financial risk-taking. Extraversion predicts equity market participation (b = 0.45, z = 2.41, $p = .016$). Among stock traders, higher extraversion predicts larger trading account funds (b = 0.56, t(230) = 2.65, $p = .009$). Agreeableness marginally negatively correlates with investment amounts (b = −0.32, t(230) = −1.72, $p = .087$). However, personality traits do not predict transaction frequency.

Gender predicts self-reported risk preferences (b = 0.30, t(349) = 3.53, $p < .001$), with men stating higher risk preferences than women. Men are more likely to invest in the stock market (b = 0.88, z = 3.02, $p = .003$), but no significant gender difference exists in trading account amounts or transaction frequencies. Older respondents invest more heavily (b = 0.06, t(230) = 3.59, $p < 0.001$), but age is not significantly related to the self-reported risk measure.

3.3. Linear mixed-effects models

Tables 1 and 2 reveal relationships between personality, self-reported, and real-life risk-taking without considering scenarios where

Table 1
Descriptive statistics and correlations between variables.

Variables	Mean	SD	N	1	2	3	4	5	6	7	8	9	10
1. Self-reported risk-taking	2.97	0.75	357	–									
2. Experimental risk-taking	18.95	10.98	357	0.20***	–								
3. Market participation	0.67	0.47	357	0.29***	0.05	–							
4. Frequency of trading	2.87	1.25	238	0.16*	0.12^{+}	–	–						
5. Investment amounts (log)	11.29	2.10	238	0.24***	0.02	–	0.22**	–					
6. Extraversion	54.06	22.12	357	0.39***	0.07	0.32***	0.10	0.22**	–				
7. Agreeableness	50.71	22.03	357	0.21***	0.00	0.17**	−0.01	−0.01	0.38***	–			
8. Conscientiousness	64.77	23.48	357	0.29***	0.09^{+}	0.26***	0.01	0.08	0.63**	0.59***	–		
9. Neuroticism	34.38	22.04	357	−0.29***	−0.08	−0.20**	−0.02	−0.14*	−0.61***	−0.41***	−0.69***	–	
10. Openness	36.66	20.12	357	0.29***	0.12*	0.24***	0.06	0.07	0.62***	0.40***	0.50***	−0.40***	–

Note: The analysis of the amount in respondents' trading accounts and the frequency of trading is performed on respondents who trade shares ($N = 238$). Other analyses used the whole sample ($N = 357$). $^{+}$ indicates $p < .1$; * indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$.

Table 2
Regression results for personality and financial risk-taking.

	Self-reported risk-taking	Experimental risk-taking	Market participation	Frequency of trading	Investment amounts (log)
Intercept	2.68(0.17)***	16.27(2.70)***	−0.48(0.57)	3.10(0.42)***	8.62(0.66)***
Age	0.01(0.01)	0.07(0.07)	0.02(0.02)	−0.01(0.01)	0.06(0.02)***
Gender	0.30(0.09)***	0.24(1.39)	0.88(0.29)**	0.14(0.21)	0.51(0.33)
Extraversion	0.18(0.06)**	−0.59(0.91)	0.45(0.18)*	0.19(0.13)	0.56(0.21)**
Agreeableness	−0.04(0.05)	−1.12(0.81)	−0.15(0.17)	−0.08(0.12)	−0.32(0.19)$^{+}$
Conscientiousness	0.01(0.06)	0.87(0.96)	0.22(0.19)	−0.08(0.14)	−0.03(0.23)
Neuroticism	−0.13(0.06)*	−0.73(0.93)	−0.15(0.19)	0.02(0.13)	−0.33(0.21)
Openness	0.04(0.05)	1.33(0.77)	0.12(0.16)	0.04(0.11)	−0.15(0.18)
N	357	357	357	238	238
R^2 / *Pseudo* R^2	0.19	0.03	0.11	0.02	0.12

Note: As market participation is a binary variable, we conducted a binary logistic regression for this variable and linear regressions for all other variables. $^{+}$ indicates $p < .1$; * indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$.

Table 3
Model summaries for personality, prior outcomes and risk-taking in the investment simulation.

