

# You ought to know: Why consumers think companies can foresee bad (but not good) side effects

Brandon J. Reich<sup>1</sup>  | Sean M. Laurent<sup>2</sup>

<sup>1</sup>Department of Marketing Area, School of Business, Portland State University, Oregon, Portland, USA

<sup>2</sup>Department of Psychology, College of Liberal Arts, Penn State University, Pennsylvania, State College, USA

## Correspondence

Brandon J. Reich, Department of Marketing Area, School of Business, Portland State University, 615 SW Harrison Street, Portland, OR 97201, USA.

Email: [breich@pdx.edu](mailto:breich@pdx.edu)

## Abstract

Routine business activities often lead to unintended side effects. Prior research suggests that consumers ascribe greater corporate foreknowledge when side effects are harmful (vs. helpful) but offers a controversial explanation and insufficient exploration of its consequences. The current research fills these gaps, offering a heuristic-based explanation steeped in consumer behavior, while demonstrating the importance of this asymmetry to consumer response. First, a Pilot Study confirms the theoretical processes underlying our explanation. Study 1 tests the role of this foreknowledge asymmetry in predicting implicit bias toward the company. Studies 2 and 3 provide moderation evidence for our heuristic-based explanation and connect the phenomenon to motive inferences and blame judgments, respectively. In sum, this work provides a novel explanation for a common marketplace phenomenon while establishing its effects on several important consumer response variables.

## KEYWORDS

asymmetry, availability heuristic, corporate crises, foreknowledge, mental states, side-effect effect

Side effects occur when an action leads to a consequence that was neither sought out nor serves as a means to an end that was being sought out at the time of acting (Cushman & Mele, 2008). In business, side effects of routine activities (e.g., developing and distributing new products, expanding into new markets, etc.) are common and often harmful (Bauman, 2011; Wible, 2009). Indeed, philosophical research examining people's reasoning about side effect outcomes (Knobe, 2003, 2004, 2010) often adopts a business context, deploying a vignette in which a chairman initiates a new corporate program knowing it will impact the environment but stating that they don't care about the environment, only profit. The environmental impact, good or bad, therefore operates as a quintessential (albeit hypothetical) side effect of a routine business decision.

In reality, however, companies rarely know in advance what the future side effects of their decisions will be. For example, a Repsol refinery spilled massive amounts of oil off of the Peruvian coast following an undersea volcanic eruption in 2022. The spill and

resulting damage, as an unintended and unexpected consequence, therefore represents a harmful side effect of Repsol's decision to establish an oil refinery in that location years earlier (Collins, 2022). Less extreme examples of harmful side effects, from a shipping container accident spilling Legos into the ocean (Schulz, 2022) to the environmental harm caused by tobacco farming (World Health Organization, 2017), are commonplace in the business landscape.

Side effects of business activities can also be helpful, although such instances are rarely documented. One instance occurred in the early 2000s when Walmart began buying land in the Brazilian Amazon Rainforest from independent subsistence farmers. Walmart's goal of vertically integrating its agricultural supply chain was clearly business-related. However, because environmental organizations could more easily regulate large corporations relative to independent farmers, Walmart's action ultimately reduced deforestation, benefiting the Rainforest (Diep, 2017) and, therefore, exemplifying a helpful side effect.

Brandon J. Reich and Sean M. Laurent contributed equally to this manuscript.

When consumers encounter side-effect outcomes, they cannot be certain whether companies foresaw them when they initially acted. These information gaps will, therefore, be filled by retrospective inferences about companies' agentic mental states (Rai & Diermeier, 2019; Robinson et al., 2013), like intentionality and foreknowledge. Although nothing in the examples above suggests these companies foresaw the side effects of their actions, a synthesis of research in marketing (Ahluwalia, 2002), social cognition (Cova & Naar, 2012), and philosophy (Knobe, 2003, 2010) suggests that consumers may infer exaggerated company foreknowledge following harmful side effects, but little or no foreknowledge of helpful side effects. This may be problematic for companies because consumers' moral judgments rely on foreknowledge inferences following harmful events (Paharia et al., 2009), and may explain why consumers much more readily react to corporate crises with anger than sympathy (Rai & Diermeier, 2019). Indeed, the presence of foreknowledge may transform a consumer's judgment of a company from victim to reckless actor following a harmful side effect (Laurent et al., 2019), even when the company is also harmed. Consequently, consumer punishment may be exaggerated even when harms were legitimately unforeseen.

This robust asymmetry, called the "side-effect effect" in the philosophy literature (Knobe, 2003), occurs when mental state inferences are influenced by the valence of side-effect outcomes. The *epistemic* side-effect effect (Beebe & Buckwalter, 2010) suggests that when agents' actions result in unintended and plausibly unforeseen side effects, people ascribe greater foreknowledge to harmful (vs. helpful) outcomes. However, despite the relevance of side-effect effects to numerous applied fields, the literature offers little insight into downstream consequences (Robinson et al., 2013). Moreover, the predominant theoretical explanation (the "moral influence hypothesis;" Knobe, 2010) has produced a heated debate among researchers. Briefly, most extant literature (e.g., Beebe & Buckwalter, 2010; Knobe, 2003, 2010) argues that the moral valence of outcomes directly alters inferences regarding mental states (e.g., intentionality, foreknowledge). We offer a competing heuristic-based explanation for the foreknowledge effect.

The current research offers two core contributions. First, we theorize that epistemic side-effect effects result from an availability heuristic (Tversky & Kahneman, 1973). Because consumers (1) are exposed to more negative (vs. positive) media coverage of companies (Ahluwalia et al., 2000), (2) think negative (vs. positive) information about companies is more important (Ahluwalia, 2002), and (3) believe that profit-seeking is socially harmful (Bhattacharjee et al., 2017), a belief that companies foresee the harms (vs. benefits) their actions cause is cognitively available, according with an expectation that harmful (vs. beneficial) side effects of business activities are more frequent and probable. A Pilot Study directly tests and supports this logic.

Second, we demonstrate how epistemic side-effect effects are important for understanding consumer responses to routine business activities resulting in unintended harm or benefit. Study 1 finds that foreknowledge asymmetries predict implicit bias. Studies 2 and 3

then, respectively, connect foreknowledge ascriptions to motive inferences and blame judgments, also showing that the process can be disrupted by providing explicit, foreknowledge-relevant information that interrupts heuristic-based processing.

The remainder of this manuscript proceeds as follows. First, we synthesize literatures across social cognition, experimental philosophy, and consumer psychology, leading to predictions about causes and related marketplace consequences of epistemic side-effect effects. Next, we present a Pilot Study and three experiments that support our predictions across contexts, samples, and operationalizations of consumer response. Last, we discuss theoretical and pragmatic contributions and avenues for future research.

## 1 | THEORETICAL DEVELOPMENT

### 1.1 | Causes of epistemic side-effect effects

The original and prevailing explanation for side-effect effects (the "moral influence hypothesis") is that the valence of outcomes directly influences reasoning about mental states like intentionality and foreknowledge (Beebe & Buckwalter, 2010; Cova & Naar, 2012; Knobe, 2003, 2010). Specifically, when consequences are morally bad (vs. good), people's thresholds for ascribing these mental states are fundamentally altered. Some research has challenged this explanation (Laurent et al., 2015a, 2019, 2021), arguing instead that the intentionality asymmetry arises from different interpretations of the word "intentional" in harm versus help contexts. To our knowledge, however, no alternative explanations for *foreknowledge* asymmetries (i.e., epistemic side-effect effects) exist. Table 1 summarizes this literature.

The current research challenges whether the moral influence hypothesis is the best explanation by proposing a competing mechanism that is parsimonious, theoretically plausible, and empirically robust, linking it closely to consumer psychology research. We argue that the effect primarily arises due to an availability heuristic (Tversky & Kahneman, 1973), as outlined below and summarized in Figure 1.

#### 1.1.1 | Consumer phenomena

The first stage of our conceptual model includes a set of well-documented consumer-psychological phenomena. First, consumers are disproportionately exposed to negative media coverage of companies (Ahluwalia et al., 2000) because negative (vs. positive) stories are more often selected by journalists (Dennis & Merrill, 1996). Additionally, consumers weight negative (vs. positive) information more heavily when evaluating companies (Ahluwalia, 2002). Finally, consumers expect profit-seeking behavior to generate social harm (Bhattacharjee et al., 2017) because it creates more negative (vs. positive) externalities (Boyer & Petersen, 2018).

