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WHEN DO THEORIES BECOME SELF-FULFILLING?

EXPLORING THE BOUNDARY CONDITIONS OF PERFORMATIVITY [1]

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ABSTRACT

Management researchers increasingly realize that some theories do not merely describe, but also shape social reality; a phenomenon known as "performativity." However, when theories become performative or even self-fulfilling is still poorly understood. Taking this gap in current research as our starting point, we develop a process model to show that new theories will only become self-fulfilling (1) if they motivate experimentation, (2) if experimentation produces anomalies, and (3) if these anomalies lead to a practice shift. On that basis, we identify six boundary conditions that determine whether theories will come to shape social reality. To illustrate our argument, we explore the conditions under which theories that postulate a positive link between corporate social performance and corporate financial performance may become self-fulfilling.

KEYWORDS: Anomalies, boundary conditions, corporate social performance (CSP), experimentation, performativity, socially responsible investing (SRI)

In the course of the last decade, management scholars and other researchers in the social sciences increasingly realized that some theories do not merely describe, but also shape the patterns of social interaction that constitute social reality (Callon, 1998; Gond, Cabantous, Harding, & Learmonth, 2016). They dubbed this phenomenon "performativity." The most "intriguing" cases of performativity arise when theories become self-fulfilling; that is, when using theories increases the "conformity" between theories and social reality (MacKenzie, 2006: 18–19). A well-known example thereof is the Black–Scholes theory, where using that theory pushed option prices toward the prices that the theory predicted (MacKenzie & Millo, 2003). In such cases, theories can become self-fulfilling by reshaping the language, social norms, and institutional designs of traders, managers, policy-makers, or other actors (Ferraro, Pfeffer, & Sutton, 2005a). Further studies in this tradition examined, for example, how rational choice theory makes decision-making within organizations more rational (Cabantous & Gond, 2011) or how mainstream financial theories reinforce the currently widespread technocratic approach to financial regulation (Marti & Scherer, 2016).

Most studies on performativity to date focus on theories that have successfully transformed social reality. However, because of this "success bias," the literature lacks a clear understanding of the conditions that determine whether theories become performative or not. This lack of understanding becomes particularly apparent where the "strongest" forms of performativity (MacKenzie, 2006: 19) are concerned; that is, when theories become self-fulfilling (Healy, 2015: 176). Current research thereby neglects the insight of Felin and Foss (2009b) that social reality is not invariably malleable. Keeping in mind these shortcomings of previous research on performativity, we set out to explore how boundary conditions determine whether a theory will become self-fulfilling or not.

To analyze these boundary conditions, we start by developing a process model that explains how theories become self-fulfilling in the first place. To do this, we build upon the distinction that MacKenzie (2006: 16–18) drew between generic, effective, and Barnesian performativity. Generic performativity emerges whenever actors use a theory. Effective performativity is a subset of generic performativity and arises when using a theory has some effects on social reality. Barnesian performativity (named after Barnes, 1983), which is a subset of effective performativity, arises when the effects of using a theory bring social reality closer to the assumptions or predictions of that theory, which means that the theory becomes self-fulfilling. We decided to turn MacKenzie's (2006: 17) classification into a process model that explains the emergence of self-fulfilling theories through a process in the course of which new theories move from generic to effective and finally to Barnesian performativity. Specifically, we argue that getting to the stage of self-fulfilling theories involves three steps: First, new theories must motivate *experimentation*; in other words, they must prompt actors to explore new ways of doing things. Second, this experimentation must produce *anomalies*, which we define as observable events that violate widely shared expectations. Third, these anomalies must lead to a *practice shift*; that is, to changes in how most actors do things that confirm the new theories.

Once we have delineated our process model around these three steps, we will expand it by adding six boundary conditions. The first two boundary conditions—"material devices" and "powerful initial backers"—determine whether theories will lead to experimentation. The next two boundary conditions—"visibility of effects" and "counteracting behavior"—determine whether experimentation will produce anomalies. The last two boundary conditions—"discontent with the status quo" and "sensegiving by convinced actors"—determine whether anomalies will lead to a widespread shift in practices that is in line with the newly proposed theories. Our

argument is based on the assumption that in many areas of social life, "multiple futures and realities are possible" (Ferraro, Pfeffer, & Sutton, 2009: 673). On that basis, we argue that theories may trigger a shift from one possible future to another possible future. In turn, the boundary conditions that we identify help explain and predict when new theories are most likely to reshape social reality in that way.

