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THE EFFECT OF CORPORATE REPUTATION ON INVESTORS' DECISIONS FOLLOWING A STOCK PRICE SHOCK

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ABSTRACT. Corporate reputation is an important predictor of stock investors' decisions. The aim of this study was to investigate whether corporate reputation remains a significant factor in investment decisions in the event of a price shock contrary to investors' expectations. A vignette study was designed to simulate a stock exchange. We also controlled for selected behavioural characteristics. The induced perception of collective corporate reputation was found to be important for investment decisions. However, the findings indicated that after a price shock, this factor became insignificant. Furthermore, most of the participants decreased their propensity to invest. Hence, the observation was split into two cases. In the case of a good corporate reputation and a decrease in stock prices, relatively fewer investors decided to decrease their propensity to invest. Nevertheless, male investors and those with a greater need for cognition were more likely to exhibit the same or higher propensity to invest after the shock price. In the case of a poor corporate reputation and an increase in stock prices, more investors decided to decrease their propensity to invest. However, the changes in propensity to invest were driven only by the initial amount of money invested.

JEL Classification: G11, C9, G41

Keywords: investment decisions, corporate reputation, behavioural finance, vignette studies

Introduction

The consensus among researchers in the field of economics is that corporate reputation (CR) affects the behaviours of stakeholders and consequently firms' financial performance, including market valuations (Blajer-Gołębiewska & Kozłowski, 2016; Gangi et al., 2020; Raithel & Schwaiger, 2015; Siddiqui et al., 2023; Smith et al., 2010). However, the effect of CR on a company's market valuation is multidimensional and complex, mostly due to the variety of factors influencing CR perception and the varying strength of its impact on each stakeholder's group behaviour (Cayón & Gutierrez, 2021).

According to Dowling (2016), CR 'is the admiration and respect a person holds of an organisation at a point in time'. Two crucial aspects of this definition are worth highlighting. First, it refers to a given point in time. Thus, CR is not stable but rather fragile and susceptible

to change under certain circumstances. Second, it is based on admiration and respect, i.e., due to its strong grounding in emotions, CR should be analysed within the frames of behavioural economics or finance.

A review of the literature on the impact of CR on stock prices revealed that the two aforementioned aspects of CR have yet to be fully explored. As the adage goes, it can take years or decades to build a good CR, but a mere moment to destroy it (Lowenstein, 2001; Scott & Walsham, 2005). The rationale for this is clear: the value of reputation is contingent upon a number of financial, social, and environmental variables (Barnett et al., 2006) which can manifest unexpectedly. Certain factors can either improve or destroy CR, or their appearance can temporarily disturb the significance of CR in the decision-making process. An example of the latter case is a price shock in the stock market, i.e., a discrete price change, either positive or negative, especially when this change in incompatible with the investors' expectations based on the perceived reputation of a given firm. This could happen, for instance, when perceived CR is good but the stock price suddenly decreases.

Furthermore, there is also a lack of studies on underlying investors' behavioural characteristics, shaping relations between CR perception and investors' decisions, and the role of emotions. Even though it is claimed that people tend to anthropomorphise organisations (Love & Roper, 2015; Mishina et al., 2012), and consequently, emotions can significantly influence CR (Raithel & Schwaiger, 2015), only several studies refer to both, emotional and rational factors, in the context of CR (Marzouk, 2016; Raithel & Schwaiger, 2015). There is also a gap when it comes to studies in CR in a stock market including behavioural aspects other than emotions (Baumgartner et al., 2022).

In this article, we focus on these gaps. Firstly, we contribute to the literature by introducing the problem of the stability of the impact of CR perception on investors' decisions in the event of price shock. Secondly, the originality of this study derives from the fact that it provides a more comprehensive picture of the impact of CR on investors' decisions, and hence, on stock prices, in the behavioural context. For this reason, our study incorporates investor-specific characteristics measured by behavioural scales.

Consequently, this study aims to investigate the stability of corporate reputation's significance in the stock market investors' decision-making processes in the event of a price shock— a sudden and significant change in stock prices. To obtain the aim formulated above, the best method for this study seems to be a vignette study in which a researcher manipulates selected variables to examine their impact on participant's behaviour.

This paper is structured as follows. The next section provides a brief literature review on CR, its impact on investors' decisions, and selected behavioural aspects of CR's effect on stock prices. The methodological approach and study design are presented in the subsequent section. In the penultimate section, data analysis and results are reported. The final section provides a summary, conclusions, and limitations of the study and suggested further research directions.

1. Literature review

1.1. Concept of corporate reputation

An in-depth analysis of CR characteristics, leading to its comprehensive definition, was conducted in a working paper by Fombrun & Rindova (1996), followed by an article by Fombrun & van Riel (1997). These studies are referred to in almost every article concerning CR issues. In the former paper, the authors listed six crucial characteristics of CR. First, it is a derivative characteristic of an industrial system shaping the status of a firm in an organisation

field. Second, it works as an external reflection of the internal identity of a firm. Thirdly, it is based on the company's history, and past allocations of its resources and as such it can generate barriers to the firm's actions and reactions to its rivals. Moreover, CR was described as the sum of assessments of the company's past performance by various entities assessing its ability and potential to meet a variety of criteria. It results from many related images of the company created by all its stakeholders and informs about its overall attractiveness to those stakeholders. And finally, it embodies two basic dimensions of efficiency: evaluation of economic results and evaluation of success in fulfilling the principles of social responsibility.

