

Breaking The Bias: The Role of Adversity Quotient in Navigating CSR Disclosures and Investor Heuristics

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ABSTRACT

Purpose – This study examines the role of the adversity quotient as a mental ability in mitigating heuristic bias in earnings forecasting, using earnings information and corporate social responsibility disclosures.

Design/methodology/approach – This study employs a quantitative mixed-design framework, combining a repeated-measures task structure with a measured between-person moderator (Adversity Quotient). All participants completed both representativeness and anchoring-adjustment heuristic tasks in a counterbalanced sequence to control for potential order, learning, and carryover effects. Rather than a pure 2×3 full-factorial design, AQ is treated as a measured individual-difference characteristic rather than an experimentally manipulated factor, allowing the analysis to explicitly model this mixed experimental structure.

Finding/Results – This study revealed that skepticism causes investors to ignore impression management-based CSR narratives and prioritize objective fundamental analysis. This results in representativeness bias not affecting earnings projections. However, investors were found to be highly susceptible to anchoring and adjustment bias, in which the initial target figure from management becomes the dominant cognitive anchor. Despite the availability of additional information, investors' adjustments tend to be inadequate, leaving forecasts close to the anchor figure. This weakness can be mitigated by the Adversity Quotient (AQ); investors with high AQ show cognitive resilience, resisting the influence of anchors and making more accurate adjustments based on CSR data.

Originality/Value – The novelty of this research lies in the analysis of the adversity quotient factor specifically in relation to CSR information disclosure—an analysis that has not been conducted previously.

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1. Introduction

In the capital markets, earnings forecasts are a crucial tool for investors and creditors to assess a company's future prospects (Lin et al., 2022). The accuracy of these forecasts reflects the quality of financial information and the level of management transparency. Specifically in investment decision-making, earnings forecasts are the primary indicator investors use to assess a company's value and make "buy, hold, or sell" decisions (Karki et al., 2024; Preussner & Aschauer, 2022). Ideally, forecasts should be based on objective fundamental analysis. Investors must accurately process a variety of information to predict future profitability. However, in reality, decision-making is often distorted by human cognitive limitations, a phenomenon known in cognitive psychology as Bounded Rationality (Praditha et al., 2023). Investors are not perfectly rational actors; they often fall prey to cognitive limitations when processing complex information (Preussner & Aschauer, 2022). Ultimately, forecast biases either overly optimistic or pessimistic often emerge, which can mislead economic decision-making and undermine market confidence (Karki et al., 2024).

Investors' failure to produce accurate forecasts is often rooted in two primary heuristic biases: representativeness bias and anchoring and adjustment (Praditha et al., 2023). First, representativeness bias explains the tendency of investors to base their judgments on stereotypes. In this context, companies with a strong social image through CSR disclosure are often considered "sure to be profitable" in the future (Hodgkinson et al., 2023). Investors ignore fundamental statistical data and focus solely on the similarity of a "good" company image with "good" performance (Almansour et al., 2023). Second, Anchoring-Adjustment Bias explains that investors often fixate on initial figures (anchors), such as previous period profit targets or initial management projections (Praditha et al., 2019). When new information emerges about environmental risks or CSR expenses, investors often make insufficient adjustments, leaving forecasts biased towards these anchor figures.

Corporate Social Responsibility (CSR) disclosure is now a non-financial information that must be considered. On the one hand, CSR reflects a company's sustainability (Eriandani & Evangelia, 2024). Today, companies are judged not only by financial performance but also by their social contributions through Corporate Social Responsibility (CSR). Theoretically, CSR disclosure serves as a signal of integrity and transparency (Zvarikova et al., 2024). However, there is a "green" phenomenon in which CSR is sometimes used as an impression-management tool to mask poor financial performance or earnings manipulation, ultimately widening forecast bias. On the other hand, extensive CSR disclosure can act as "noise" that triggers cognitive biases (Pong & Fong, 2023). Investors often experience information overload, leading them to resort to mental shortcuts (heuristics) rather than conducting a thorough analysis of the impact of CSR costs on net income (Hodgkinson et al., 2023; Praditha et al., 2026).