We will illustrate our argument by focusing on theories that postulate a positive link between corporate social performance (CSP) and corporate financial performance (CFP). Some researchers have described this link as the "Holy Grail" of research on business and society (see Orlitzky, 2011: 409), because showing that CSP contributes to CFP would resolve the ongoing debate about the social responsibility of companies (e.g., Margolis & Walsh, 2003). We argue that under certain conditions, theories on the CSP–CFP link will not merely describe this link, but shift the practice of investors toward socially responsible investing (SRI) and thereby reshape the relationship between CSP and CFP.

Our paper makes three contributions. The first two are to the literature on performativity. First, our process model explains why feedback loops are indispensable for self-fulfilling theories. Feedback loops emerge when new ways of acting (i.e., experimentation) create effects in the world (i.e., anomalies) that reinforce the new ways of acting (i.e., a shift in practices). Second, the boundary conditions we identify explain why some theories (such as theories from the field of economics) are more likely to become self-fulfilling than others (such as critical theories). Our third contribution is to research on corporate social responsibility (CSR) by outlining new directions for future research that result from our performative perspective on the CSP–CFP link.

The paper has five further sections. In the next section, we develop a process model of self-fulfilling theories. In the main section, we extend the model by specifying the boundary conditions that shape this process and illustrate our discussion with the help of theories on the CSP–CFP link. In the final three sections, we apply our model to two other cases (the Black–Scholes theory and theories of industrial betterment), discuss how our model contributes to research, and conclude with reflections the implications of our model for the role of researchers.

A PROCESS MODEL OF SELF-FULFILLING THEORIES

Building on Austin's insight that words can sometimes "do things" (Austin, 1962: 2), various streams of research have started to explain how different entities—such as gender, routines, or theories—are "performed" (Gond et al., 2016: 441). This paper focuses on the performativity of theories. Research on the performativity of theories originated in the social studies of science (Barnes, 1983, 1988; Hacking, 1983) and came to flourish in the social studies of finance (Callon, 1998; MacKenzie, 2006; MacKenzie & Millo, 2003). Over the last ten years, management researchers have started to take up these ideas (Cabantous & Gond, 2011; Ferraro et al., 2005a; Marti & Scherer, 2016). The basic proposition in this research stream is that scientific knowledge does not merely describe an external reality, but also "intervenes" in that reality (Hacking, 1983: 31); in other words, theories can "make a difference" (MacKenzie, 2006: 18; italics omitted) in the world.

We define "theories" broadly as analytical systems that link different concepts in order to explain or predict empirical phenomena (Cornelissen & Durand, 2014: 997; Oswick, Fleming, & Hanlon, 2011: 319). We accept the term "theory" for "analytical categorizations, typologies, and metaphors" (Astley & Zammuto, 1992: 455), provided that these conceptual devices link different concepts and help explain the world.

As already noted, most research on the performativity of theories is characterized by a "success bias" because it focuses on theories that have successfully shaped social reality (e.g., MacKenzie & Millo, 2003). Felin and Foss (2009b: 654) highlighted this limitation and called on researchers to elaborate on the "boundary conditions" of performativity. Boundary conditions clarify in which contexts theories will provide good explanations or predictions (Busse, Kach, & Wagner, 2016; Whetten, 1989). Felin and Foss (2009b: 654) highlighted two boundary conditions of performativity—"objective reality" and "human nature"—and thereby convincingly showed that "the range of 'possible worlds' that social scientists may create are bounded by *ex ante* realities" (Felin & Foss, 2009a: 677). Beyond making this general point, however, their two boundary conditions do not specifically illuminate the social mechanisms that explain why some theories become self-fulfilling, while others do not.