Literature provides a wide array of definitions of CR reflecting the development of this concept over the years starting from the CR as perceived by consumers (Stravinskiene et al., 2021) to CR perceived by multiple stakeholders (Highhouse et al., 2009), from perceived by a single shareholder, i.e., individual perception of CR (Wartick, 1992) to perceived by a group or network, i.e., collective or social CR (Balmer, 2001; Dowling, 2016), from a concept dependent on past firm's behaviour (Weigelt & Camerer, 1988) to dependent also on the future, i.e., on prospects (Fombrun, 1996). It also provides various CR conceptualisations in the sense of the salience of a company, its distinctive features and behaviours, and generalised favourability towards the company (Lange et al., 2011). CR is often defined as (Barnett et al., 2006): an asset (additional intangible asset creating wealth), awareness of a firm among its stakeholders (which is a result of an aggregated perception of firms' actions) and assessment of a firm (as opinions, evaluation of the firm by its stakeholders). Thus, it also reflects affective and emotional reactions (Fombrun, 1996). In definitions, the distinctions between negative and positive perceptions (Leslie Gaines-Ross, 2008) as well as good or bad reputations (Helm, 2007) are also highlighted.

Dowling (2016) analysed problems of definitional confusion, and among numerous characteristics of CR, mentioned its stability, suggesting that it differs not only across objects (types of companies), raters (stakeholders) and contexts (e.g. different countries) but also over time. He pointed out that 'under some circumstances corporate reputations are fragile.

1.2. Corporate reputation in the stock market

Previous studies indicated that a good corporate reputation brings about numerous benefits for a firm. CR disclosures reduce information asymmetries among stakeholders, leading to favourable effects on perceived organisational performance and CR itself, investment, and employment intentions (Baumgartner et al., 2022). CR helps companies to maintain and enhance their competitiveness (Sarstedt et al., 2023). Listed companies with better reputations, tend to have a lower stock risk premium when compared with those that are not listed (Febra et al., 2023). CR can serve as an effective tool for creating corporate accountability (E. Carroll & Olegario, 2020).

The majority of studies concentrate on how CR impacts the financial performance of firms, including their stock prices (Anderson & Smith, 2006; Black et al., 2000; Blajer-Gołębiewska & Nowak, 2024; Blajer-Gołębiewska & Kozłowski, 2016; Cox et al., 2004; Fernández-Gámez et al., 2016; Gangi et al., 2020; Raithel & Schwaiger, 2015; Roberts & Dowling, 2002; Siddiqui et al., 2023; Smith et al., 2010; Tischer & Hildebrandt, 2014). These studies show mainly a positive relationship. However, the mechanism of the CR effect on investors' decisions (and hence on stock prices) is rather complicated and has not been fully explored.

One of the problems derives from the Weber–Fechner law, which states that perceived intensity is proportional to physical stimuli on a logarithmic scale (Sun et al., 2012). In other words, stimulus intensity is logarithmically transformed into perception. As a result, for

companies with good CR, changes in CR may be perceived as insignificant and have no impact on stock prices. In their study, Brammer et al. (2004) investigated the relationship between a firm's reputation and the return on its shares. The data was taken from a survey (for Management Today) where only the largest and most well-recognizable companies were taken under consideration. They found increases in stock prices around the time of the announcement of CR rankings, even for firms whose reputation scores have slipped. These results may indicate that the firm remained still recognisable to some extent. On the other, investors could consider a fall in CR as insignificant if a firm remained in the ranking of the most reputable companies.

The other problem lies in the short- and long-term impact of CR regarding its drivers. In their experimental study, Blajer-Gołębiewska & Kos (2016) found that investors' decisions were more sensitive to information about financial rather than ethical aspects of CR. In this study, investors made decisions as soon as they received information. However, the study conducted by Raithel & Schwaiger (2015) concerned the effect of CR perceptions by the general public on shareholder value in the long term. They found that non-financial reputation perceptions were more important for future value than those related to previous financial performance.

And finally, the problem of stability of the impact of CR on investors' behaviour arises. It includes a question about investors' decisions when CR and stock prices are not consistent. Raithel et al. (2010) investigated the impact of corporate reputation on a company's market value during the time of 2008 financial crisis when stock prices were generally dropping. They found that companies with good reputations were better able to withstand the negative effects of the financial crisis.

However, it is still not found what happens if the prices of a highly reputable firm are suddenly falling. To the best of our knowledge, no other study has directly addressed the behavioural background of stability of an impact of CR on investors' decisions in the case of unexpected changes in stock prices.