**TABLE 1** Summary of side-effect effect literature with respect to the moral influence hypothesis

Conclusion on moral influence hypothesis	References	Field of inquiry	Empirical/conceptual support	Mental state(s) of focus (i.e., core outcome[s])
Supports <sup>a</sup>	Beebe & Buckwalter (2010)	Experimental philosophy	Empirical	Foreknowledge
	Beebe & Jensen (2012)	Experimental philosophy	Empirical	Foreknowledge
	Cova & Naar (2012)	Experimental philosophy	Empirical	Intentionality
	Kneer & Bourgeois-Gironde (2017)	Cognitive psychology	Empirical	Intentionality
	Knobe (2003)	Experimental philosophy	Empirical	Intentionality
	Knobe (2004)	Experimental philosophy	Empirical	Intentionality
	Knobe (2010)	Social psychology	Conceptual	Intentionality
	Leslie et al. (2006)	Social psychology	Empirical	Intentionality
	Nichols & Ulatowski (2007)	Experimental philosophy	Empirical	Intentionality
	Pettit & Knobe (2009)	Experimental philosophy	Empirical	Intentionality, desire
Wible (2009)	Business ethics	Conceptual	Intentionality	
Refutes <sup>b</sup>	Guglielmo & Malle (2010)	Social psychology	Empirical	Intentionality
	Laurent et al. (2015a)	Social psychology	Empirical	Intentionality
	Laurent et al. (2019)	Social psychology	Empirical	Intentionality
	Laurent et al. (2021)	Social psychology	Empirical	Intentionality
	Uttich & Lombrozo (2010)	Cognitive psychology	Empirical	Intentionality

<sup>a</sup>Work that supports the moral influence hypothesis has generally simply demonstrated the effect in different samples, using different contexts, or through asking additional questions.

<sup>b</sup>Work that has refuted it has found the same basic effects, but explained them through processes other than morality influencing perception of core concepts (e.g., by showing that people interpret questions differently across conditions or focus on different aspects of the presented information).

### 1.1.2 | Consumer beliefs

We hypothesize that these forces create a belief that, following company actions, harmful (vs. helpful) side effects are more probable and therefore more foreseeable ( $H_{1a}$ ). This is the basis for an availability heuristic wherein exemplars of harmful (vs. helpful) side effects are more cognitively available to consumers. To preliminarily test this assertion, we conducted a simple survey (see Supporting Information for full details) showing that consumers believe the ease, frequency, likelihood, and number of ways for companies to harm (vs. help) the environment are significantly greater. We therefore hypothesize that these beliefs collectively reflect cognitive availability and predict the epistemic side-effect effect ( $H_{1b}$ ). Formally:

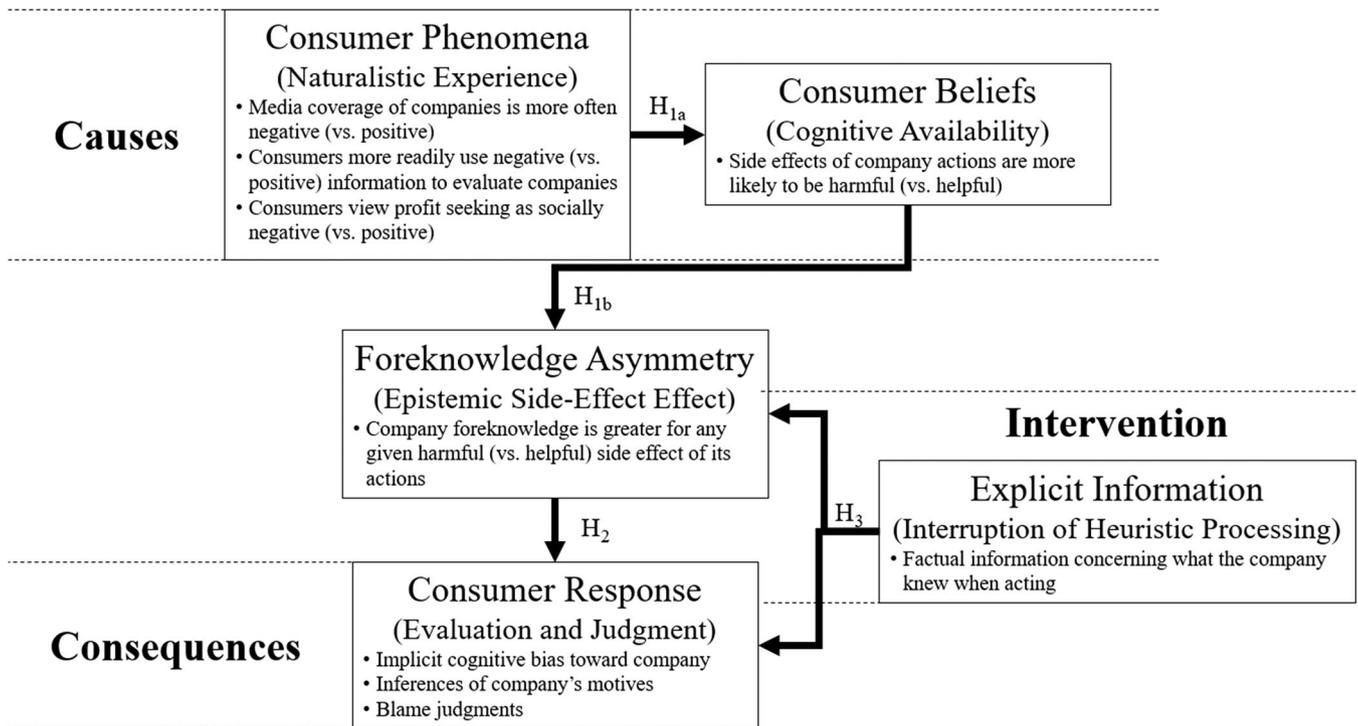
**H1a:** Consumers' (1) greater exposure to negative (vs. positive) media coverage about companies, (2) heavier weight placed on negative (vs. positive) information in evaluating companies, and (3) belief that profit-seeking is generally harmful will jointly predict beliefs that side effects of company actions are likelier to be harmful (vs. helpful).

**H1b:** Consumers' belief that side effects of company actions are likelier to be harmful (vs. helpful) will predict greater foreknowledge ascriptions for harmful (vs. helpful) side effects.

Note that unlike our account, the prevailing moral influence hypothesis makes no connection between beliefs about what is more common or probable and epistemic side-effect effects. Yet, as we theorize and subsequently show, our proposed process predicts these beliefs and uses them to explain foreknowledge asymmetries, accounting for a wider range of outcomes. Moreover, the moral influence hypothesis runs counter to commonly accepted (and empirically supported) models outlining causal ordering, wherein mental state inferences predict moral judgments rather than the reverse (Malle et al., 2014). In contrast, our account requires no such challenge, but instead provides evidence consistent with well-established theory regarding the availability heuristic, making our explanation theoretically plausible and parsimonious.

### 1.2 | Consequences of the epistemic side-effect effect

Mental state ascriptions are pragmatically important because fore-known harms (Laurent et al., 2015b) and benefits (Wible, 2009) are respectively more severely punished or rewarded. Yet, relatively little research has attempted to delineate the consequences of side-effect effects (Robinson et al., 2013). We, therefore, seek to test the role of



**FIGURE 1** Conceptual model of the causes and consequences of the epistemic side-effect effect

foreknowledge asymmetries in predicting a range of theoretically relevant consumer response variables (see Figure 1).

First, we anticipate that foreknowledge ascriptions will predict a commensurate implicit bias toward the company (Kahneman, 2003; Study 1). That is, when corporate actions lead to harmful (helpful) side effects, foreknowledge ascriptions will predict implicit beliefs that companies are more likely to exhibit negative (positive) traits than logical probability allows (i.e., the conjunction fallacy; Tversky & Kahneman, 1983). Thus, consumer beliefs that a company foresaw an outcome will implicitly influence their evaluation of that company.

Similarly, we hypothesize that foreknowledge ascriptions drive consumers' inferences of corporate motives. Because true company motives are often ambiguous, especially in situations involving environmental impact (Armstrong Soule & Reich, 2015), consumers form inferences using external cues (Reich & Armstrong Soule, 2016). Extending this logic, we hypothesize in Study 2 that foreknowledge ascriptions will decrease (increase) inferences that a company genuinely cares about harmful (helpful) side-effect outcomes.