In this paper, we set out to develop a more fine-grained account of the boundary conditions of performativity. To do this, we will first clarify the process through which theories become self-fulfilling. In a second step, we will then examine contextual factors that increase the likelihood that each step of the process will happen. In line with most existing research (see Busse et al., 2016: 2; Edwards & Berry, 2010: 676), we thus conceptualize boundary conditions as moderators that influence the strength of the relationship between concepts.

To develop a process model of self-fulfilling theories, we start from MacKenzie's distinction between generic, effective, and Barnesian performativity (for a recent overview, see Abrahamson, Berkowitz, & Dumez, 2016: 374). MacKenzie (2006: 17) describes Barnesian performativity as a "subset" of effective performativity, which, in turn, is a "subset" of generic performativity. This categorization implies that generic performativity is a necessary, but not sufficient, condition for effective performativity; similarly, effective performativity is a

necessary, but not sufficient, condition for Barnesian performativity. While MacKenzie tells us that theories will only become self-fulfilling if they move from generic to effective and finally to Barnesian performativity, he does not clarify how theories move from one type of performativity to the next. To shed more light on this issue, we turned the classification that MacKenzie (2006: 17) proposed into a process model. Our process model posits that new theories will only become self-fulfilling (1) if they motivate experimentation, (2) if experimentation produces anomalies, and (3) if anomalies lead to a practice shift. Figure 1 illustrates our process model, which we will explain in detail in the next three subsections.

Insert Figure 1 about here

Generic Performativity and Experimentation

In the first step of our process model we examine whether actors use new theories; if they do, we speak of generic performativity. Not all types of generic performativity, however, will lead to self-fulfilling theories. We are thus also interested in *how* actors use new theories. In what follows, we argue that new theories can only become self-fulfilling if they lead to *experimentation* (see P1 in Figure 1). Experimentation involves a "trial-and-error process" in which individuals or groups explore "new possibilities for action" (Furnari, 2014: 448) and "later adjust their actions as they observe the outcomes they generated" (Ferraro, Etzion, & Gehman, 2015: 369). Examples of experimentation range from the case of a security firm that tested different approaches to reducing fare evasion (Glaser, 2017) to the case of a country implementing a new economic system "to test an economic doctrine" (Muniesa & Callon, 2007: 164). Muniesa and Callon (2007: 163) note that experimentation is "extensively used in marketing research, financial engineering, and economic policy design."

All types of experimentation—including experiments in the natural sciences—produce effects that are, "at least in a pure state," not visible outside the controlled experimental setting (Hacking, 1983: 226–230). Indeed, Hacking (1983: 168) has emphasized that "things that are 'seen' in twentieth-century [natural] science can seldom be observed by the unaided human senses." Instead, "seeing" the effects of experimentation often requires sophisticated instruments and experimental facilities: for instance, the Large Hadron Collider involves over 10,000 scientists and engineers and the construction costs exceeded $9bn. As natural science experiments "purify some aspect of nature" (Hacking, 1983: 204), so social science experiments tend to "purify" effects that would be "difficult to capture 'in the wild'" (Muniesa & Callon, 2007: 171–172).

In the social sciences, experimentation is not quite the same as in the natural sciences. When experiments involve humans (rather than, say, atoms), producing effects often requires that the participants, as part of the experiment, learn to think and act in new ways. For example, Muniesa and Callon (2007: 171) report the auction game that a group of economists ran to measure a parameter that would be "hard to isolate in its pure form in a supermarket situation": customers' willingness to pay for food that is not genetically modified. To "purify willingness-to-pay, any gaming effect or mimetic behavior had to be ruled out" (Muniesa & Callon, 2007: 172). The economists chose an auction mechanism that made speculation a losing strategy and they conducted training games to instill that message into their experimental subjects. In this example, it was necessary to first train the participants to think and act differently before the economists could produce the desired effects in a second game in which participants revealed their "purified" willingness to pay.