	Model 0	Model 1	Model 2	Model 3
Intercept	18.10(0.55)***	17.97(0.55)***	15.05(2.14)***	15.03(2.15)***
Level 1				
Time	−0.73(0.29)*	−0.72(0.30)*	−0.72(0.30)*	−0.73(0.30)*
Time squared	1.12(0.40)**	1.18(0.41)**	1.18(0.41)**	0.12(0.04)**
Prior return		−0.93(0.18)***	−0.93(0.18)***	−0.86(0.18)***
Level 2				
Age			0.08(0.06)	0.08(0.06)
Gender			0.58(1.09)	0.59(1.10)
Extraversion			−0.54(0.71)	−0.49(0.71)
Agreeableness			−0.72(0.63)	−0.72(0.64)
Conscientiousness			0.78(0.76)	0.72(0.76)
Neuroticism			−0.58(0.73)	−0.57(0.73)
Openness			0.95(0.60)	0.92(0.61)
Level 1× Level 2				
Prior Return×Extraversion				0.56(0.26)*
Prior Return×Agreeableness				−0.04(0.21)
Prior Return×Conscientiousness				−0.53(0.31)$^{+}$
Prior Return×Neuroticism				0.10(0.27)
Prior Return×Openness				−0.51(0.23)*
Model summary				
AIC	21,848.37	21,824.58	21,829.51	21,826.17
BIC	21,907.94	21,890.11	21,936.74	21,963.19
Conditional R^2 (mixed effects)	0.474	0.491	0.492	0.498
N of observations	2856	2856	2856	2856
N of estimated parameters	10	11	18	23

Note: $^{+}$ indicates $p < .1$; * indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$.

individuals receive prior performance information before making decisions. In our experiment, participants receive such information before subsequent risk choices. To decompose the effects of personality on risk-taking in the portfolio allocation simulation, we conduct linear mixed-effects models accounting for time effects within individuals and personality effects across individuals. Table 3 summarises the models employed. The baseline Model 0 includes linear and quadratic forms of the time sequence of the tasks. Results show that respondents' risk-taking initially decreased (b = −0.73, $t = -2.51$, $p = .013$). However, the significant positive quadratic term (b = 1.12, $t = 2.76$, $p = .006$) indicates a U-shaped pattern in risk-taking, with the minimum occurring shortly after the first round, followed by an accelerating increase in risk-taking throughout the remaining rounds. Model comparisons show that Model 0 significantly improves over the null model ($\chi^2(7) = 90.21$, $p < .001$).

In Model 1, participants' returns from the last step are added. Demographic covariates (age, gender) and personality traits are included in Model 2. Model comparison statistics indicate that both Model 1 and Model 2 significantly improve upon the baseline model (Model 1 vs. Model 0: $\chi^2(1) = 25.17$, $p < .001$; Model 2 vs. Model 0: $\chi^2(8) = 33.33$, $p < .001$). Model 1 shows that lower prior returns (a decrease in virtual capital) predict risk-seeking in the next allocation step. Model 2 indicates that personality variables are not significant predictors of risk-taking ($ps > 0.114$). Results in Table 2 and Model 2 in Table 3 suggest that personality traits are more closely related to self-reported risk measures than to experimental risk-taking behaviour.

We further explore interactions between personality traits and participants' returns from the previous step in Model 3. Model comparison results show that Model 3 significantly improves over the previous models (Model 3 vs. Model 2: $\chi^2(5) = 14.39$, $p = .013$; Model 3 vs. Model 1: $\chi^2(12) = 22.55$, $p = .032$). Model 3 demonstrates that personality traits moderate the relationship between prior outcomes and subsequent risk-taking. Significant interactions exist between previous investment performance and extraversion (b = 0.56, $t = 2.16$, $p = .031$), and between prior investment performance and openness to experience (b = −0.51, $t = -2.20$, $p = .028$).