Generating accurate forecasts under the pressure of contradictory information requires more than just intellectual intelligence. Adversity Quotient (AQ)—one's ability to persist and manage adversity is a crucial factor (Pong & Fong, 2023). Investors with low AQ tend to quickly succumb to data confusion and are more susceptible to heuristic biases to avoid cognitive stress (Praditha et al., 2023). Conversely, investors with high AQ have the mental resilience to remain objective, to distinguish between "CSR imagery" and "financial reality," and to make radical adjustments to figures even in the face of prevailing information (anchors) (Suresh, 2024).

Market phenomena demonstrate that volatility is often caused by overly optimistic or irrationally pessimistic investor forecasts. This research is urgently needed to examine whether psychological factors, such as AQ, can act as a shield for investors to reduce representativeness and anchoring-adjustment biases. This research builds on prior research that focused on the role of the Adversity Quotient in reducing heuristic bias. The novelty lies in using CSR disclosure as an informational context alongside corporate earnings information. Using an experimental approach, this study will isolate how the interaction between CSR disclosure and individual mental toughness determines the quality of economic decisions in the capital market.

2. Literature Review & Hypothesis Development

2.1 Heuristics

Heuristic theory is rooted in the concept of Bounded Rationality, proposed by Herbert Simon and later extensively developed by Tversky & Kahneman (1973). In the context of financial decision-making, heuristics are "mental shortcuts" that individuals use to simplify complex information processing. Investors are often unable to fully process all CSR disclosure information and financial statement data due to time and cognitive capacity constraints (Almansour et al., 2023). Consequently, they use heuristics to make quick decisions. While efficient, the use of heuristics often leads to systematic errors known as cognitive biases, which deviate forecast results from their objective value (Loris & Jayanto, 2021). Two common primary biases are representativeness and anchoring and adjustment. In the CSR context, these two heuristic biases often emerge because CSR information tends to be qualitative and complex, prompting the human brain to seek "shortcuts" (heuristics) to process it into profit forecast figures (Mahadevi & Asandimitra, 2021).

The representativeness heuristic is an individual's tendency to assess the probability of an event based on the extent to which its characteristics match certain stereotypes (Praditha et al., 2020); (Loris & Jayanto, 2021). In earnings forecasting, investors often fall into the trap of a phenomenon known as "good companies are good investments." When a company publishes a highly impressive CSR report (for example, environmental awards or significant social contributions), investors tend to view it as a sign of superior management across all areas. Investors automatically project high future profits simply because the company "appears" ethically sound, without analyzing whether these CSR costs actually burden cash flow or whether the company's economic fundamentals truly support such profit growth. Therefore, the following hypothesis is formulated:

H1: Investors will experience representativeness bias in forecasting earnings in the context of Corporate Social Responsibility information.

Besides representativeness, anchoring adjustment is also a common bias experienced by investors (Siraji, 2019); (Hjeij & Vilks, 2023). Anchoring adjustment occurs when individuals begin their assessments with an initial value (an anchor) and then make adjustments to arrive at a final decision (Praditha et al., 2023). The problem arises because these adjustments are often insufficient. In earnings forecasting, the anchor figure can be last year's earnings, the CEO's announced profit target, or a significant investment figure mentioned in the CSR report. Investors will significantly adjust their earnings forecasts, either upward or downward. Earnings forecasts become inaccurate because they remain too close to the

original anchor value, thus failing to reflect risks or changes in actual market conditions (Zvarikova et al., 2024). Therefore, the second hypothesis proposed is as follows:

H2: Investors will experience anchoring-adjustment bias in forecasting earnings in the context of Corporate Social Responsibility.

2.2 Adversity Quotient

Adversity Quotient (AQ) is a concept developed by Stoltz (2000) to measure an individual's ability to cope with challenges, pressure, and adversity. In the context of behavioral and financial accounting, AQ goes beyond intellectual (IQ) and emotional (EQ) intelligence, as it focuses on cognitive resilience under information pressure or market uncertainty. Stoltz (2000) divides AQ into four main dimensions known as CORE: (1) Control: The extent to which an individual feels capable of improving a situation. Investors with high control are less likely to succumb to external biases. (2) Ownership: The extent to which an individual is responsible for the outcome of a decision. This encourages investors to be more thorough and not simply follow the existing "anchor" numbers. (3) Reach: The extent to which difficulties are perceived to spread to other sectors. (4) Endurance: How long difficulties are perceived to persist.