Like researchers, practitioners may also experiment with social science theories (Felin & Zenger, 2009: 131). While both "partake of some form of investigation" (Muniesa & Callon, 2007: 163), scientific norms force researchers to stick more closely to the original theory. By contrast, practitioners adapt theories to their context more freely. As Glaser, Fiss, and Kennedy (2016: 1043) observed in their study of how a "financial exchange model" reshaped online advertising, using theories in novel contexts requires that actors "stretch" those theories. Similarly, Kieser, Nicolai, and Seidl (2015: 145) note that "scientific knowledge is typically reinterpreted when it is applied in a practical context." Thus, when practitioners engage in experimentation, they often adapt the theories they use.

In addition to using new theories for experimentation, actors can also use new theories merely symbolically (Pelz, 1978) to legitimize what they are doing anyway (see D1 in Figure 1). For example, managers who favor a specific strategic option may search for a theory that supports their choice. This is an instance of generic performativity because actors use a theory. However, beyond maintaining the status quo, using this theory will not produce any effects because actors use the theory to reinforce, rather than experiment with, existing practices. It follows that the symbolic use of theories will not lead to effective performativity and that these theories will not become self-fulfilling.

Lastly, actors often simply ignore new theories (see D2 in Figure 1). Rousseau (2006: 257) complains that managers "rely largely on personal experience to the exclusion of more systematic knowledge." Similarly, Ferraro, Pfeffer, and Sutton (2005b: 33) show that policy-makers often systematically ignore insights from social science theories. In other cases, theories refer primarily to the scholarly discourse and have no direct practical implications that would be

relevant for actors (Nicolai, 2004: 956). In all these cases, not even generic performativity occurs.

Effective Performativity and Anomalies

In the second step of our model we examine whether experimentation produces any effects; when it does, we speak of effective performativity. However, not all of these effects will lead to self-fulfilling theories. We are therefore also interested in identifying *what* effects experimentation produces. In what follows, we will argue that new theories can only become self-fulfilling if experimenting with them produces *anomalies* (see P4 in Figure 1). In *The Structure of Scientific Revolutions*, Kuhn (1970: 52) used the term "anomalies" to describe observations of events or phenomena that should not exist according to the dominant theory in a field. For example, one anomaly in the age of Newtonian physics was the discovery that the moon did not move exactly as Newton's theory had predicted (Kuhn, 1970: 39).

We transfer the idea of anomalies from the context of the natural sciences, which Kuhn explored, to the context of practitioners who experiment with new theories of social science. In our context, we define anomalies as observable events that (1) violate widely shared expectations about how certain actors or entities will behave, while (2) conforming with expectations that result from the new theory. In line with the social studies of science (Barnes, 1974: 43; Bloor, 1991: 5), we assume that both researchers and practitioners are, to a certain degree, open "to correction by awareness of the world" (Barnes, 1974: 23) and will thus take note if more and more anomalies emerge. On that basis, we will argue that anomalies can lead to fundamental shifts not only among researchers (what Kuhn calls "paradigm shifts"), but also among practitioners (what we will call "practice shifts").

An important difference between anomalies as Kuhn defined them and as we employ the term lies in the origin of anomalies. In the natural sciences, one theory tends to dominate the field and researchers stumble upon anomalies while experimenting with that theory; these anomalies, in turn, may prompt the search for new theories (Kuhn, 1970: 52). By contrast, when experimenting with new social science theories, practitioners may challenge the dominant theory even before anomalies emerge; indeed, experimentation with new theories is often the very reason why anomalies emerge. A new theory is thus not a response to anomalies (as it is in Kuhn's context); instead, a new theory may *produce* the anomalies.

Anomalies can contribute to "positive feedback" (Biggs, 2009: 299). Several authors have argued that positive feedback plays a role in performativity. Biggs (2009: 298), for example, notes that if some investors believe that dot-com companies generate high returns and, acting on this belief, start buying dot-com stocks, the rise in stock prices will provide positive feedback that may convince other investors to start buying dot-com stocks as well. Similarly, Barnes (1983: 524) argues that "feedback-loops" are key to performativity because the inferences that actors inductively draw about social reality depend on the inferences that other actors have inductively drawn before them. We argue that anomalies can contribute to positive feedback by convincing initially unconvinced actors that a new theory is valid. Indeed, Merton (1948: 195) has argued that an actor who is convinced of the validity of a new belief "will cite the actual course of events as proof that he was right from the very beginning." Anomalies can play a similar role: initially unconvinced actors may see them as "proof" that the new theory was "right from the very beginning."