Blame, examined in Study 3, is a critical judgment leading to consumer punishment of companies (Reich et al., 2020). Foreknowledge serves as an input into blame because agents are blamed more severely when they knowingly (vs. unknowingly) cause harm (Laurent et al., 2015b). In side-effect harm cases, we anticipate that foreknowledge ascriptions will be positively associated with consumers' blame judgments. In sum:

**H2:** Greater foreknowledge ascriptions for harmful (vs. helpful) side effects will predict negative consumer responses to the company,

including (1) negative implicit bias, (2) inferences of ingenuine motives, and (3) blame.

### 1.3 | Interventions for the epistemic side-effect effect

Understanding the causes and consequences of epistemic side-effect effects may also provide insight into attenuating them and their downstream effects. Ambiguous contexts, as when consumers infer companies' mental states, trigger heuristic-based processing (Kahneman, 2003). Thus, cognitive biases (e.g., the availability heuristic) are likelier to influence judgments about side-effect outcomes. If epistemic side-effect effects can be explained by an availability heuristic, they may be attenuated by interrupting heuristic processing, such as by presenting facts that disambiguate the judgment situation (Chaiken & Maheswaran, 1994; see Figure 1). We, therefore, hypothesize the following:

**H3:** Foreknowledge ascription and its consequences in harmful side-effect cases will be attenuated through credible evidence (e.g., an impact study) that a company investigated but failed to foresee harmful side-effect outcomes when acting.

Notably, this counters the moral influence hypothesis, which implies that negative side effects should enhance foreknowledge ascriptions regardless of evidence, because moral judgments (rather than cognitive availability) dictate mental state ascriptions (Knobe,

**TABLE 2** Sample characteristics

Study	N before attention check exclusions	N after attention check exclusions	M (SD) Age	Gender distribution
Pilot	302	290	34.34 (12.39)	58.3% female; 40.0% male; 0.7% other; 1.4% undisclosed
1	302	294	31.30 (11.49)	47.3% female; 50.7% male; 0.7% other; 1.4% undisclosed
2	504	364	37.41 (11.85)	56.0% female; 42.9% male; 0.8% other; 0.3% undisclosed
3	403	279	37.16 (11.42)	52.7% female; 46.6% male; 0.4% other; 0.4% undisclosed

2010). However, as we show in Studies 2 and 3, fact-based information does attenuate foreknowledge ascription following harmful side effects.

## 2 | METHODOLOGICAL OVERVIEW

All studies involved random assignment to conditions. Participants (see Table 2 for sample characteristics) were recruited from Prolific (Pilot Study and Study 1) or MTurk (Studies 2 and 3). Participants read either a vignette-style scenario (Pilot Study and Study 1) or news article (Studies 2 and 3) about a fictitious company, ZEVO. To enhance realism, participants were told that ZEVO was a pseudonym for a real company. Following stimuli, measures were presented in randomized order followed by one or more attention checks (see Supporting Information for stimuli and attention check details). Only participants who correctly answered all attention checks were retained for analysis.

The Pilot Study directly tested the phenomena and beliefs underlying our heuristic-based theorizing ( $H_{1a}$ ) and connected them to an epistemic side-effect effect ( $H_{1b}$ ). The remaining studies then tested  $H_2$ , the role of foreknowledge ascriptions in predicting implicit bias toward the company (Study 1), inferences regarding company motives (Study 2), and blame (Study 3). Studies 2 and 3 also manipulated the quality of the companies' preaction information to test this factor's ability to attenuate foreknowledge ascriptions in side-effect harm cases ( $H_3$ ), thereby providing additional process evidence for our heuristic-based explanation.

## 3 | PILOT STUDY

The Pilot Study examined the underlying psychological process through which an availability heuristic creates epistemic side-effect effects. We developed a survey to measure three fundamental consumer phenomena and the resultant beliefs that we hypothesize help produce epistemic side-effect effects. After measures were presented, the survey assessed the magnitude of an epistemic side-effect effect via randomly assigning participants to a harm or help version of a

side-effect vignette. The harm (help) vignette explained that a company, ZEVO, recently developed a new product to increase profitability, resulting in harmful (beneficial) environmental impact (see Supporting Information). Participants then rated the degree to which ZEVO foresaw this outcome when they developed the product. Last, participants completed an attention check item and demographics.

### 3.1 | Predictions and measures

$H_{1a}$  predicts that consumers (1) are more often exposed to negative (vs. positive) media coverage of companies, (2) weight more heavily negative (vs. positive) information about companies, and (3) view profit-seeking as socially harmful. In turn, these collectively produce a belief that (4) side effects of company actions are likelier to be harmful than beneficial. Consistent with an availability heuristic,  $H_{1b}$  predicts that this belief leads consumers to infer greater corporate foreknowledge following harmful (vs. helpful) side effects. The measures used to capture these constructs are below. The first four included a neutrally labeled midpoint to facilitate hypothesis testing.

#### 3.1.1 | Media coverage

"When you see most major companies being discussed on the news or other media, how often is it due to the company having caused some negative or positive outcome?" (1 = *almost always something negative*, 5 = *equally likely to be something negative or positive*, 9 = *almost always something positive*).

#### 3.1.2 | Information importance

"When forming an opinion about a typical major company, what type of information is more important to you: negative or positive information about the company?" (1 = *negative information is much more important*, 5 = *negative and positive information are equally important*, 9 = *positive information is much more important*).

### 3.1.3 | Profit seeking

"Do the profit-seeking activities of most major companies have a more negative or positive impact on society?" (1 = *much more negative impact*, 5 = *neutral impact*, 9 = *much more positive impact*).

### 3.1.4 | Side-effect impact

"When most major companies engage in routine business activities, those actions often create unintended side effects. Are those side effects more likely to be negative or positive?" (1 = *much more likely to be negative*, 5 = *equally likely to be negative or positive*, 9 = *much more likely to be positive*).

### 3.1.5 | Foreknowledge

Foreknowledge was measured using two items ( $r = 0.80$ ) placed on a scale from 1 (*completely disagree*) to 9 (*completely agree*) and matched to outcome valence condition: "When ZEVO first developed its new product, they knew that it would ultimately have a harmful (beneficial) impact on the environment" and "When ZEVO first developed its new product, they had no idea that it would ultimately have a harmful (beneficial) impact on the environment" (reverse-coded). This measure was adapted and used in subsequent studies.

## 3.2 | Results/discussion

### 3.2.1 | Fundamental consumer phenomena and beliefs

Mean scores of the first four measures were tested against the neutral mid-point using one-sample  $t$  tests. Consistent with our predictions, each mean (see Figure 2) was significantly below the mid-point ( $t(289) > 4.19$ ,  $ps < 0.001$ ,  $ds > 0.24$ ), supporting the predicted

negative skew in consumer-related phenomena and beliefs about side effects of company actions.

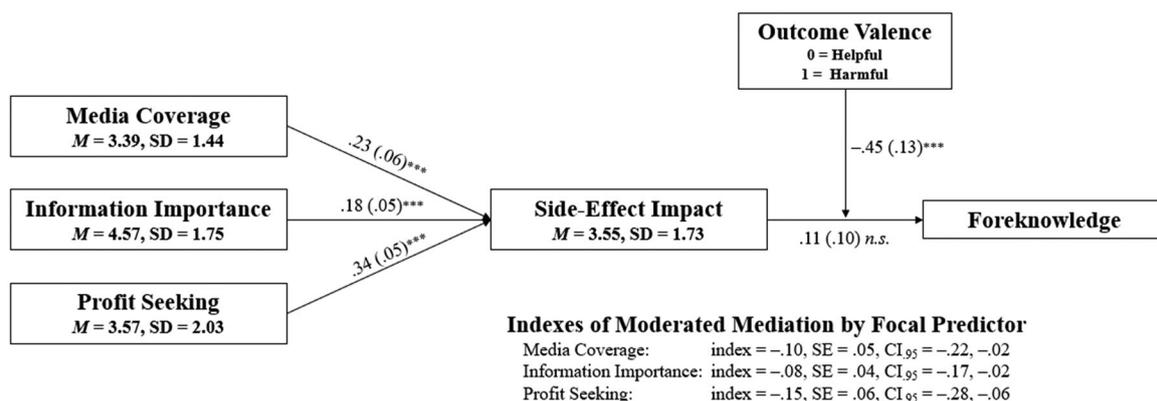
### 3.2.2 | Epistemic side-effect effect

An independent-samples  $t$  test supported an epistemic side-effect effect: foreknowledge ascriptions were significantly greater in the harm ( $M = 6.20$ ,  $SD = 1.95$ ) versus help condition ( $M = 3.79$ ,  $SD = 2.04$ ),  $t(288) = 10.30$ ,  $d = 1.21$ .