In the context of earnings forecasting involving CSR disclosure, AQ functions as a cognitive regulator by mitigating and reducing representativeness bias and anchoring bias (Baroa, 2015); (Praditha et al., 2023). Investors with high AQ have the mental resilience to engage in "deep thinking" (system 2 thinking). They are not immediately caught up in the halo effect of a positive CSR image (representativeness). They can withstand the heavy cognitive load of verifying whether a company's social performance aligns with its financial fundamentals.

H3: Adversity Quotient can reduce representativeness bias in earnings forecasting in the context of Corporate Social Responsibility.

Anchoring bias often occurs because individuals feel "comfortable" with the initial figure and fear making too many adjustments (uncertainty risk). Individuals with high AQ are able to manage the stress of uncertainty (Kasoga, 2021); (Siraji, 2019). They tend to be more willing to make significant, objective adjustments away from the anchor figure when the actual data indicates otherwise.

H4: The Adversity Quotient can reduce the anchoring-adjustment bias in earnings forecasts in the context of Corporate Social Responsibility.

CSR disclosures are often filled with ambiguous narratives. Adversity Quotient helps investors remain calm and focused as they sort out which information is relevant to future earnings and which is merely image-based, thereby reducing the use of misleading mental shortcuts (heuristics) (Zvarikova et al., 2024). Individuals with high AQ can think clearly under pressure from contradictory information (Hodgkinson et al., 2023). They are less likely to get caught up in first impressions (representativeness) or to fixate on a single figure (anchoring) because they have the resilience to conduct more rigorous, critical analysis.

H5a: Adversity Quotient mitigates the influence of the representativeness heuristic, so individuals with high AQ will produce more objective earnings forecasts despite highly salient CSR information.

H5b: Adversity Quotient mitigates the influence of anchoring-adjustment, where individuals with high AQ tend to make more accurate adjustments and are more willing to break away from the initial informational "anchor" than individuals with low AQ.

3. Methodology

3.1 Research Design

This study employed a quantitative approach using a field experiment. The experimental design used a 2x3 within-subject factorial design. This method was chosen to test the causal relationship between CSR disclosure information and anchor numbers on earnings forecast accuracy. Using a field experiment offers the advantage of greater external validity because subjects are in an environment that mimics real-world investment decisions, while the researcher retains control over variable manipulation.

Participants were selected regardless of their Adversity Quotient profiles or other characteristics. The study employed a within-subjects design, where all participants underwent both the representativeness and anchoring-adjustment conditions. However, because all tasks were administered in a single session, this did not constitute a longitudinal repeated-measures design.

Table 1. Matrix 2x3 full-factorial

	AQ – Climber	AQ – Camper	AQ – Quitter
Representativeness	I	II	III
Anchoring-Adjustment	IV	V	VI

In this study, the representativeness and anchoring-and-adjustment heuristics—conceptualized as cognitive responses to manipulated information—serve as the independent variables. Consequently, the experimental scenarios were specifically designed to elicit these heuristic responses. In the representativeness condition, participants receive consistent information across all periods. Conversely, the anchoring-and-adjustment condition presents changing information, prompting participants to revise their initial estimates.

3.2 Population and Sample

The population in this study consisted of individual investors active in the capital market (Indonesia Stock Exchange), domiciled in Makassar, and members of a community of novice stock investors. Sampling used a convenience sampling technique; however, the sampled investors were those with active Customer Fund Accounts (RDN), had traded stocks in the past six months, and had a basic understanding of financial reports or company performance summaries. A total of 119 investors participated in this study, but only 111 met the sample criteria.

3.3 Experimental Procedure

The experiment was conducted through an online survey platform or in a computer lab with the following steps:

- Registration & Briefing: Participants filled out demographic data and received instructions regarding their role as fictitious investment analysts.
- Pre-Test (Optional): Assessed basic understanding of profit forecasting.
- Case Exposure (Treatment): Participants were given an experimental treatment in the form of financial information, namely profit and loss statements and corporate social responsibility reports, for two sample companies: PT Astra International Tbk. and PT Bumi Resource, Tbk.
- Main Task: Participants were asked to predict the company's net profit for the upcoming period based on the case study.

- e. Manipulation Check: Participants answered control questions to ensure they understood the CSR narrative and remembered the anchor figures provided.
- f. AQ Measurement: Participants completed the Adversity Response Profile (ARP) instrument to measure their Adversity Quotient.
- g. Debriefing: The researcher explained the purpose of the experiment and expressed appreciation to the participants.