In addition to producing anomalies, experimentation with new theories may also produce effects that are not related to the assumptions or predictions of the new theories (see D3 in Figure

1). For instance, if experimenting with a new derivatives pricing model requires much more work so that traders stay in their offices past the evening rush hour, traffic congestion in major financial centers may be somewhat reduced during the evening rush hour. This is a case of effective performativity because using a new theory produces a measurable effect. However, because the effects of experimentation (less traffic congestion) are not related to what the theory is about (asset prices), actors who observe these effects have no reason to become convinced that the new theory is correct. Without this direct positive feedback on the theory at stake, these theories will not move from effective to Barnesian performativity.

Lastly, experimentation with new theories may fail to produce any effects (see D4 in Figure 1). For example, if managers start experimenting with new theories on leadership, their experimentation may fail to produce the expected increase in team performance (Pfeffer, 2015). In this case, there is no effective performativity.

Barnesian Performativity and Practice Shifts

In the third step of our model we examine whether a new theory and the anomalies it produces bring social reality in line with the new theory; if they do, we speak of Barnesian performativity. While Barnesian performativity is the "most interesting" (Healy, 2015: 178) type of performativity, it is also "empirically rare" (Cabantous, Gond, & Johnson-Cramer, 2010: 1552) and conceptually underexplored. We argue that Barnesian performativity involves changes in practices. In other words, theories that exhibit Barnesian performativity change the "accepted ways of doing things . . . that are shared between actors and routinized over time" (Vaara & Whittington, 2012: 287). Changes in practices emerge when new ways of doing things that some actors have experimented with become widely accepted among all actors. These changes in practices can make the new theory "more true" (MacKenzie, 2006: 19). For example, MacKenzie

(2006: 33) argued that the Black–Scholes model "informed practices" that "helped to create patterns of prices of which the model was a good empirical description." Put differently, the new model "sustained" a "practice" that "helped to create a reality in which the model was indeed 'substantially confirmed'" (MacKenzie, 2006: 166). Barnesian performativity thus involves a new theory that changes practices in such a way that they confirm the new theory (see P7 in Figure 1).

New theories can transform practices if actors see that experimenting with a new theory produces more desirable outcomes (more money, less pollution, etc.) than following existing practices does. When a theory proves successful in this sense, more and more actors will change the way they do things and eventually a new practice will emerge. Indeed, as Scherer and Steinmann (1999: 528) note, if activities that are based on new theories produce "results [that] are successfully accomplished again and again," the activities "will emerge into a habit in time." In turn, if a new practice that is based on a new theory emerges, the new theory will provide "meaning and order" (Smets, Morris, & Greenwood, 2012: 879) to the activities that constitute the new practice. In this sense, the Black–Scholes model gave meaning to the new trading practices.

Anomalies may signal to actors that experimenting with a new theory produces better outcomes than following existing practices does. By providing positive feedback to practitioners, anomalies play a role in social science contexts "with no full equivalent in Kuhn's discussion of their counterparts in the [natural] sciences" (MacKenzie, 2006: 98). When astronomers stumbled upon the anomaly that the moon does not move as predicted by Newton (Kuhn, 1970: 39), their observation did not affect the moon's course. In the context of the social sciences, however, practitioners may change their activities upon observing anomalies and these changes may add

up to a new practice that confirms the new theory. As we will elaborate further on, anomalies can become cues that lead actors who were initially not convinced by a new theory to engage in sensemaking (Weick, Sutcliffe, & Obstfeld, 2005). If certain conditions are met, the anomalies will convince skeptics of the new way of doing things and if all actors change their activities, a new practice will emerge. In analogy to Kuhn's paradigm shifts, which occur because researchers observe anomalies, we define *practice shifts* as changes in practices that emerge because practitioners observe anomalies.