### 3.2.3 | Psychological process

The full psychological process was tested using PROCESS (Hayes, 2013). We examined moderated mediation (model 14) using media coverage, information importance, and profit seeking as simultaneous predictors, side-effect impact as the mediator, foreknowledge as the dependent variable, and outcome valence as a moderator of the side-effect impact and foreknowledge link (see Figure 2). To accommodate multiple predictors, the model was run three times; each analysis specified one predictor as focal and the others as covariates. As theorized, each analysis found significant moderated mediation (confidence intervals [CIs]<sub>0.95</sub> did not include 0; see Figure 2). Moreover, coefficients suggest that prevalence of negative media coverage, importance of negative information, and negative associations with profit-seeking uniquely and jointly predicted stronger beliefs that side-effect impacts are likelier to be harmful ( $H_{1a}$ ), which then predicted greater foreknowledge ascriptions for a harmful (vs. helpful) side effect of a routine company action ( $H_{1b}$ ).

Regarding the latter finding, analyzing the side-effect impact  $\times$  outcome valence interaction on foreknowledge ( $b = -0.45$ ,  $SE = 0.13$ ,  $p < 0.001$ ,  $f^2 = 0.03$ ) provided more nuanced support for  $H_{1b}$ . Among participants who believed that side-effect impacts tend to be more positive ( $+1 SD = 5.29$ ), the difference between harm and help foreknowledge (i.e., the epistemic side-effect effect) was relatively small ( $b = 1.61$ ,  $SE = 0.33$ ),  $t(283) = 4.94$ ,  $p < 0.001$ . Conversely, for



**FIGURE 2** Pilot Study: Moderated Mediation Model. \*\*\* $p < 0.001$ ; n.s. = not significant; coefficients (standard errors) are unstandardized; direct effects of focal predictors on dependent variable are not significant ( $ps > 0.23$ ) and omitted for clarity

those who believed that side-effect impacts tend to be more negative ( $-1 SD = 1.82$ ), the epistemic side-effect effect was significantly larger ( $b = 3.19$ ,  $SE = 0.33$ ),  $t(283) = 9.77$ ,  $p < 0.001$ .

Overall, the Pilot Study supports our theorizing. Consistent with an availability heuristic, consumers are more often exposed to and more readily anchor upon negative company information, also believing that profit seeking is socially harmful. Together these forces create a perception that side effects of company actions are typically harmful, which directly predicts an epistemic side-effect effect.

## 4 | STUDY 1

Study 1 tested foreknowledge ascriptions as a direct antecedent to implicit bias toward ZEVO ( $H_2$ ), operationalized as frequency of committing the conjunction fallacy related to negative (positive) information about the company in harmful (helpful) outcome conditions. We expected consumers to exhibit a higher rate of conjunction errors in the harm (vs. help) condition, also expecting foreknowledge ascriptions to mediate this difference.

### 4.1 | Method

Participants read a vignette about ZEVO developing new packaging, leading to either a harmful or helpful side-effect outcome. To enhance generalizability, we manipulated the specificity of the outcome such that it impacted either a species of wildlife or the environment in general. We also manipulated which statement set served as the critical evaluation set with reference to the conjunction fallacy dependent variable. The design was, therefore, a 2 (outcome valence: harm vs. help)  $\times$  2 (outcome specificity: specific vs. general)  $\times$  2 (statement set: 1 vs. 2) full-factorial between-participants design.

The vignette explained that ZEVO recently developed a shipping container that would increase profits. During a routine shipment, however, a container fell off of a truck and spilled contents into a river. In the harm (help) condition, the contents turned out to be toxic (nutrient-rich). In the specific (general) condition, this harmed or helped a species of salmon (the environment in general). Foreknowledge was measured using two items ( $r = 0.72$ ), as before.

Implicit bias toward ZEVO was assessed using a series of eight choices (see Supporting Information for statement wording), each asking participants to select which of two options was more likely to be true of ZEVO. For each choice, one option was a single statement, and the other was a conjunction containing the same information and additional information. Because conjunctions of two statements are always less probable than either individual statement, choosing conjunctions as more likely represents a cognitive error (Tversky & Kahneman, 1983). Among the eight choices, four contrasted theoretically *irrelevant* single statements (e.g., “ZEVO was founded in 1985”) against conjunctions adding theoretically *relevant* information (e.g., respectively, in the harm [help] condition, “ZEVO does not

offer [offers] paid maternity leave to its employees and was founded in 1985”). Choosing conjunctions over single statements are “critical errors” that represent implicit biases regarding the company (negative or positive depending on outcome valence).

For comparison, we assessed participants' tendency to commit the conjunction fallacy more generally (i.e., “regular errors”) using choices where single statements contained theoretically relevant information (e.g., “ZEVO does not offer [offers] paid maternity leave to its employees”) against conjunctions that added theoretically irrelevant information (e.g., “ZEVO was founded in 1985 and does not offer [offers] paid maternity leave to its employees”). As a method factor (“statement set”), we manipulated which four statements were used to assess critical errors and which four assessed regular errors. Although statement set influenced both critical and regular error rates ( $F_{5(1, 286)} > 6.84$ ,  $p_s < 0.01$ ,  $\eta_p^2 s > 0.02$ ), it did not interact with the outcome manipulation,  $p_s > 0.10$ . Nonetheless, we controlled this factor in subsequent analyses to partial out its effects. Lastly, participants' attention to the outcome manipulation was checked, followed by demographics.

## 4.2 | Results/discussion

### 4.2.1 | Error rate check

We first checked whether theoretically-relevant (vs. irrelevant) conjunctions would produce more frequent errors, regardless of outcome valence. A paired-samples  $t$  test confirmed that critical (vs. regular) error rates were greater in both the harm ( $t(152) = 4.76$ ,  $p < 0.001$ ,  $d = 0.39$ ) and help conditions,  $t(140) = 2.22$ ,  $p = 0.03$ ,  $d = 0.19$ . See subsequent analyses for  $M$  and  $SD$  across conditions.

### 4.2.2 | Main effects

The main objectives of this study were to test the robustness of the epistemic side-effect effect along with a corresponding asymmetry in bias toward the company. A 2 (outcome valence)  $\times$  2 (outcome specificity) analysis of variance (ANOVA) on foreknowledge ( $df$  for  $F$  tests = 1, 290) supported the generalizability of the epistemic side-effect effect across outcome specificity conditions via a main effect of outcome valence in which foreknowledge was significantly greater in the harm ( $M = 4.44$ ,  $SD = 2.24$ ) versus help condition ( $M = 2.70$ ,  $SD = 2.02$ ),  $F = 56.84$ ,  $p < 0.001$ ,  $d = 0.82$ .

Similar ANOVAs (controlling statement set;  $df$  for  $F$  tests = 1, 289) on critical and regular error rates supported asymmetric bias toward the company. Participants made more critical errors in the harm ( $M = 50.5\%$ ,  $SD = 36.6\%$ ) versus help condition ( $M = 40.4\%$ ,  $SD = 36.3\%$ ,  $F = 6.68$ ,  $p = 0.01$ ,  $d = 0.28$ ), suggesting a more pronounced anti- (vs. pro-) company bias following harmful (vs. helpful) side-effect outcomes. Regular error rates did not differ across harm ( $M = 34.5\%$ ,  $SD = 28.8\%$ ) and help conditions ( $M = 31.7\%$ ,  $SD = 28.3\%$ ),  $p = 0.45$ .

These ANOVAs also revealed an unanticipated main effect of outcome specificity on foreknowledge and critical error rate ( $F_s > 6.26$ ,  $p_s < 0.02$ ,  $d_s > 0.32$ ), with both significantly greater in response to the general versus specific outcome. Speculatively, the specific outcome was more unpredictable and therefore less foreseeable than the general environmental outcome. Nonetheless, null outcome valence  $\times$  specificity interactions ( $F_s < 2.90$ ,  $p_s > 0.09$ ) suggest that the observed main effects of outcome valence are generalizable across specific and general contexts.

#### 4.2.3 | Indirect effects

Another aim was to test whether the asymmetry in cognitive error rates is driven by the asymmetry in foreknowledge ascriptions. We tested a simple mediation model (PROCESS model 4; Hayes, 2013), treating outcome valence as the predictor, foreknowledge as the mediator, critical error rate as the dependent variable, and the other manipulated factors (statement set and outcome specificity) as covariates (see Figure 3). Results further supported our theorizing via a significant indirect effect of outcome valence on critical error rate through foreknowledge,  $ab = 0.12$ ,  $SE = 0.02$ ,  $CI_{.95} = 0.07, 0.16$ . Specifically, the harmful (vs. helpful) outcome produced greater foreknowledge ascriptions ( $b = 1.79$ ,  $SE = 0.24$ ,  $p < 0.001$ ,  $f^2 = 0.18$ ), which predicted critical error rates,  $b = 0.07$ ,  $SE = 0.01$ ,  $p < 0.001$ ,  $f^2 = 0.15$ . The direct effect of outcome valence on critical error rate was not significant ( $p = 0.86$ ).