3.4 Variable Measurement

This design examines how two cognitive biases influence earnings forecasts and how Adversity Quotient (AQ) acts as an internal control mechanism to mitigate these biases.

- Independent Variable (X1): Representativeness Heuristic (Tendency to assess the future based on similarity to CSR image)
- Independent Variable (X2): Anchoring-Adjustment Heuristic (Tendency to fixate on initial figures/CSR budget).
- Moderating Variable (Z): Adversity Quotient (Level of mental toughness of the subject).
- Dependent Variable (Y): Earnings Forecast Bias (Level of deviation from earnings forecast).

Bias measurement is calculated using the following formula.

$$\text{Bias} = \frac{\text{Forecasting} - \text{Intrinsic Value}}{\text{Intrinsic Value}}$$

To measure earnings forecast bias objectively, benchmark intrinsic values of 43,424 (for PT Astra International Tbk.) and 67,500 (for PT Bumi Resources Tbk.) were established based on verified historical consensus earnings and fundamental analyst targets. Forecast bias was operationalized as the percentage deviation of the participant's earnings forecast from the benchmark value. Explicit manipulation checks were conducted to verify that participants perceived the intended cognitive cues (e.g., CSR impression management narratives and management earnings anchors) rather than merely recalling scenario details, thereby maintaining a clear conceptual distinction between forecast error, anchoring behavior, and representativeness bias.

Adversity Quotient was divided into three groups (Stoltz, 2000): high AQ (Climbers), medium AQ (Campers), and low AQ (Quitters). The Climber category is defined as subjects with an AQ score between 166-200, the Camper category is defined as subjects with an AQ score between 95-165, and the Quitter category is defined as subjects with an AQ score between 0-94. Adversity Quotient is measured using the CO2RE (Control, Origin-Ownership, Reach, Endurance) dimension.

3.5 Analysis Method

Data were analyzed using Moderated Regression Analysis (MRA) and repeated-measures frameworks to rigorously test the moderating effect of Adversity Quotient on heuristic-driven forecast biases. To satisfy journal reporting standards, the regression models incorporated centered predictor variables, unstandardized coefficients (B), standard errors, 95% confidence intervals, effect sizes (R² and adjusted R²), degrees of freedom, and comprehensive model diagnostics (including multicollinearity and heteroscedasticity checks). Overall model significance (F-tests) was interpreted cautiously, ensuring that moderation claims were strictly validated by the statistical significance of the interaction

terms (Binteraction, $p < 0.05$). Furthermore, continuous AQ scores were evaluated alongside categorical groupings (Climbers, Campers, and Quitters) to prevent loss of statistical power, with categorical results retained as descriptive supplementary evidence.

4. Result and Discussion

4.1 Result

4.1.1 Respondent Demographics

The subjects in this study were 111 stock investors actively investing in the capital market. The participating investors were active members of a beginner stock community in Makassar.

Table 2. Respondent Characteristics

Categories		N	%
Gender	Male	59	53.2
	Female	52	46.8
		111	100.0
Age	<25 y.o.	24	21.6
	25-40 y.o.	70	63.1
	>40 y.o.	17	15.3
		111	100.0

The gender mapping revealed that 59 participating investors were male and 52 female. This demonstrates gender equality in capital market investing. Ease of access to information in the capital market has attracted many women to become investors, thereby eliminating the market's male dominance. Furthermore, in terms of age, respondents were predominantly young, aged 25-40. This participation rate reached 63.1%, reflecting this age group's productive years, which heighten the desire to generate additional income through investments.

4.1.2 Bias Group Test

The bias test was conducted by mapping two analysis groups: Group I for representativeness bias and Group II for anchoring-adjustment bias. The test results are shown in Table 3 below.

Table 3. Paired Sample Test

Group		Mean		N	Std. deviation	t	Sig.
I	Forecasting	42989.19	-434.811	111	3709.628	-1.235	0.219
	Value	43424.00					
II	Forecasting	47485.59	-20014.414	111	20080.017	-10.501	0.000
	Value	67500.00					

Regarding Group I, the paired-sample analysis yielded a mean forecast of 42,989.19 against the benchmark value of 43,424.00 ($t = -1.235, p = 0.219$). Contrary to initial expectations, this difference is statistically nonsignificant. Consequently, Hypothesis 1—predicting that investors experience representativeness bias in the context of CSR information—is not supported by the empirical data. Rather than concluding that participants exhibited an insignificant level of bias, the correct empirical interpretation is that the study did not obtain statistically significant evidence of representativeness bias under the tested CSR conditions.