Researchers analysing CR assume (explicitly or not) that the fact of knowing a firm's reputation to some degree reduces the risk of the investment. If the reputation is good, or at least established, investors assume that the information asymmetry between them and the firm's management is reduced. It may be just the halo effect, but it gives investors a certain level of confidence. The question is what happens when investors, having certain expectations, built upon their perception of CR, face an unexpected significant change in share prices (Bagh et al., 2023; Altahtamouni, 2024). Will reputation be still important? What factors will shape investors' decisions?

1.3. Selected behavioural aspects of the effect of corporate reputation on stock prices

Defined on one hand as an intangible asset, and a factor influencing business valuation, and on the other, as awareness of a firm, and its assessment rooted in opinions and evaluation of the firm by its stakeholders, CR reflects both the cognitive and affective information processing (Fombrun, 1996). As such, rational and intuitive information processing can be connected to the fact of processing the perception of CR to make investment decisions.

Several studies addressed this approach. In the study on CR during the financial crisis mentioned above, Raithel et al. (2010) applied the cognitive and affective components to create the CR index as a linear combination of these components. They surveyed a representative sample of the German public in 13 consecutive survey waves (sample from 1251 to 2465 respondents). However, no deeper analysis of cognitive and affective components was performed which creates possibilities for further studies. In a study on the role of cognitive and affective CR in investor behaviour, Marzouk (2016) surveyed 220 investors from the Egyptian

stock exchange market. The results proved that the cognitive dimension dominated the corporate reputation construct and affected behavioural outcomes. The affective dimension was also relevant to the CR construct but its impact on behavioural outcomes was much less relevant.

Dual models of information processing derived from psychology distinguish between cognitive and affective information processing systems (Camerer et al., 2005; Epstein, 1994; Kahneman, 2011; Slovic et al., 2004). For instance, Epstein's Cognitive-Experiential Self Theory (Epstein, 1973) refers to analytical-rational and intuitive-experiential systems. The first one is cause-oriented, intentional, requiring more effort, and so it is slower, conscious, and based on logical connections. The second one is intuitive, subconscious, and automatic, requiring little effort, and therefore faster acting, based on associative connections.

This theory became the basis for the psychological scale named Rational Experiential Inventory (REI), constructed by Norris et al. (1998). REI consists of two subscales concerning the need for rational cognition after Cacioppo & Petty (1982), and faith in intuition. In the REI-10 version, each of these subscales consists of five items (statements). Respondents are asked to rate them on a 5-point scale (from 1—'definitely not true of myself' to 5—'definitely true of myself'). Based on the answers provided, it is possible to determine whether a person is guided by rational, conscious decisions or rather by emotions.

In this study, we also decided to control the risk attitude of the investor. Thus, we applied a self-reported risk attitude measure, namely, the risk question from the German Socio-Economic Panel Study (Dohmen et al., 2005, 2011). To assess individual risk attitudes, each subject was presented with the following question: 'How do you see yourself: Are you generally a person who is fully prepared to take risks, or do you try to avoid taking risks?' Subjects were subsequently tasked with classifying themselves using an 11-point scale from 0 to 10, where 0 indicates 'unwilling to take risks' and 10 indicates 'fully prepared to take risks.' This subjective method was found to be 'a good predictor of actual risk-taking behaviour', and to have a considerable predictive power (Dohmen et al., 2005). It has been applied in studies on investment decisions (Fossen, 2011; Hyll & Irrek, 2015). Further advantages of this method are its simplicity, clarity for respondents, and reliability, as confirmed by previous studies.

Summing up, in this study, we decided to control for behavioural factors reflecting the rational and emotional processing style, i.e., the need for cognition and faith in intuition. We also controlled for risk attitude.

2. Methodological approach

To analyse the stability of the impact of CR on investors' decisions in the case of unexpected changes in stock prices we designed a vignette study in which participants were supposed to behave as stock market investors in an artificial stock exchange (Table 1). Vignettes are fictive situational descriptions, 'in which factors describing the object of interest are simultaneously manipulated' (Wallander, 2009) This methodology has been previously employed in studies on CR (or CSR) and its impact on stockholders' decisions or directly on firm performance (Baumgartner et al., 2022; Blajer-Gołębiewska, 2021; Kunz, 2020). In this study, we incentivised participants to align their decisions in the artificial stock exchange with their real-life decisions. Participants, who earned in the experiment more than the average earnings (based on the pilot study), were rewarded with a voucher to a popular online store. This incentive was one of the three most attractive incentives chosen earlier in a survey.

The study was divided into three phases (Table 1). In the first one, the rules of the experiment were presented, and subjects could observe a company in an artificial stock exchange. The initial situation vignettes provided information about the firm's sector, including

its name, stability, the duration of operation in the sector and the presence in the stock market. Participants could also observe the firm's size, changes in its market price (which were minor), and its financial performance (including a simplified assessment of its profitability, activity, liquidity and solvency—all denoted as either higher, lower or standard in relation to other companies in the sector). All this information aimed to constitute a neutral perception of the company. Subjects were given artificial money (10,000 ECU) and could invest some in shares of the company (*inv*1). The percentage of money invested allowed us to establish an initial level of propensity to invest.