Study 1 demonstrates that foreknowledge ascriptions for an unintended harmful (helpful) side effect predicts implicit bias against (in favor of) the company, supporting  $H_2$ . In Study 2, we test an epistemic side-effect effect in a new context and measure another form of consumer response. Importantly, Study 2 provides more direct evidence of our heuristic-based explanation by attenuating the epistemic side-effect effect through fact-based evidence of the company's ignorance.

## 5 | STUDY 2

In Study 2, we test an intervention aimed at attenuating harm foreknowledge ( $H_3$ ). Specifically, it tests whether outsourcing foreknowledge responsibility to an external company critically shifts consumer ascriptions of foreknowledge and subsequent response. Participants read about an apparel company developing a new product.

Similar to Study 1, the product's development resulted in either a harmful or helpful environmental side-effect outcome. However, tempering reliance on heuristic processing, Study 2 also manipulated the information the company possessed when acting. If our explanation is correct, this should attenuate ascriptions of harm foreknowledge. If the moral influence hypothesis is correct, this factor should have no attenuating effect. Furthermore, Study 2 implemented another form of consumer response, motive inferences ( $H_2$ ).

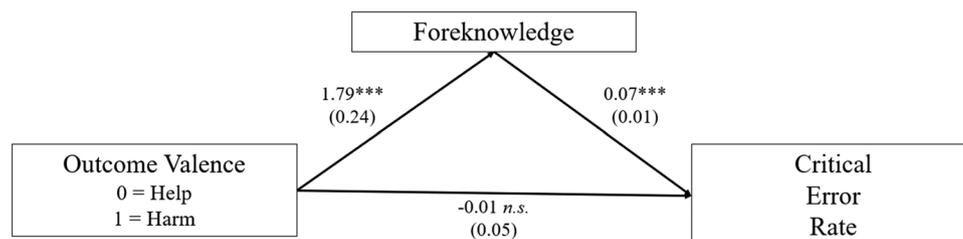
### 5.1 | Method

Study 2 utilized a 2 (outcome valence: harm vs. help)  $\times$  3 (impact information: control vs. internal review vs. external review) full-factorial between-participants design. Participants read an author-created news article about a new shoe ZEVO was developing. In the external review condition, ZEVO invested 1% of the product's budget to hire an external research company to perform an impact study, where results suggested almost zero chance of harming the environment. In the internal review condition, ZEVO did not hire an external research company, but managers *within* ZEVO predicted (without evidence) that the new shoe would have almost zero chance of harming the environment. In the control condition, ZEVO did not hire the research company and voiced no internal predictions regarding environmental impact.

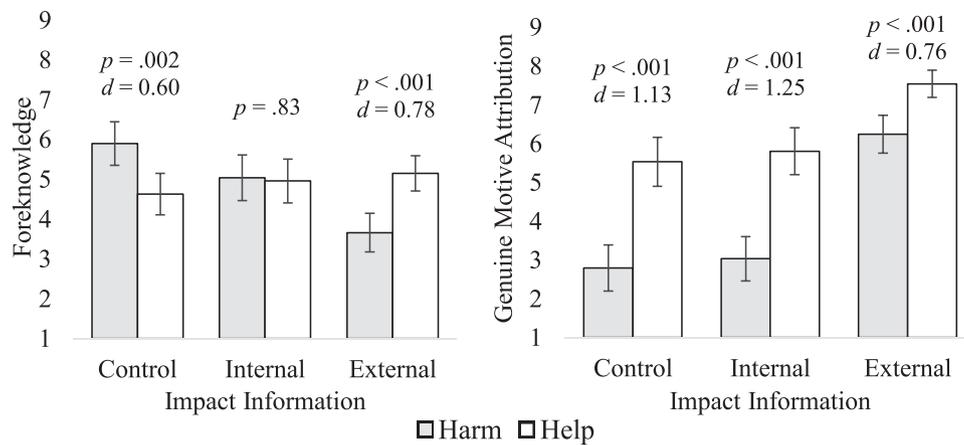
Two attention checks regarding the information manipulation were then administered, followed by the outcome valence manipulation. In the harm (help) condition, participants learned that "after the commercial release of ZEVO's new shoe, studies showed that it ended up harming (helping) the environment." Foreknowledge ( $r = 0.47$ ) was then assessed, and motive inferences were measured using a single item: "When releasing the new shoe, ZEVO genuinely cared about the impact that the new shoe might have on the environment" (1 = *completely disagree*, 9 = *completely agree*). A third attention check regarding the outcome manipulation was then administered.

### 5.2 | Effects on foreknowledge

A 2 (outcome valence)  $\times$  3 (impact information) ANOVA ( $df$  for  $F$  tests = 2, 358) on foreknowledge revealed a main effect of impact information ( $F = 5.58$ ,  $p = 0.004$ ,  $\eta_p^2 = 0.03$ ) but no main effect of outcome valence ( $p = 0.82$ ). However, consistent with our heuristic-based explanation and



**FIGURE 3** Study 1: Mediation Model. \* $p < 0.05$ ; \*\*\* $p < 0.001$ ; n.s. = not significant; coefficients (standard errors) are unstandardized



**FIGURE 4** Study 2: Information  $\times$  Outcome Interaction on Foreknowledge (left) and Motive Attribution (right).  $p$  values represent tests of simple effects; error bars represent 95% CI of means. CI, confidence interval.

supporting  $H_3$ , we observed a significant outcome  $\times$  impact information interaction ( $F = 13.78$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.07$ ; see Figure 4, left panel). Decomposing the interaction supported our predictions. In the control condition, the epistemic side-effect effect was replicated, showing significantly greater foreknowledge following the harmful ( $M = 5.90$ ,  $SD = 2.06$ ) versus helpful outcome ( $M = 4.63$ ,  $SD = 2.14$ ),  $t(115) = 3.23$ ,  $p = 0.002$ ,  $d = 0.60$ . In the internal review condition, no foreknowledge difference between harm ( $M = 5.04$ ,  $SD = 2.26$ ) and help conditions ( $M = 4.96$ ,  $SD = 2.03$ ) was observed,  $p = 0.83$ . In the external review condition, where an outside research company predicted no harm, the effect was reversed, with reported foreknowledge significantly lower following the harmful ( $M = 3.66$ ,  $SD = 1.94$ ) versus helpful outcome ( $M = 5.15$ ,  $SD = 1.88$ ),  $t(125) = 4.41$ ,  $p < 0.001$ ,  $d = 0.78$ .

Analyzed differently, within the helpful outcome condition, impact information had no effect on foreknowledge ( $p = 0.33$ ). In contrast, within the harmful outcome condition, the information manipulation significantly impacted foreknowledge ( $F_{(2, 169)} = 16.38$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.16$ ) and planned contrasts showed a significant foreknowledge reduction from control to the internal review condition ( $p = 0.03$ ,  $d = 0.39$ ), and from the internal to external review condition,  $p < 0.001$ ,  $d = 0.66$ . This suggests that following beneficial outcomes, consumers' ascriptions of company foreknowledge are insensitive to the quality of information that companies possess before acting. However, this information has a pronounced effect on foreknowledge ascriptions following harmful outcomes. This suggests that not only are beliefs about companies causing harm (vs. benefit) more easily accessible to consumers, they are also more malleable as a function of fact-based information. The moral influence account would not predict this; instead, it would predict only a main effect of outcome valence.