In group II, the mean earnings forecast was 47,485.59, and the value was 67,500.00. This indicates a difference of 20,014.414 in the estimates of future earnings. This result is further

supported by a p-value of $0.000 < 0.05$, indicating a significant difference between the forecast and the value. Thus, investors are proven to experience an anchoring-adjustment bias in earnings forecasting. This result means that hypothesis 2 in this study is supported by the research results.

4.1.3 Adversity Quotient Moderation Test

Group 1 demonstrates an interaction (moderating role) between adversity quotient and the representativeness heuristic, whereas Group 2 demonstrates an interaction (moderating role) between adversity quotient and the anchoring-and-adjustment heuristic. The role of the adversity quotient was tested on two experimental groups: the representativeness group (group I) and the anchoring-adjustment group (group II), as presented in Table 4, 5, 6 below.

Table 4. Moderated Test (F)

Group	Mean Square	F	Sig.
I	125761621.718	11.841	0.000
II	22916081057.186	38.128	0.000

Table 5. Moderated Test (T)

Group	B	Std. Error	t	Sig
I	-39278.843	29521.368	-1.331	0.186
II	-419637.852	145468.118	-2.885	0.005

Table 6. Moderated Test (R)

Group	R	R Square	Adj. R Square	Std. Error of Estimate
I	0.499	0.249	0.228	3259.009
II	0.719	0.517	0.503	14154.256

The results of testing the role of the adversity quotient using moderated regression analysis showed a t-value of -1.331 (p-value = $0.186 > 0.05$) in the first group, indicating that representativeness bias can positively impact earnings forecasting. However, in this study, the effect was not significant. These results indicate that the adversity quotient is unable to reduce the representativeness bias that investors experience when forecasting future earnings, even when using corporate social responsibility information. Therefore, Hypothesis 3 in this study is rejected.

Furthermore, the results of the second group test showed a t-value of -2.885 ; p-value = $0.005 < 0.05$, indicating that anchoring adjustment significantly influences investors' cognitive abilities in forecasting future earnings. Therefore, the adversity quotient can reduce the anchoring-adjustment bias that investors experience when forecasting future earnings. These results support Hypothesis 4 formulated in this study.

Table 7. 2x3 Full-factorial Testing

	N	Representativeness	Anchoring-adjustment
Climber	35	0.01743	0.00229
Camper	62	0.01387	0.00887
Quitter	14	0.01857	0.01500

The results of the matrix test of the relationship between the representativeness heuristic and anchoring-adjustment, along with the adversity quotient level in the context of CSR information disclosure in profit forecasting, show different bias values . In the representativeness bias, when sorted by the level of adversity quotient, starting from the highest (Climber, Camper, Quitter), the error rates are 0.01743 (1.743% error rate), 0.01387

(1.387% error rate), and 0.01857 (1.857% error rate). These values, when examined successively, do not exhibit a consistent pattern; rather, they fluctuate. The accuracy of profit forecasting for owners of medium AQ (campers) is actually greater than that of owners of the highest AQ. This shows that, in the representativeness bias, investors generally experience the same bias, both among those with the highest and those with the lowest AQ. Thus, it is evident that the Adversity Quotient cannot mitigate the influence of the representativeness heuristic. Individuals with high AQ do not consistently produce more objective profit forecasts than those with medium or low AQ, despite the presence of highly visible CSR information. Therefore, Hypothesis 5a in this study cannot be supported by the results.