Actors, however, may also ignore anomalies (see D5 in Figure 1). As we will explain below, there are various reasons why actors ignore information that is not in line with how they see the world (Dunbar & Garud, 2009; Kahneman, 2011). In addition, because "anomalies do not speak for themselves" (MacKenzie, 2006: 97), different actors can draw very different inferences from anomalies. For example, some actors may conclude that anomalies merely show that the dominant theory needs some minor adjustments (see Lakatos, 1978: 32, on how auxiliary hypotheses can "save" any theory). In such cases, no Barnesian performativity will emerge because the anomalies do not lead to a shift in practices that would confirm the new theory.

In sum, our model posits that the process through which theories become self-fulfilling has three steps: in the first step, actors start experimenting with new theories; in the second step, their experimentation produces anomalies; in the third step, these anomalies convince initially unconvinced actors that the new theory is indeed valid and thereby lead to a practice shift.

ELABORATING THE PROCESS MODEL

In this section, we expand the process model by further exploring each step and by adding boundary conditions that determine whether theories become self-fulfilling or not. To develop these boundary conditions, we draw on the literature on performativity and on the social studies

of science, which we will enrich with insights from research on sensemaking to theorize how actors collectively make sense of anomalies. Figure 2 depicts our model of the boundary conditions of performativity.

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Insert Figure 2 about here

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To illustrate this process and its boundary conditions, we will focus on theories that postulate a positive link between CSP and CFP (e.g., Orlitzky, Schmidt, & Rynes, 2003). These theories can take different forms. Some researchers use large samples of companies to analyze and theorize the correlation between CSP and CFP. To date, researchers have conducted more than 200 such studies (Margolis, Elfenbein, & Walsh, 2009; Wang, Dou, & Jia, 2016) and meta-analyses have found a small but positive relationship between CSP and CFP (Margolis et al., 2009; Orlitzky et al., 2003). Other theories explore the CSP–CFP link conceptually or on the basis of case studies. For example, theories about the "base of the pyramid" postulate that companies can both increase profits and benefit the poor by creating products that are specifically tailored to the needs of low-income customers in developing countries (London & Hart, 2004; Prahalad, 2006). Here, given the increasing influence of investors (Cobb, 2015; Davis, 2009), we focus on whether theories on the CSP–CFP link change the practices of investors, shifting them toward socially responsible investing.

How New Theories Lead to Experimentation

We will start by exploring in depth the first step of our process model, which leads from new theories to experimentation (see P1 in Figures 1 and 2). A new theory can only prompt actors to do things in a new way if it somehow challenges the established way of doing things. If a new theory concurs with existing practices, actors will use that theory to make merely incremental

changes to existing practices. By contrast, theories that "*deny* certain assumptions of their audience" (Davis, 1971: 309) are more likely to motivate actors to try out new ways of doing things. However, if a theory challenges existing practices outright, actors may question the legitimacy of the theory and conclude that it is not "desirable and appropriate" (Bitektine & Haack, 2015: 51). Therefore, we argue that actors who are embedded in existing practices are more likely to support a theory when besides challenging existing practices it simultaneously has a high cultural fit (Ansari, Fiss, & Zajac, 2010: 78) with the values and beliefs of potential users (see Wuthnow, 1989: 4). Our argument is in line with the observation of Ferraro et al. (2005a: 17) that actors are more likely to use new theories if these somehow "resonate with at least some of the existing norms."

Theories on the CSP–CFP link challenge certain established investment practices and thereby increase the chance that actors start experimenting with new ways of doing: from changes in how they manage risks (Kölbel, Busch, & Jancso, 2017) to how they engage with companies (Gond & Piani, 2013). Cultural fit, in turn, influences whether investors will experiment with these new theories or not. The perceived cultural fit depends on whether investors see environmental and societal concerns as something that "hippies" worry about (Wright, Nyberg, & Grant, 2012: 1451) or as something that is compatible with a strategic or financial mindset. In recent years, the latter view has become more prevalent, partly through "analogical work" (Etzion & Ferraro, 2010: 1095) that has foregrounded similarities between the new theories and existing investment practices (see also Déjean, Gond, & Leca, 2004: 753). By challenging existing practices, whilst at the same time maintaining a high cultural fit, new theories on the CSP–CFP link may thus lead to experimentation. These examples illustrate our first proposition.