### 5.3 | Effects on motive inferences

A 2 (outcome valence)  $\times$  3 (impact information) ANOVA on motive inference revealed significant main effects of outcome ( $F = 103.11$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.22$ ) and information ( $F = 61.87$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.26$ ),

and a significant outcome  $\times$  information interaction (see Figure 4, right panel),  $F = 4.76$ ,  $p = 0.009$ ,  $\eta_p^2 = 0.03$ . Within the control condition, consumers inferred significantly greater levels of genuine motives following the helpful ( $M = 5.53$ ,  $SD = 2.58$ ) versus harmful outcome ( $M = 2.79$ ,  $SD = 2.21$ ),  $t(115) = 6.09$ ,  $p < 0.001$ ,  $d = 1.13$ . In the internal review condition, this gap between helpful ( $M = 5.80$ ,  $SD = 2.22$ ) and harmful outcome conditions ( $M = 3.03$ ,  $SD = 2.19$ ) remained relatively unchanged,  $t(118) = 6.87$ ,  $p < 0.001$ ,  $d = 1.25$ . However, in the external review condition, the gap between helpful ( $M = 7.54$ ,  $SD = 1.53$ ) and harmful outcome conditions ( $M = 6.24$ ,  $SD = 1.92$ ),  $t(125) = 4.26$ ,  $p < 0.001$ ,  $d = 0.76$ ) was attenuated, as evidenced by a 61% smaller effect size. These results suggest that changes to the epistemic side-effect effect may translate into corresponding changes in consumer response. This was tested directly using moderated mediation.

### 5.4 | Moderated mediation

We specified a moderated mediation model using PROCESS (model 8) treating outcome valence as the predictor, foreknowledge as the mediator, information as the moderator, and motive inference as the dependent variable. To account for the opposing directions of the foreknowledge-motive inference relationship across outcome conditions, scores for the dependent variable were inverted in the harm condition before testing the model. The index of moderated mediation was significant, index =  $-0.71$ ,  $SE = 0.16$ ,  $CI_{0.95} = -1.04, -0.41$ . Conditional indirect effects further support  $H_2$  and  $H_3$ . In the control condition, we observed a positive indirect effect of outcome on motive inference through foreknowledge,  $ab = 0.68$ ,  $SE = 0.21$ ,  $CI_{0.95} = 0.31, 1.10$ . In the internal review condition, the indirect effect was null ( $CI_{0.95}$  includes 0). In the external review condition, there was a significant and negative indirect effect,  $ab = -0.73$ ,  $SE = 0.18$ ,  $CI_{0.95} = -1.11, -0.39$ . Together, this pattern suggests that as the epistemic side-effect effect is diminished, so too is the gap in subsequent consumer response following harmful versus helpful side effects.

## 6 | STUDY 3

Study 3 examines additional situational factors pertaining to the level and type of fact-based information companies might possess while acting ( $H_3$ ), and how this influences consumer response via foreknowledge ascriptions. We adopted a new product development scenario similar to Study 2. In all conditions, outcome valence was harmful and ZEVO outsourced the impact study to an external company (as in the external review condition in Study 2). However, we manipulated the chance of harm and whether ZEVO was informed of this probability. We also examined another consumer response variable, blame ( $H_2$ ). We expected that consumers' foreknowledge ascriptions would be attenuated when chance of harm was low, but only when consumers believed that the outside company informed ZEVO of this chance. Consistent with  $H_2$  and prior studies, we expected foreknowledge ascriptions to translate directly into blame judgments.

### 6.1 | Method

This study utilized a 2 (harm chance: low vs. moderate)  $\times$  2 (informed: informed vs. not informed) full-factorial between-participants design. The study proceeded similarly to Study 2. Participants viewed a news article about ZEVO developing a new shoe, where an environmental impact study was being outsourced to an external company. In the low (moderate) chance condition, the external company discovered that the new shoe would have an “extremely low [5%]” (“moderate [50%]”) chance of environmental harm. In the informed (not informed) condition, participants were told that the external company informed (did not inform) ZEVO of this chance. Afterwards, participants in all conditions were told that the new shoe harmed the environment. Foreknowledge ( $r = 0.51$ ) was assessed as before. Blame was measured with two items ( $r = 0.80$ ; see Reich et al., 2020): “ZEVO deserves to be blamed for the environmental harm caused by its new shoe” and “ZEVO should be held responsible for the

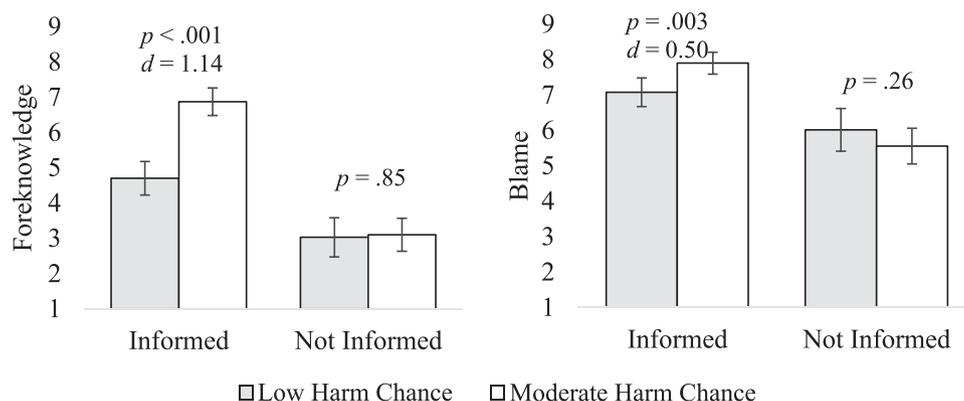
environmental harm caused by its new shoe” (1 = *completely disagree*, 9 = *completely agree*).

### 6.2 | Foreknowledge

A 2 (harm chance)  $\times$  2 (informed) ANOVA ( $df$  for  $F$  tests = 1, 275) on foreknowledge showed main effects of harm chance ( $F = 21.08$ ,  $p < 0.001$ ,  $d = 0.35$ ) and informed factors,  $F = 124.28$ ,  $p = 0.001$ ,  $d = 1.23$ . The hypothesized harm chance  $\times$  informed interaction was significant,  $F = 18.54$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.06$  (Figure 5, left panel). Supporting our account, in the informed condition, foreknowledge ascriptions were significantly greater in the moderate ( $M = 6.87$ ,  $SD = 1.67$ ) versus low harm chance condition ( $M = 4.70$ ,  $SD = 2.11$ ),  $t(146) = 6.89$ ,  $p < 0.001$ ,  $d = 1.14$ . However, in the not informed condition, foreknowledge did not differ between the moderate ( $M = 3.10$ ,  $SD = 2.15$ ) and low harm chance conditions ( $M = 3.03$ ,  $SD = 2.09$ ,  $p = 0.85$ ). As an availability heuristic would suggest, this highlights how it is not actual harm probabilities that drive foreknowledge ascriptions in typical side-effect cases, but ambiguity about company foreknowledge. When foreknowledge is rationally described—as might be done in a proactive public relations effort—participants respond rationally to actual probabilities.

### 6.3 | Blame

A 2 (harm chance)  $\times$  2 (informed) ANOVA on blame mirrored results on foreknowledge. There was no main effect of harm chance ( $p = 0.45$ ) and a significant main effect of informed,  $F = 50.88$ ,  $p < 0.001$ ,  $d = 0.86$ . Importantly, the harm chance  $\times$  informed interaction was significant (Figure 5, right panel),  $F = 7.15$ ,  $p = 0.008$ ,  $\eta_p^2 = 0.03$ . In the informed condition, consumers blamed ZEVO more in the moderate ( $M = 7.89$ ,  $SD = 1.38$ ) versus low harm chance condition ( $M = 7.07$ ,  $SD = 1.83$ ),  $t(146) = 3.03$ ,  $p = 0.003$ ,  $d = 0.50$ . However, in the not informed condition, blame did not differ



**FIGURE 5** Study 3: Harm Chance  $\times$  Informed Interaction on Foreknowledge (left) and Blame (right).  $p$  values represent tests of simple effects; Error bars represent 95% CI of means. CI, confidence interval.

between the moderate ( $M = 5.55$ ,  $SD = 2.29$ ) and low harm chance conditions ( $M = 6.01$ ,  $SD = 2.28$ ),  $p = 0.26$ .

## 6.4 | Moderated mediation

To test whether foreknowledge ascriptions translated into blame judgments, we examined moderated mediation using PROCESS (model 8), treating harm chance as the predictor, foreknowledge as the mediator, the informed factor as the moderator, and blame as the dependent variable. Results revealed the expected significant index of moderated mediation,  $index = 0.83$ ,  $SE = 0.23$ ,  $CI_{0.95} = 0.41, 1.31$ . In the informed condition, there was a significant and positive indirect effect on blame through foreknowledge,  $ab = 0.85$ ,  $SE = 0.18$ ,  $CI_{0.95} = 0.53, 1.24$ . No indirect effect was found in the not-informed condition ( $CI_{0.95}$  includes 0).