Spotlight analysis finds that for low extraverts (-1SD), increased returns predict risk aversion (b = −1.42, $t = -4.57$, $p < .0001$; Fig. 1), whereas for high extraverts (+1SD), the effect is not significant (b = −0.29, $t = -0.90$, $p = .368$). For more open participants (+1SD), reduced prior returns predict risk-seeking (b = −1.37, $t = -4.79$, $p < .0001$; Fig. 2), but for less open participants (-1SD), the effect is not significant (b = −0.35, $t = -1.15$, $p = .251$). Conscientiousness marginally moderates the relationship between prior returns and risk-taking. For low conscientious participants (-1SD), previous returns do not affect risk-taking (b = −0.33, t = −0.90, $p = .371$; Fig. 3), but for high conscientious participants (+1SD), worse prior performance predicts more risk-taking (b = −1.39, $t = -4.01$, $p < .001$).

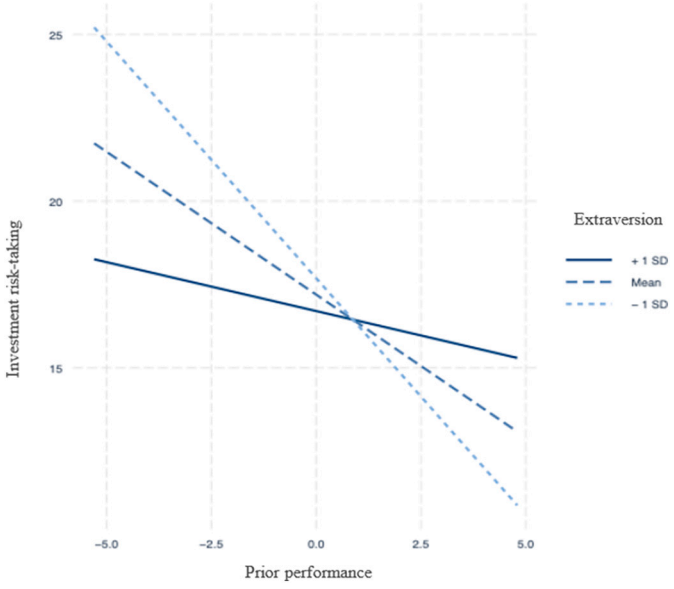

Fig. 1. Simple slopes of prior outcomes on subsequent investment risk-taking at levels of extraversion.

To check the robustness of these interactions, we re-coded prior returns into three categories: prior gain (=1), breakeven (=0), and prior

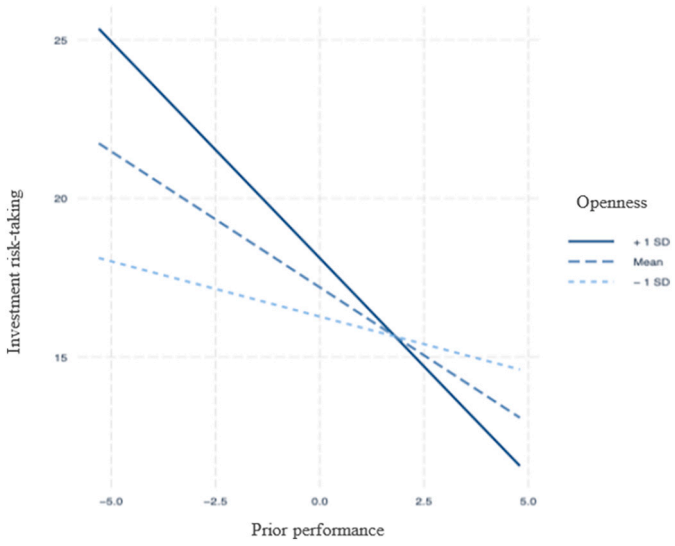

Fig. 2. Simple slopes of prior outcomes on subsequent investment risk-taking at levels of openness.