Table 1. Phases of the vignette study

Phases	Phase 1	Phase 2	Phase 3	Final part
Vignettes	 information about the company its position in the sector and the stock exchange stock price movement 	 analyst recommendations institutional investors' behaviours individual investors' behaviours 	• a significant opposite change in stock price	providing psychologic al scales and socio- economic information
Amount received	+10 000 ECU	+10 000 ECU	+10 000 ECU	_
Amount invested	inv1	inv2	inv3	_
CCR assessment	no	yes	no	

Source: own compilation

In the second phase, investors were provided with vignettes containing diverse information to induce various perceptions of CR. Information considered three groups of (artificial) shareholders. The first was about financial analysts' recommendations – to buy or sell shares of this company. Second, considered institutional investors' behaviours – if they were reported to be either more or less interested in a company's shares. The third considered individual investors' behaviours – if they were reported to be either more or less interested in buying a company's shares. Then we asked investors to assess the collective CR on a scale from 0 to 10 by answering the question 'In your opinion, how is the corporation's reputation rated in the stock market?' We chose to analyse the perception of collective CR (CCR) instead of the individual perception of CR. According to previous studies, this is the perception of CCR that influences investors' behaviour, so this attempt is more suitable and justified in studies on investors' decision-making (Blajer-Gołębiewska, 2021). At the end of this phase, participants were given a second opportunity to invest in stock (*inv*2). This allowed us to check whether the induced CCR affected their propensity to invest also in our study.

Table 2. Vignette study design: treatments

Nr of treatment	Analysts' recommendations	Institutional investors' behaviours	Individual investors' behaviours	Significant opposite change in stock price (P)	Number of participant s
1	+	+	+	-	60
2	+	+	-	-	66
3	+	-	+	-	60
4	+	-	-	+	61
5	-	+	+	-	60
6	-	+	-	+	67
7	-	-	+	+	59
8	-	-	-	+	53

In the third phase, subjects faced a price shock, which we defined after McDonald (2017) as a discrete price change—either positive or negative—greater than 10%. The direction of change in price was determined based on the variables describing the behaviours of financial analysts, individual shareholders and institutional shareholders (Table 2). If at least two out of three variables influencing CR were positive (negative), we assumed that perceived CR was good. Then the computer program assigned negative (positive) information about stock prices, i.e., a decrease (increase) in stock prices. It was a counterintuitive change that was intended to force participants to make investment decisions based on contradictory information. This manipulation enabled us to determine which of the contradictory factors had an impact on investment decisions: CR or changes in stock prices. Then, participants were given a third opportunity to invest in stock (inv3).

In the final part of the study, subjects were asked to complete psychological scales (measuring their need for cognition, faith in intuition, and self-reported risk attitude), and to provide socio-economic information (gender, age).

3. Conducting research and results

For our study, we designed a computer program that simulated decision-making in the stock exchange. Participants were either final-year master's students in economics and finance or second-semester master's students in the same fields, who had passed both stock market courses and laboratory trading (based on real data) courses. Almost 50% of participants were part-time students with work experience, and 21% of participants were 25 years or older. 6% of the survey participants had some experience in stock market investing (up to five years). To obtain the highest quality data, we excluded entries for which task-execution time was extremely short or compared to the pilot study, and entries of the participants who had difficulties passing the quiz on the rules of the experiment. The final sample (N = 486) comprises 35% male subjects. Each participant was assigned to one of the eight treatment conditions inducing a perception of CCR (Table 2).

Collected data for this study was processed by Stata, R and SPSS software. We analysed them using basic descriptive statistics, a two-sample Wilcoxon rank-sum (Mann-Whitney) test, Spearman correlations, variance inflation factors, and logistic regression models.

3.1. Induction of collective corporate reputation' perception

After the first phase of the study, where investors observed a company and revealed their initial propensity to invest, in the second phase, we induced CCR perception (CCR_raw) with information about financial analysts' recommendations and stock market decisions made by institutional investors and individual investors. Measured on the 11-point scale CCR_raw was characterized by a skewed left distribution ($g_1 = -0.36$) and several low-frequency classes. Thus, we transformed CCR_raw into CCR with only 5 bins. Frequencies for both variables, CCR_raw and CCR, are reported in Table 3.

Table 3. Frequencies for perceptions of collective corporate reputation

CCR_raw	0	1	2	3	4	5	6	7	8	9	10	Total
Freq.	1	3	5	20	36	78	70	110	83	55	25	486
CCR			1			,	2	3	4	•	5	Total
Freq.			65	•	•	14	48	110	83	8	0	486

Notes: CCR raw is the original variable; CCR is a transformed CCR raw with a reduced number of bins.