## 6.5 | Discussion

Study 3 provided a more nuanced understanding of how situational factors influence ascriptions of harm foreknowledge, which in turn directly impact blame. Supporting  $H_3$ , when ZEVO was informed that their new product would have a moderate (vs. low) chance of harming the environment, consumers rationally ascribed greater foreknowledge and assigned more blame to ZEVO. However, when consumers understood that ZEVO was not given this information, harm chance had no effect on either foreknowledge or blame. Notably, this suggests that shifting responsibility for investigating potential harm to an external source also serves to shift blame away from the company for eventual harm (Lozano & Laurent, 2019). Moreover, in line with Study 2 and  $H_3$ , this suggests that consumers' foreknowledge ascriptions are sensitive to fact-based evidence, consistent with our heuristic-based account (Kahneman, 2003). Furthermore, mediation evidence suggests these changes in blame are driven by changes in foreknowledge, further supporting the importance of foreknowledge ascriptions to consumer response ( $H_2$ ). This provides new and unique evidence that blame in harmful side-effect cases is not necessarily driven by outcome valence as suggested by the moral influence model (Knobe, 2003), but is largely a function of mental state ascriptions, as our theorizing and other work (e.g., Laurent et al., 2021) suggests.

## 7 | GENERAL DISCUSSION

Business activities often cause unexpected and harmful side effects, leading to exaggerated consumer inferences of harm foreknowledge (i.e., the epistemic side-effect effect). The current work provides a novel and compelling explanation for this phenomenon that is consistent with existing understanding of heuristics (Kahneman, 2003) and, unlike the prevailing moral influence hypothesis, is compatible with the large body of social-cognitive research showing

that mental states precede moral decision-making. In addition, our research demonstrates the importance of foreknowledge ascriptions to multiple downstream consumer responses that in turn may impact a company's customer-based brand equity.

Four studies—featuring a variety of contexts, dependent variables, samples, and manipulations—converged to support our theorizing and hypotheses. A Pilot Study demonstrated that a set of consumer phenomena and beliefs makes harmful (vs. helpful) side effects more cognitively available, with this availability plausibly underlying epistemic side-effect effects. Study 1 found that the foreknowledge asymmetry translates into a parallel asymmetry in consumers' frequency of committing implicit reasoning errors regarding negative or positive company information. Study 2 then showed that harm foreknowledge ascriptions can be attenuated by introducing fact-based evidence of a company's ignorance while acting, thereby diminishing consumer reliance on heuristic-based processing. Study 2 also demonstrated the impacts of foreknowledge on motive inferences. Study 3 tested more nuanced situational factors that demonstrated how the type and amount of information possessed by a company can interrupt the impact of negative side-effect outcomes on foreknowledge ascription, and because of this, attenuate blame judgments.

## 7.1 | Theoretical implications

The present research advances theories of consumer response to corporate transgressions (Kim et al., 2019) by establishing the consequences of consumer foreknowledge ascriptions following side-effect outcomes. Although prior research (e.g., Laurent et al., 2015b, 2016; Laurent et al., 2019, 2021) argues that mental state ascriptions are important to downstream responses, the marketing literature offers little insight regarding how this impact unfolds in the context of everyday consumer behavior. Addressing this gap, our findings show that foreknowledge ascriptions influence both explicit and implicit consumer responses. More specifically, by demonstrating the processes underlying epistemic side-effect effects, our findings help clarify how consumers translate generalized marketplace information into motive inferences (Armstrong Soule & Reich, 2015; Reich & Armstrong Soule, 2016) and blame for specific companies (Reich et al., 2020).

Further, our research challenges a prevailing “moral influence hypothesis” wherein moral considerations directly influence people's thresholds for ascribing mental states (Knobe, 2003, 2004, 2010; Pettit & Knobe, 2009). Although extant research has challenged the moral influence claim in the realm of intentionality ascription (Laurent et al., 2015a, 2019, 2021), ours is unique in offering a novel, empirically robust, and theoretically parsimonious alternative explanation for epistemic side-effect effects: Because consumers perceive harm as more common and probable following any given company action, an availability heuristic leads them to assume greater foreknowledge when companies' actions lead to harmful (vs. helpful) side-effect outcomes. This contributes to a growing literature within

social cognition and experimental philosophy by providing a reliable theoretical lens through which epistemic side-effect effects can be understood and explained.

Our findings also support the broader literature involving asymmetric consumer response to negative versus positive stimuli (e.g., Ahluwalia, 2002) via qualitative differences in foreknowledge ascriptions following harmful (vs. helpful) side effects. As shown across Studies 2 and 3, whereas perceived foreknowledge of helpful outcomes is largely insensitive to mitigating factors, foreknowledge of harm can be influenced by fact-based information. Although the cause of this insensitivity regarding beneficial outcomes is beyond the scope of the current research, our stimuli may have focused attention more on altering foreknowledge of harm rather than benefit.

## 7.2 | Practical implications

Unintended corporate harm, such as is caused by shipping accidents or pollution related to product development, is commonplace. Currently, the literature emphasizes characteristics of the situation (Folkes, 1984), company (Klein & Dawar, 2004), or harm recipient (Reich et al., 2020) in predicting consumer response (e.g., blame) to such incidents. Consequently, the current lack of consideration given to how consumers ascribe foreknowledge under uncertainty when side effects are harmful suggests that practitioners may be underestimating the magnitude of damage to customer-based brand equity in their ecological risk assessments. By conceptualizing these incidents as unexpected side effects (rather than simply as “crises”), our research suggests that practitioners ought to adjust risk assessments to account for the generalized exaggeration of foreknowledge ascriptions documented in our findings.

Relatedly, our research has implications for precautionary action and communications regarding new-product commercialization in particular. Although managers are duty-bound to prioritize an ethic of care (Bauman, 2011), large companies often fail to do so, especially in the start-up phase (Nohria & Taneja, 2021). Our findings support the merits of a more cautious approach. For instance, Studies 2 and 3 showed that only when external impact studies were conducted was harm foreknowledge ascription reduced sufficiently to dampen unfavorable consumer response. If even a modest portion of a product development budget is allocated to an external impact study, managers can present credible, quantifiable evidence of their risk calculation and legitimately claim surprise should a harmful side effect emerge. Further, although some form of risk management is common, details of companies' risk management practices are rarely communicated to consumers (van Dijk et al., 2008). Our research suggests that a preemptive risk-communication strategy may be useful.

In contrast, conventional wisdom in the public relations literature (e.g., Kim & Cameron, 2011) favors emotion-laden crisis response messaging. However, our research suggests that when foreknowledge is relevant, a fact-based, rational appeal communicating a lack of foreknowledge may prove effective, even after the fact. This is because fact-based evidence may interrupt the heuristic processing

that exaggerates consumer ascriptions of harm foreknowledge (i.e., Studies 2–3). Once foreknowledge ascriptions are tempered, follow-up emotional appeals may help rebuild trust (Huang & DiStaso, 2020)

Our studies also show that foreknowledge ascriptions for side-effect benefits, though less malleable, are consequential. Consumers appear to ascribe little foreknowledge in such cases, presenting an opportunity for managers to enhance these ascriptions when unintended benefits arise. Though it may be tempting for managers to take credit, our heuristic-based explanation suggests that acknowledging the unintended nature of helpful side effects in the present may help increase foreknowledge ascriptions following beneficial side effects in the future. Although not directly tested, the evidence we presented for the availability heuristic in this context suggests this may be a useful long-term strategy.

## 7.3 | Limitations and future directions

Several limitations of our research are worth noting. First, our studies dealt only with side-effect impacts on the environment. This decision was made because (1) the literature has similarly focused on environmental contexts to examine side-effect effects, and (2) side-effect outcomes of business activities are, in practice, often related to environmental impacts (Wible, 2009). Further research might examine a broader range of domains under which a heuristic-based explanation for the epistemic side-effect effect would be applicable.

In addition, our theorizing assumes that consumers rely on heuristic-based (vs. systematic) processing when ascribing foreknowledge. Although our studies strongly support this assumption, future research might manipulate processing style, perhaps through task importance (Chaiken & Maheswaran, 1994), to test for moderating effects on epistemic side-effect effects. Relatedly, this research emphasizes a comparison of our account with the moral influence hypothesis, due to the predominance of the latter in the literature. However, several other alternative explanations for the side-effect effect exist (Guglielmo & Malle, 2010; Laurent et al., 2015a, 2019, 2021). An interesting future direction would be to systematically compare existing accounts, in hopes of obtaining a more complete understanding of how and why various side-effect effects emerge and the ways in which understanding these effects are relevant to consumer psychology.

### CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

### DATA AVAILABILITY STATEMENT

Data available upon request.