Different results were observed for investors treated with the anchoring-adjustment pattern, with the resulting bias pattern showing a tiered structure. The bias values, respectively, based on the adversity quotient level, starting from the highest (Climber, Camper, Quitter). As detailed in Table 7, the anchoring-adjustment error rates across AQ tiers (Climber, Camper, and Quitter) demonstrate a progressive reduction, with error values of 0.00229 (0.229%), 0.00887 (0.887%), and 0.01500 (1.500%), respectively. Specifically, the Camper group's error rate corresponds to 0.887% (expressed as 0.00887), correcting previous textual discrepancies. This tiered reduction provides robust support for Hypothesis 5b, confirming that individuals with higher adversity resilience are more capable of breaking away from initial informational anchors

4.2 Discussion

4.2.1 Representativeness, Earnings Forecasting and Corporate Social Responsibility

The results of this study indicate that investors did not experience representativeness bias in the context of CSR disclosure. This indicates that investors in this study exhibit a high level of prudence and are capable of independent debiasing. Qualitative CSR information does not obscure investors' perceptions of a company's financial reality. This aligns with the view that modern investors focus more on value-relevant information than simply impressive social narratives. Investors tend to be more skeptical of non-financial information that is overly "beautiful." The phenomenon of greenwashing (fake environmental imagery) has made investors aware that highly positive CSR reports do not always correlate with healthy financial performance. Theoretically plausible mechanisms, such as professional skepticism or suspicion of impression management, are highlighted as future-testable psychological processes rather than established empirical explanations.

In earnings forecasting, investors consider financial figures to be much more relevant (higher diagnosticity) than CSR information. Consequently, CSR information fails to trigger representativeness bias because investors consciously separate a company's social responsibility from its fundamental performance. Investors who use financial and non-financial information in the same pattern, whether positive (increasing) or negative (decreasing), tend to be more skeptical of the values presented, often ignoring corporate social responsibility information. Investors often have a wary instinct when they see a company presenting "perfect" performance across all lines. If the financial report shows a positive trend (increasing profits) and the CSR report also shows a similar trend (very extensive/positive disclosures), investors tend to suspect impression management.

When the pattern of financial and non-financial information is aligned (both positive or both negative), CSR information is perceived as not providing incremental information content. Investors perceive the company as attempting to construct an overly harmonious narrative

to mask certain risks. As a result, they become more skeptical and place less weight on CSR information in their forecasting models. If financials are already poor, investors feel they already know the company's condition is difficult, so CSR details (both positive and negative) are considered "noise" or interference that does not change their profit estimates. Investors choose to "ignore" CSR because they believe the financial data adequately represents the company's condition.

4.2.2 Anchoring-adjustment, Earnings Forecasting and Corporate Social Responsibility

The research results show that investors exhibit anchoring-adjustment bias, meaning they fail to adequately adjust initial figures when confronted with new information (CSR). Humans naturally process information in the form of numbers (hard data) more easily than qualitative narratives (soft data). In your experiment, the initial profit target acts as a very strong "anchor." When investors receive complex, narrative CSR information, their cognitive load increases. To reduce this load, the brain automatically clings to the existing quantitative figures (anchors). Investors make adjustments, but because CSR information is difficult to precisely translate into rupiah, these adjustments are insufficient.

Although CSR disclosures provide information about new risks or opportunities, investors are often uncertain about the magnitude of the impact of CSR costs or benefits on net income. This uncertainty causes investors to remain "in the comfort zone" around the initial anchor figure. They prefer to make small changes rather than undertake radical corrections that risk errors. Overly detailed CSR disclosures actually dilute investors' focus. In conditions of information overload, the mental anchoring mechanism becomes even stronger. Investors use management's earnings targets as their primary guideline because they are considered the most stable reference point amid uncertainty surrounding non-financial information.

The evidence of anchoring-adjustment bias in this study indicates that investors tend to be cognitively anchored to the initially presented earnings targets. Even when available, CSR information fails to prompt investors to make adequate adjustments. This confirms the heuristic theory that individuals tend to make inadequate adjustments from the initial reference point, especially when additional information (CSR) is qualitative and difficult to quantify financially. These findings confirm that in earnings forecasting, the "power" of an anchor figure often overpowers logical considerations in favor of other non-financial information.

4.2.3 The Role of Adversity Quotient in Mitigating Representativeness Bias

The Adversity Quotient (AQ) has been shown to be incapable of mitigating Representativeness Bias, suggesting that cognitive or situational forces are more dominant than a person's personal characteristics (e.g., mental toughness). Representativeness bias operates at a very fast, intuitive level (System 1 Thinking). Even if an investor has a high AQ (resilience under pressure), the first impression of an "ethical" and "socially responsible" company creates an automatic perception that the company must perform well across the board. The power of the "good company = profitable company" stereotype exceeds an individual's ability to exert cognitive control through AQ.