Examining the significance of explanatory variables for CCR, we applied a two-sample Wilcoxon rank-sum (Mann-Whitney) test (Table 4). It confirmed that all three manipulated information, considering financial market analysts, institutional investors, and individual investors, had a positive impact on CCR with p-values equal to 0.0044, 0.0003, and 0.0005 respectively. Additionally, we found that male investors tend to evaluate CCR higher than female investors (p = 0.0341).

Table 4. Frequency and two-sample Wilcoxon rank-sum (Mann-Whitney) test for explanatory variables in the CCR analysis

	Financial market	analysts' recommendation			
value of the variable	no. of observations	mean CCR in the group	rank sum	prob > z	
- (sell)	239	2.77	53906.5	0.0044	
+ (buy)	247	3.08	64434.5	0.0044	
	Institutiona	l investors behaviours			
value of the variable	no. of observations	mean CCR in the group	rank sum	prob > z	
- (less interested)	233	2.70	51299.5	0.0003	
+ (more interested)	253	3.13	67041.5	0.0003	
	Individual	investors behaviours			
value of the variable	no. of observations	mean CCR in the group	rank sum	prob > z	
- (less interested)	247	2.73	54885.5	0.0005	
+ (more interested)	239	3.13	63455.5	0.0005	
Gender					
value of the variable	no. of observations	mean CCR in the group	rank sum	prob > z	
- (female)	317	2.84	74146.5	0.0241	
+ (male)	169	3.10	44194.5	- 0.0341	

Source: own compilation

Analysing CCR from the point of view of previously invested money, we found that investors, who invested more money in a given firm's stock tend to evaluate CCR higher than those who invested less (Table 5). For instance, participants whose assessment of reputation was the lowest ($CCR_raw = 1$) were those who previously invested on average 3,238.80 out of 10,000 ECU (32.38%). Participants who assessed CR the highest ($CCR_raw = 5$) were those who had already invested on average 47.95% of their money. This result is consistent with confirmation (or confirmatory) bias, i.e., behavioural bias defined as 'the seeking or interpreting of evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand' (Nickerson, 1998) widely described in the literature using stock market data (Pouget et al., 2017) as well as theoretical financial models (Cafferata & Tramontana, 2019).

Table 5. Descriptive statistics of the first investment by collective corporate reputation

CCR	Mean of inv1	StdDev of inv1
1	3,239	2,957
2	3,341	2,639
3	3,635	3,045
4	3,904	3,311
5	4,795	3,478

3.2. Predictors of changes in the initial propensity to invest

We defined propensity to invest as the fraction of an investor's money that they are willing to invest. We compared propensities to invest based on the initial stock investment (inv1) (in the first phase of the study) and the second investment in stock (inv2) after the induction of CCR (at the end of the second phase of the study). This way we calculated a change in the propensity to invest after the CCR evaluation ($\Delta PTI1_raw$). However, due to the low frequency (47 observations out of 486) of cases for which no change in propensity to invest was observed (Table 6), we decided to merge it with the increasing propensity to invest. The resulting variable was $\Delta PTI1$, a binary variable, for which '0' means 'decrease in the propensity to invest', and '1' is 'either no change or increase in propensity to invest':

$$\Delta PTI1 = \begin{cases} 0, if & \frac{inv1}{10,000} > \frac{inv2}{20,000 - inv1} \\ 1, if & \frac{inv1}{10,000} \le \frac{inv2}{20,000 - inv1} \end{cases}$$

Table 6. Frequencies for changes in the propensity to invest ($\Delta PTII$)

∆PTI1_raw	Freq.	Percent	Cum.	$\Delta PTI1$	Freq.	Percent	Cum.
0	289	59.47	59.47	0	289	59.47	59.47
1	47	9.67	69.14	1	197	40.53	100.00
2	150	30.86	100.00	Total	486	100.00	
Total	486	100.00					

Notes: $\Delta PTII_raw$ is the original change in propensity to invest, where 0, 1, and 2 represented 'decrease', 'no change', and 'increase' in the propensity to invest respectively. And $\Delta PTI1$, is a binary variable, for which 0 means a decrease in the propensity to invest, and 1 is not a lesser propensity to invest.

Source: own compilation

Next, we determined the initial impact of elicited CCR on $\Delta PTI1$, controlling for the money initially invested (inv1), gender, and self-reported risk attitude (risk). As only 29 out of the 486 participants had previous experience in investing in the stock exchange, we excluded this variable from the further analyses.

Examining variance inflation factors (VIFs) for the analysed variables we found them quite low, showing weak multicollinearities in the set of analysed variables. There were only two VIFs higher than 5 (for *risk* levels 6 and 7), the max. VIF is 6.14, and mean VIF is 2.92.

Backward stepwise elimination using the Akaike Information Criterion (AIC) revealed that the $\Delta PTI1$ model with the lowest error according to AIC is based on three predictors only: *CCR*, *inv*1, and *gender*. The Wald χ^2 statistics (Table 7) revealed that changes in the propensity to invest are driven mainly by *inv*1_ths ($\chi^2 = 48.67$), and *CCR* ($\chi^2 = 22.55$).