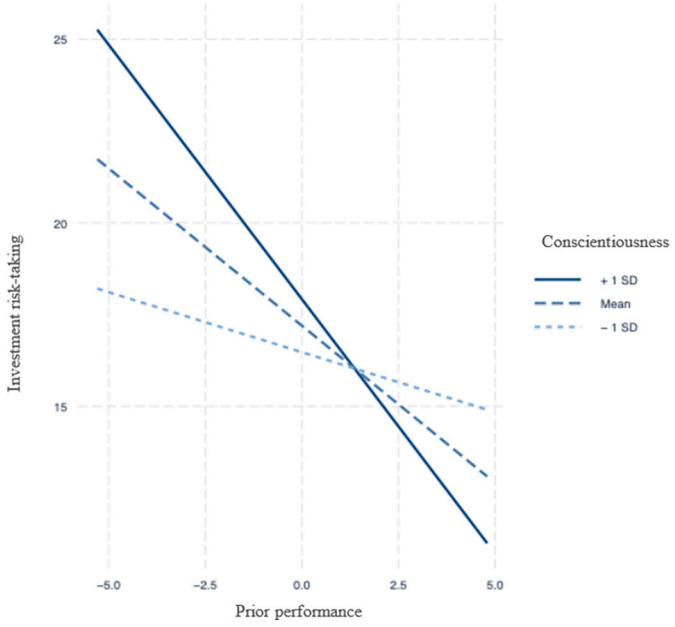

Fig. 3. Simple slopes of prior outcomes on subsequent investment risk-taking at levels of conscientiousness.

loss (= − 1). Results[1] remain consistent with Table 3, showing significant moderation effects of personality on prior outcomes and risk-taking. These findings underscore the importance of considering both personality and situational factors, such as prior performance, when examining risk-taking behaviour.

4. Discussion

This study provides evidence that personality predicts risk-taking across self-reported risk attitudes, real-life risk behaviours, and risk-taking elicited in the investment simulation. Correlational analysis indicates that self-reported risk attitudes often better predict real-life financial risk-taking than risk preferences revealed in experiments. The present study is the first to identify that personality moderates how prior financial outcomes influence subsequent risk-taking behaviour in experimental settings.

We demonstrate that personality, in particular, extraversion is significantly positively correlated while neuroticism is negatively correlated with self-reported risk-taking. Several factors may underpin these findings. Researchers recognise the advantages of simple questionnaire-based risk measures over cognitively demanding experiments (Mamerow et al., 2016). The validity of stated risk preferences may result from respondents drawing on broader real-world experiences and perceptions of risky behaviours (Arslan et al., 2020). Personality predicts real-life financial risk-taking in our general population sample. Our results confirm that extraversion is positively related to stock market participation, while agreeableness is negatively related to the amount invested. Personality influences investment decisions through sociability (Hong et al., 2004), information acquisition (Tauni et al., 2015), and wealth accumulation (Nyhus & Webley, 2001). Extraverts tend to invest more in stocks and are more risk-friendly, thus exposing themselves to market volatility. Since retail investors dominate some stock markets such as the Chinese stock market, their collective risk tolerance can increase market volatility and amplify investment and economic bubbles (Han & Kumar, 2013). Therefore, educating extraverted investors who are likely to hold larger portfolios but naive in investment decisions (Fisch & Wilkinson-Ryan, 2014) to develop optimal risk control is crucial. Efforts should focus on physical and online locations where extraverts, who enjoy socialising (Lauriola & Weller, 2018), may congregate. Venues like sporting events, restaurants, and popular social media channels could be prime advertising channels to target extraverted retail investors.

Our results reveal that prior returns have a dominant effect on risk-taking, overshadowing stable traits like demographic and personality variables. This supports the predictions of prospect theory and the disposition effect that individuals are risk-averse in gains and risk-seeking when facing losses. We use time sequence variables to account for the learning process (Mamerow et al., 2016) and the effects of evaluation frequency on risk-taking (Gneezy & Potters, 1997). Our findings support anticipated loss aversion, with participants beginning cautiously at the onset of the task but becoming more comfortable and risk-tolerant as the task progressed. This pattern may reflect a recalibration of reference points (Kahneman & Tversky, 1979) and adjustments in mental accounting, consistent with the house money effect (Thaler & Johnson, 1990) and escalation of commitment (Staw, 1981). This suggests that increased engagement and familiarity with investing can erode initial caution and lead to overconfidence, greater risk-taking, and overtrading after early gains or losses.