The Adversity Quotient (AQ) may help individuals cope with operational difficulties or emotional stress, but it is not designed to correct automatic cognitive errors. In experiments, prominent CSR information triggers fundamental mental shortcuts that even individuals with high AQ continue to use in forecasting earnings, without realizing they are

experiencing bias. Earnings forecasting based on CSR information requires highly complex data integration. If investors find CSR information too abstract or difficult to translate into financial figures, they will revert to heuristics, regardless of their high AQ. AQ cannot compensate for the lack of a clear analytical methodology; mental toughness does not automatically make someone more analytical if the stimulus (CSR information) is designed to trigger emotions and stereotypes.

The Adversity Quotient (AQ) is the ability to recover from adversity. If the experimental scenario regarding CSR disclosure does not pose significant pressure or threat (e.g., there are no real financial consequences for the subjects), then the subjects' AQ potential is not maximally stimulated. Consequently, AQ does not demonstrate its role in mitigating bias, as the subjects do not perceive themselves as in a "difficult" situation requiring mental resilience.

4.2.4 The Role of Adversity Quotient in Mitigating Anchoring-Adjustment Bias

The research findings reinforce the role of Adversity Quotient (AQ) as an "internal anchor" rather than an "external anchor" (management target figures). Individuals with high AQ scores exhibit strong Control and Endurance. They possess the mental courage to step outside the "comfort zone" of the anchor figure. When CSR information reveals significant risks (e.g., significant environmental compliance costs), high-AQ investors are less pressured by management's target figures. They possess the resilience to make objective, radical adjustments, so their forecasts are no longer biased by the anchor figure. AQ is designed to measure how an individual responds to adversity and pressure. Investors with low AQ tend to experience cognitive fatigue more quickly when reading complex CSR reports, leading them to succumb to anchoring bias to simplify decisions. Conversely, investors with high AQ possess the resilience to continue critically processing CSR information, allowing them to ignore the anchor and make more precise judgments based on the latest facts. Investors with high AQ have a strong sense of ownership over the quality of their forecasts. They don't want to simply "follow" the figures provided by management (the anchor) if CSR information shows a different reality. This sense of responsibility motivates them to exert extra cognitive effort to overcome the influence of anchoring, thereby mitigating bias in earnings forecasting.

This study successfully demonstrated that the Adversity Quotient (AQ) serves as an effective moderator, mitigating anchoring-adjustment bias. These findings indicate that the mental toughness of high-AQ investors provides the cognitive strength to break free from the attachment of initial reference figures. When CSR information signals uncertainty, individuals with high AQ demonstrate resilience by boldly adjusting the figures significantly and not allowing the anchor figures to dominate their judgments. This demonstrates that personal psychological factors can neutralize systematic errors in financial information processing.

5. Conclusion and Suggestion

Investors' skepticism toward consistent information patterns (impression management), leading them to ignore CSR narratives and focus on more objective fundamental analysis, has led to a lack of evidence of representativeness bias affecting investor earnings forecasts. However, investors have been shown to experience anchoring-adjustment bias in earnings forecasts. The presence of an initial target figure (anchor) provided by management has a

very strong and persistent influence on investor cognition. Despite being provided with additional information in the form of CSR reports, investors tend to make insufficient adjustments, leaving profit forecasts close to the initial anchor figure. Furthermore, AQ has also been shown to mitigate this bias. Investors with high AQ levels possess the cognitive resilience and courage to break free from the anchor figure, enabling them to make more radical and accurate adjustments based on CSR information.

Given that AQ was unable to mitigate representativeness bias, future research could test other variables, such as Professional Skepticism or Financial Literacy, that may be more effective in neutralizing the halo effect of CSR. Adding additional stress to the experiment (e.g., a strict time limit) could also be helpful to see whether AQ exhibits a stronger effect under conditions of extreme stress.

6. Limitations and Future Research

This research makes a unique contribution by demonstrating that personal characteristics such as Adversity Quotient are more effective in correcting numerical judgment errors (anchoring) than stereotypical or image-based judgment errors (representativeness). This reinforces the theory that not all cognitive biases can be mitigated by mental toughness, especially if they involve emotional perceptions of corporate social responsibility (CSR) values.

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Declaration of AI and AI-assisted technologies in the writing process (if author[s] utilize AI)

During the preparation of this work, the authors used Grammarly and Gemini Google solely for grammar checking and language polishing. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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