Table 7. Importance of predictors in the reduced logistic regression model of $\Delta PTI1$ based on the Wald χ^2 statistics

Predictor	Chi-Square	d.f.	p-value
CCR	22.99	4	0.000
inv1	48.67	1	0.000
gender	3.54	1	0.060
TOTAL	60.33	6	0.000

Source: own compilation

As values of inv1 were quite high (from 0 to 10,000), in the logistic regression model (MODEL 1, Table 8), we used a modified version of this variable which is the initial investment

value in thousands ($inv1_ths$). As our analysis focuses on CCR, and there were more observations for higher values of CCR, we decided to use the highest reputation group as the reference group (CCR = 5). For this reason, we obtained negative values of coefficients for CCR (Table 8). For CCR levels from 1 to 3, Coef. < -1, and $p \le 0.001$; only for CCR at the level of 4, Coef. = -0.681, p = 0.051. Thus, investors who rated CCR higher were more prone to increase their PTI. Male participants were also more prone to increase their PTI than female. Investors who initially invested more money in stock ($inv1_ths$) were less willing to invest a higher share of their money later (even though they received additional money in the experiment).

Table 8. Estimated logistic regression model of changes in the propensity to invest ($\Delta PTI1$)

	ogistic regression model of changes	in the propensity to	IIIVest (ΔΡ111)
$\Delta PTI1$	MODEL 1		
	Number of obs = 486		
	LR chi2(5) = 74.92		
	Prob > chi2 = 0.0000		
	Pseudo $R2 = 0.1142$		
	Coef.	SE	p-value
CCR			
1	-1.282	0.379	0.001
2	-1.407	0.319	0.000
3	-1.217	0.334	0.000
4	-0.681	0.349	0.051
inv1_ths	-0.261	0.374	0.000
gender	0.396	0.211	0.006
cons	1.376	0.320	0.000

Note: Reference levels: CCR = 5, gender = female.

Source: own compilation

3.3. Stock price shock, corporate reputation and propensity to invest

This part of the study aims to check whether an introduction of an unexpected opposite shock in stock prices changes the propensity to invest ($\Delta PTI2$) defined as

$$\Delta PTI2 = \begin{cases} 0, if & \frac{inv1}{10,000} > \frac{inv3}{30,000 - inv1 - inv2} \\ 1, if & \frac{inv1}{10,000} \le \frac{inv3}{30,000 - inv1 - inv2} \end{cases}$$

and if in such a case CCR still remains important.

We checked the VIFs for a simple model of $\Delta PTI2$ depending on CCR and P (price shock, i.e., unexpected opposite change in price, where stock prices went either up or down depending on the treatments presented in Table 2). All VIFs were not greater than 2. However, we found this model not significant (p=0.186). The Wald χ^2 statistics for the reduced model revealed that changes in the propensity to invest after the price shock ($\Delta PTI2$) were slightly driven mainly by the price shock (for P, $\chi^2=4.29$, p-value=0.038). When regressing $\Delta PTI2$ only on P (logit), the model was significant (Prob>chi2=0.0374) with Pseudo~R2=0.008.

For a more in-depth analysis we split observations into two cases: (A) in which, after elicitation of a positive *CCR*, investors experienced a discrete drop in stock price, and (B) in which, after elicitation of a negative *CCR*, investors experienced a discrete increase in stock price. First, analysis of the contingency table (Table 9) revealed that when the perception of *CRR* and changes in stock prices were inconsistent, 73% of investors decreased their propensity

to invest (negative $\Delta PTI2$). In case A (of positive CCR and negative P), more investors decided to invest the same or greater share of the money possessed compared to case B (31% vs 23%). Investors could perceive this decrease in price as a temporary difficulty and wanted to take advantage of investing in cheaper shares of reputable companies. In case B, increases in stock prices of firms with lower CCRs discouraged more participants from investing.

Table 9. Contingency table for $\Delta PTI2$ and shock in price scenario

	ΔΡΤΙ2			
	negative	non-negative	Total	
(case A) positive CCR, negative P	169	77	246	
(case B) negative CCR, positive P	185	55	240	
Total	354	132	486	

Source: own compilation

Then, we analysed the two cases (A and B) separately, and we constructed two separate logistic regression models of $\Delta PTI2$ (Tables 11 and 13). Knowing that various mechanisms may influence the relationship between the price shock and changes in the propensity to invest, we controlled for selected behavioural characteristics. First, we decided to control for cognitive and emotional information processing systems. So, we applied the REI-10 psychological scale, including both the need for cognition (NFC_raw) and faith in intuition (FI_raw) indicators that can both take values from 5 to 25. For our sample, Cronbach's Alfa and standardized Cronbach's Alpha for NFC_raw were 0.704 and 0.703 respectively. For FI_raw they were 0.866 and 0.867. The NFC_raw data revealed a skewed distribution of -0.25 and FI_raw of -0.76. Considering the skewness in both variables' distribution (NFC_raw and FI_raw), several low-frequency classes and the range of possible outcomes for this ordinal variable, we decided to reduce the number of bins. As a result, we transformed NFC_raw into NFC and FI_raw into FI, each of them having 10 bins. This decision was a consensus resulting from the trade-off between the sufficient frequency at each bin and the high enough number of bins.