Another novel insight from our investment simulation is that personality traits like extraversion and openness to experience moderate risk-taking through prior outcomes. Since interactions between personality and quantified prior outcomes are underexplored, our findings advance the understanding of how prior outcomes influence subsequent risk-taking. For example, Lauriola and Levin (2001) find that personality is more related to decisions to achieve a gain than to avoid a loss. We investigate how personality predicts risk-taking after experiencing quantified gains or losses. Sekścińska and Rudzinska-Wojciechowska (2023) highlight the importance of psychological traits in responding to gains and losses in separate scenarios. Our results contribute to the literature by providing granularity on personality's interaction with quantified prior outcomes in sequential investment simulations without pre-assigned gains and losses domains, approximating a much more realistic investment feedback environment.

We find that low extraversion leads to risk aversion following increased past returns. This is possibly due to low confidence and self-esteem associated with low extraversion (Watson et al., 2002). Compared to high extraverts, low extraverts are less likely to attribute success to themselves; thus, higher returns do not encourage them to take more risks. They are more content and cautious with previous

[1] Results are available upon request.

success rather than seeking new opportunities to expand wealth. Our results also reveal that individuals with higher openness to experience are more risk-seeking after a reduction in returns. Higher openness relates to adaptability and resilience after adversities (LePine et al., 2000). High-openness individuals adopt a positive outlook and learn from prior experiences to pursue economic growth. We also find a similar effect for high conscientiousness on risk-taking following reduced returns. Individuals high in openness or conscientiousness are resilient and motivated to take riskier actions to recover from setbacks and achieve success. Mechanisms such as self-esteem and ambition, which underlie responses to prior outcomes, may also reflect personality dimensions associated with self-enhancement and confidence, such as dark triad traits (Grover & Furnham, 2021), and may offer additional insight into our results.

Studying how personality interacts with prior outcomes in predicting risk-taking yields implications for investment decision-making. With high prior returns, low extraversion may protect individuals from return-chasing behaviours, such as selecting actively managed mutual funds with favourable past performance (Karceski, 2002) over passive index funds, which is often a suboptimal strategy (Bailey et al., 2011) and particularly prominent among unsophisticated investors (Tran & Wang, 2023). After low returns, high openness or conscientiousness may prompt individuals to take more risks, such as investing in volatile markets, potentially incurring further losses. They may also engage in active investment strategies, underestimating the impact of higher fees and transaction costs leading to underperformance over time (Mercer et al., 2010). To mitigate the combined effects of personality and situational factors, investors could benefit from adopting long-term passive investment strategies that shield them from the tendency to seek out excessive risk (which could expose them to potential further losses), or from becoming overly risk-averse (thus missing out on opportunities to grow their investment). Both tendencies can arise in response to past performance and from the influences of their personality traits.

Despite these insights, a limitation of this study is that it does not involve risk elicitations over multiple and extended time periods. Previous studies have used arbitrary time spans, from simple two-period formats to designs spanning weeks or months (Weber & Zuchel, 2005). Experiments are constrained by factors like participants' willingness to devote time while maintaining attention. Future research could vary frequency, length, and intervals to investigate the temporal stability of risk elicitations, and their interplay with personality and situational factors in sequential investment contexts. Another consideration is sample composition. With 67 % active investors, the sample does not fully reflect the broader population. While the findings offer insights into personality and risk-taking, caution is needed when generalising to less financially engaged groups. Future research should aim to replicate these findings with a broader range of participants.

CRediT authorship contribution statement

Jiayi Balasuriya: Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization. **Yafei Guo:** Writing – review & editing, Validation, Methodology, Investigation, Formal analysis, Data curation. **Yu Yang:** Writing – review & editing, Supervision, Resources, Investigation, Funding acquisition, Conceptualization.

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Declaration of competing interest

The authors declare that they have no relevant or material financial interests or conflicts of interest related to the research described in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.paid.2025.113239.

Data availability

The datasets generated and analysed during the current study are not publicly available due to the restrictions bound by the Ethics Protocol approved by the corresponding author's institution.

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