### ORCID

Brandon J. Reich  <http://orcid.org/0000-0002-2977-4339>

### REFERENCES

- Adams, F., & Steadman, A. (2004). Intentional action and moral considerations: Still pragmatic. *Analysis*, 64(3), 268–276.

- Ahluwalia, R. (2002). How prevalent is the negativity effect in consumer environments. *Journal of Consumer Research*, 29, 270–279.
- Ahluwalia, R., Burnkrant, R. E., & Unnava, H. R. (2000). Consumer response to negative publicity: The moderating role of commitment. *Journal of Marketing Research*, 37, 203–214.
- Armstrong Soule, C. A., & Reich, B. J. (2015). Less is more: Is a green demarketing strategy sustainable. *Journal of Marketing Management*, 31, 1403–1427.
- Bauman, D. C. (2011). Evaluating ethical approaches to crisis leadership: Insights from unintentional harm research. *Journal of Business Ethics*, 98, 281–295.
- Beebe, J. R., & Buckwalter, W. (2010). The epistemic side-effect effect. *Mind & Language*, 25, 474–498.
- Beebe, J. R., & Jensen, M. (2012). Surprising connections between knowledge and action: The robustness of the epistemic side-effect effect. *Philosophical psychology*, 25, 689–715.
- Bhattacharjee, A., Dana, J., & Baron, J. (2017). Anti-profit beliefs: How people neglect the societal benefits of profit. *Journal of Personality and Social Psychology*, 113, 671–696.
- Boyer, P., & Petersen, M. B. (2018). Folk-economic beliefs: An evolutionary cognitive model. *Behavioral and Brain Sciences*, 41, e158.
- Chaiken, S., & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology*, 66, 460–473.
- Collins, D. (2022). Peru demands compensation for disastrous oil spill caused by Tonga volcano. *The Guardian*, p. 19. <https://tinyurl.com/4emk8zfa>
- Cova, F., & Naar, H. (2012). Side-effect effect without side effects: The pervasive impact of moral considerations on judgments of intentionality. *Philosophical Psychology*, 25, 837–854.
- Cushman, F., & Mele, A. (2008). Intentional action: Two-and-a-half folk concepts. In J. Knobe & S. Nichols (Eds.), *Experimental philosophy* (pp. 171–188). Oxford University Press.
- Dennis, E. E., & Merrill, J. C. (1996). *Media debates: Issues in mass communication*. Longman.
- Diep, F. (2017). How big business accidentally helped the Amazon Rainforest. *Pacific Standard*, p. 12. <https://tinyurl.com/e4u832pf>
- van Dijk, H., Houghton, J., Van Kleef, E., van der Lans, I., Rowe, G., & Frewer, L. (2008). Consumer responses to communication about food risk management. *Appetite*, 50, 340–352.
- Folkes, V. S. (1984). Consumer reactions to product failure: An attributional approach. *Journal of Consumer Research*, 10, 398–409.
- Guglielmo, S., & Malle, B. F. (2010). Can unintended side effects be intentional? Resolving a controversy over intentionality and morality. *Personality and Social Psychology Bulletin*, 36, 1635–1647.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.
- Huang, Y., & DiStaso, M. (2020). Responding to a health crisis on Facebook: The effects of response timing and message appeal. *Public Relations Review*, 46, 101909.
- Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, 58, 697–720.
- Kim, H. J., & Cameron, G. T. (2011). Emotions matter in crisis: The role of anger and sadness in the publics' response to crisis news framing and corporate crisis response. *Communication Research*, 38, 826–855.
- Kim, Y., Park, K., & Lee, S. (2019). The underdog trap: The moderating role of transgression type in forgiving underdog brands. *Psychology & Marketing*, 36, 28–40.
- Klein, J., & Dawar, N. (2004). Corporate social responsibility and consumers' attributions and brand evaluations in a product-harm crisis. *International Journal of Research in Marketing*, 21, 203–217.
- Kneer, M., & Bourgeois-Gironde, S. (2017). Mens rea ascription, expertise and outcome effects: Professional judges surveyed. *Cognition*, 169, 139–146.
- Knobe, J. (2003). Intentional action and side effects in ordinary language. *Analysis*, 63, 190–194.
- Knobe, J. (2004). Intention, intentional action and moral considerations. *Analysis*, 64, 181–187.
- Knobe, J. (2010). Person as scientist, person as moralist. *Behavioral and Brain Sciences*, 33, 315–329.
- Laurent, S. M., Clark, B. A. M., & Schweitzer, K. A. (2015a). Why side-effect outcomes do not affect intuitions about intentional actions: Properly shifting the focus from intentional outcomes back to intentional actions. *Journal of Personality and Social Psychology*, 108, 18–36.
- Laurent, S. M., Nuñez, N. L., & Schweitzer, K. A. (2015b). The influence of desire and knowledge on perception of each other and related mental states, and different mechanisms for blame. *Journal of Experimental Social Psychology*, 60, 27–38.
- Laurent, S. M., Nuñez, N. L., & Schweitzer, K. A. (2016). Unintended, but still blameworthy: The roles of awareness, desire, and anger in negligence, restitution, and punishment. *Cognition and Emotion*, 30, 1271–1288.
- Laurent, S. M., Reich, B. J., & Skorinko, J. L. M. (2019). Reconstructing the side-effect effect: A new way of understanding how moral considerations drive intentionality asymmetries. *Journal of Experimental Psychology: General*, 148, 1747–1766.
- Laurent, S. M., Reich, B. J., & Skorinko, J. L. M. (2021). Understanding side-effect intentionality asymmetries: Meaning, morality, or attitudes and defaults. *Personality and Social Psychology Bulletin*, 47, 410–425.
- Leslie, A. M., Knobe, J., & Cohen, A. (2006). Acting intentionally and the side-effect effect: Theory of mind and moral judgment. *Psychological Science*, 17, 421–427.
- Lozano, E. B., & Laurent, S. M. (2019). The effect of admitting fault versus shifting blame on expectations for others to do the same. *PLoS ONE*, 14, e0213276.
- Malle, B. F., Guglielmo, S., & Monroe, A. E. (2014). A theory of blame. *Psychological inquiry*, 25, 147–186.
- Nichols, S., & Ulatowski, J. (2007). Intuitions and individual differences: The Knobe effect revisited. *Mind & Language*, 22, 346–365.
- Nohria, N., & Taneja, H. (2021, January). Managing the unintended consequences of your innovations. *Harvard Business Review*, p. 19. <https://tinyurl.com/2p82bvy3>
- Paharia, N., Kassam, K. S., Greene, J. D., & Bazerman, M. H. (2009). Dirty work, clean hands: The moral psychology of indirect agency. *Organizational Behavior and Human Decision Processes*, 109, 134–141.
- Pettit, D., & Knobe, J. (2009). The pervasive impact of moral judgment. *Mind & Language*, 24, 586–604.
- Rai, T. S., & Diermeier, D. (2019). Strategic consequences of being unsympathetic: For-profit companies benefit more than individuals from focusing on responsibility. *Psychology & Marketing*, 36, 150–156.
- Reich, B. J., Campbell, T., & Madrigal, R. (2020). Who deserves faulty products? How blaming the victim prevents consumer punitive action. *Journal of Consumer Psychology*, 30, 60–76.
- Reich, B. J., & Soule, C. A. A. (2016). Green demarketing in advertisements: Comparing “buy green” and “buy less” appeals in product and institutional advertising contexts. *Journal of Advertising*, 45, 441–458.
- Robinson, B., Stey, P., & Alfano, M. (2013). Virtue and vice attributions in the business context: An experimental investigation. *Journal of Business Ethics*, 113, 649–661.
- Schulz, K. (2022). When shipping containers sink in the drink. *The New Yorker*, p. 6. <https://tinyurl.com/22x7zuww>

- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5, 207–232.
- Tversky, A., & Kahneman, D. (1983). Extensional versus intuitive reasoning: The conjunction fallacy in probability judgment. *Psychological Review*, 90, 293–315.
- Uttich, K., & Lombrozo, T. (2010). Norms inform mental state ascriptions: A rational explanation for the side-effect effect. *Cognition*, 116, 87–100.
- Wible, A. (2009). Knobe, side effects, and the morally good business. *Journal of Business Ethics*, 85, 173–178.
- World Health Organization. (2017). Tobacco and its environmental impact: An overview. License: CC BY-NC-SA 3.0 IGO.

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Reich, B. J., & Laurent, S. M. (2022). You Ought to Know: Why consumers think companies can foresee bad (but not good) side effects. *Psychology & Marketing*, 1–14. <https://doi.org/10.1002/mar.21747>