Finally, the following predictors were taken into consideration while creating models of $\Delta PTI2$ in cases A and B: CCR, inv1, gender, NFC, FI, and risk.

In case A, the analysis of VIFs revealed weak multicollinearities in the set of analysed variables. Only one VIF was higher than 5 (for risk = 7), and the mean VIF was 2.45. We found that the $\Delta PTI2$ model with the lowest error according to AIC is based on four predictors: inv1, gender, NFC, and risk. The Wald χ^2 statistics (Table 10) revealed that changes in the propensity to invest after the price shock are driven mainly by NFC ($\chi^2 = 19.55$) and risk ($\chi^2 = 18.55$), subsequently by inv1 ($\chi^2 = 14.31$), and gender ($\chi^2 = 4.46$). It is worth noting that following the sudden price shock, CCR lost its significance for $\Delta PTI2$ creation.

Table 10. Importance of predictors in the reduced logistic regression model based on the Wald γ^2 statistics (case A)

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Predictor	Chi-Square	d.f.	p-value
inv1	14.31	1	0.000
gender	4.46	1	0.035
NFC	19.55	9	0.021
risk	18.24	10	0.051
TOTAL	42.79	21	0.003

The model of changes in the propensity to invest after the price shock ($\Delta PTI2$) in case A, i.e. for positive CCR and negative P (MODEL A, Table 11) showed that for investors, whose initial investment ($inv1_ths$) was greater, there were greater odds for the same or increased propensity to invest. For male participants, we found $2.07 \ (\approx e^{0.729})$ times more odds for not decreasing their propensity to invest. Participants with the highest NFC had about 14.08 ($\approx e^{2.645}$) times more odds for not decreasing PTI. Risk level 5 was significantly different from the reference level (risk=0). Further analysis of data revealed that participants who described themselves as risk-neutral were more prone to decrease their propensity to invest after the price shock than risk-averse participants but also risk-lovers.

Table 11. Estimated logistic regression model of changes in the propensity to invest for induction of positive CCR and negative P (case A)

$\Delta PTI2$	MODEL A				
	Number of obs = 246				
	LR chi2(21) = 64.80				
	Prob > chi2 = 0.0000				
	Pseudo $R2 = 0.2119$				
	Coef.	SE	p-value		
inv1_ths	0.250	0.066	0.000		
gender	0.729	0.345	0.035		
NFC					
2	-0.243	0.840	0.772		
3	0.667	0.814	0.412		
4	0.616	0.755	0.415		
5	0.456	0.777	0.557		
6	1.698	0.814	0.037		
7	0.229	0.803	0.776		
8	0.903	0.811	0.266		
9	0.632	0.743	0.395		
10	2.645	0.815	0.001		
risk					
1	-0.832	1.178	0.480		
2	-0.563	0.937	0.548		
3	-1.878	1.006	0.062		
4	-0.847	0.886	0.339		
5	-2.437	1.113	0.029		
6	-0.971	0.859	0.258		
7	-1.731	0.865	0.045		
8	-0.197	0.877	0.822		
9	0.385	1.000	0.700		
10	-0.536	1.026	0.601		
cons	-0.120	0.938	0.899		

Note: Reference levels were CCR = 5, gender = female, NFC = 1, risk = 0.

Source: own compilation

In case B, i.e., the model of $\Delta PTI2$ after the induction of negative CCR and positive price shock, we found mainly weak multicollinearities in the set of analysed variables. Only four VIFs were higher than 5 (for risk levels 5-8), and the mean VIF is 2.77. However, the backward stepwise elimination using the AIC, showed that the lowest error occurs when there is only one predictor: inv1 (Wald $\chi^2 = 8.95$, p = 0.003; Table 12). It is worth noting that in case B, CCR was also insignificant (Tables 12 and 13).

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Table 12. Importance of predictors in the reduced logistic regression model based on the Wald χ^2 statistics (case B)

Predictor	Chi-Square	d.f.	p-value
inv1	8.95	1	0.003
TOTAL	8.95	1	0.003

Source: own compilation

Table 13. Estimated logistic regression model of changes in the propensity to invest for induction of positive CCR and negative P (case B)

ΔΡΤΙ2	MODEL B		
	Number of obs = 240		
	LR $chi2(1) = 9.97$ Prob > $chi2 = 0.0016$		
	Coef.	SE	p
	inv1_ths	0.165	0.055
cons	-0.598	0.240	0.013

Note: Reference levels were CCR = 5, gender = female, NFC = 1, risk = 0.

Source: own compilation

Conclusion

This study enriches the behavioural finance literature by illustrating the complex interplay between corporate reputation and investor behaviour, particularly under market stress conditions like price shocks. Complementing previous studies, we focused specifically on the significance of the perception of collective corporate reputation during price shock as a discrete unexpected change in stock prices. We designed an incentivised vignette study to induce the perception of collective corporate reputation which is corporate reputation based on observations of others' behaviours, i.e., market analysts, institutional investors, and individual investors.

Results of the study confirmed the results of previous studies claiming that the behaviours of the stakeholders in the market influence the perception of collective corporate reputation which consequently affects investors' behaviour expressed in the propensity to invest (Blajer-Gołębiewska, 2021).

Additionally, we found that male investors tend to evaluate collective corporate reputation higher than female investors. We also confirmed the existence of the confirmation bias as investors, who invested more money in the firm's stock, tended to evaluate collective corporate reputation higher than those who invested less (Cafferata & Tramontana, 2019; Nickerson, 1998; Pouget et al., 2017). It is also worth noting that investors who rated collective corporate reputation higher, were more likely to invest more money in shares of this company in the next phases of the study. These findings confirm previous studies indicating the mutual influence between corporate reputation and its performance and market value, with the latter being the result of investments in a stock (Blajer-Gołębiewska & Kozłowski, 2016; Roberts & Dowling, 2002).

After the introduction of a price shock, participants faced a discrepancy between their perception of a collective corporate reputation and changes in stock prices. As a result, collective corporate reputation became insignificant in creating investors' propensity to invest.

In our study, facing the price shock, 73% of investors decreased their propensity to invest. However, investors' reactions may differ depending on the direction of changes in stock

prices. A decrease in stock prices can attract long-term investors who can wait for returns in the future (especially when corporate reputation is relatively high). And increasing stock prices may attract short-term investors, who will try to sell the stock before prices reach their peak. To conduct a more in-depth analysis, we split observations into case A—in which, after elicitation of a positive perception of corporate reputation, investors experienced a sudden drop in stock price—and case B—in which, after elicitation of a negative perception of corporate reputation, investors experienced a sudden increase in stock price.

We found that 31% of investors who perceived a positive corporate reputation and decreases in prices (case A), decided to invest the same share of money as before or even more. So, for these investors, corporate reputation was still important, and they saw a decrease in stock prices as an opportunity to invest in the low-cost stocks of reputable companies. This observation is in line with previous studies confirming companies with good reputations are better able to withstand the negative effects of the financial crisis (Raithel et al., 2010). However, when companies with worse reputations experience an increase in stock prices (case B), only 23% of investors decided not to decrease their propensity to invest. It is important to mention that even after splitting observations, the perception of collective corporate reputation remained insignificant in each case.

Furthermore, in models explaining investors' behaviour in case A and case B, we controlled for behavioural factors such as risk attitude and the impact of cognitive and emotional factors, analysing the impact need for cognition and faith in intuition on changes in propensity to invest.

In case A, changes in propensity to invest were driven by the initial investment, gender, risk and need for cognition. In this case (the company's good reputation and drop in stock prices), investors who initially invested more and male participants had greater odds for the same or higher propensity to invest after the shock price. Referring to the value of the initial investment, it can also indicate the above-mentioned confirmation bias. The behaviour of participants with the highest need for cognition was considerably different from those with the lowest. They had about much higher odds for not decreasing their propensity to invest. Investors, who identified themselves as risk-neutral, were more prone to decrease their propensity to invest after the price shock than risk-averse participants and risk-takers. Perception of collective corporate reputation and faith in intuition were insignificant in this case. In case B, changes in propensity to invest were driven only by the initial investment.

The results of this study have practical implications for stock-listed companies and investors. Stock-listed companies should be aware that their reputation impact on investor behaviour is extremely fragile, especially during stock price volatility. Thus, effective communication strategies should be developed to maintain investor trust and confidence during price shocks. Investors should be aware of possible shifts in their own and others' perceptions under volatile stock market conditions. The findings indicate that investors react variably to price shocks based on their perception of corporate reputation. Understanding one's propensity to invest in the context of these shocks can help in making more informed strategic investment decisions, especially in distinguishing between short-term and long-term investment opportunities.

The main limitation of this study is that the participants were students. As response rates in studies involving real investors are often quite low (Nawrocki & Szwajca, 2022), it is also a common approach to engage students, especially in vignette studies (Baumgartner et al., 2022; Blajer-Gołębiewska, 2021; Kunz, 2020) requiring more time and participants engagement. Although we made every effort to invite students of economics and finance with experience in dealing rooms with a special focus on part-time students (as they have also work experience and they earn money), it would be beneficial to conduct further studies with a group of actual

investors. Furthermore, it would be beneficial to include the role of experience as a predictor as according to previous studies, it may also affect investor behaviour (Kaustia & Knüpfer, 2008; Nicolosi et al., 2009). Future studies could explore the role of behavioural factors as mediators between corporate reputation and investor behaviour. Finally, it is worth examining the period after the price shock to gain more understanding of the insignificance of collective corporate reputation, including its duration and long-term consequences. Although this study provides new insights into how corporate reputation affects investors' behaviours, it opens up opportunities for numerous further studies.

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