Proposition 1: The more new theories arise that challenge existing practices in culturally resonant ways, the higher the likelihood that actors start experimenting with new ways of doing.

One important boundary condition that moderates the above proposition concerns *material devices*, which include "tools, equipment, technical devices, algorithms, etc." (Callon, 2005: 4). New theories are often abstract in that they make statements about entities that are not easily observable. Material devices make these entities visible (Muniesa & Callon, 2007: 179) and thereby help actors adapt theories to their specific context. For example, to experiment with a new theory that postulates that happy employees are more productive (Tenney, Poole, & Diener, 2016), it is necessary to have access to devices capable of measuring the otherwise intangible happiness, such as surveys or metrics. We argue that devices that render elusive entities, such as employee happiness, visible make it likelier that actors will experiment with theories to which these entities are pivotal.

The above argument also applies to theories on the CSP–CFP link. Without material devices that make CSP visible in some way, it would be hard for investors to experiment with these theories and to select companies with high CSP or to assess their overall performance. Such devices, however, have become available over the last 20 years (Gond & Nyberg, 2016: 3) as part of an "emerging corporate responsibility infrastructure" (Waddock, 2008: 87). For example, Bloomberg has added CSP metrics to its terminals for all customers (Marquis, Beunza, Ferraro, & Thomason, 2010), which makes it easier for investors to select companies that exhibit high CSP. Similarly, the Dow Jones Sustainability Index and other SRI-based indices provide straightforward measures of SRI performance (Déjean et al., 2004; Slager, Gond, & Moon, 2012). This illustrates the logic of our second proposition.

Proposition 2: Material devices moderate the relationship between a new theory and experimentation: when such material devices exist, this relationship is stronger; when not, it is weaker.

The second boundary condition that we propose is that new theories are more likely to lead to experimentation if they have *powerful initial backers* (see Ferraro et al., 2009: 672). If a theory has powerful and high-status initial backers, actors who experiment with this theory incur lower reputational costs if their experiments fail; by contrast, critics will judge more harshly failed experiments that were based on theories that no high-status actors supported in the first place (for a similar argument, see Zuckerman, 2010: 374). Furthermore, if the initial backers of a theory are powerful, they will be able to mobilize symbolic and material resources for the new theory (Latour, 1987). For example, powerful initial backers may use analogies and other forms of speech to highlight the compatibility of a new theory with the values and beliefs of potential users and thereby increase the degree of cultural fit that potential users perceive (Cornelissen & Clarke, 2010).

Theories on the CSP–CFP link increasingly meet this boundary condition: their "powerful initial backers" include renowned academics, such as Michael Porter or Robert Eccles, who help popularize various concepts related to CSR through consulting and practitioner-oriented publications (see, e.g., Porter & Kramer, 2011; Verheyden, Eccles, & Feiner, 2016). Additionally, major mainstream investment companies, such as the French Amundi and Mirova, have started to endorse the idea of a positive CSP–CFP link (Crifo & Mottis, 2016; Dumas & Louche, 2016). Support from such powerful players increases the likelihood that investors will start experimenting with the new theory, as our third proposition puts forward.

> ***Proposition 3: Powerful initial backers moderate the relationship between a new theory and experimentation: when a new theory has many powerful initial backers, this relationship is stronger; when it has few powerful initial backers, this relationship is weaker.***

How Experimentation Produces Anomalies

We will now elaborate on the second step of our process model, which leads from experimentation to anomalies (see P4 in Figures 1 and 2). Anomalies violate widely shared expectations. Indeed, a "background of firm expectation makes anomalies . . . stand out and take on significance" (Barnes, 1982: 20). Widely shared expectations may result from theories that have become dominant in a field or from repeated interactions through which actors build expectations over time (Berger & Luckmann, 1966: 53). We argue that actors who try out new ways of doing things may produce effects that contradict widely shared expectations but are in line with a new theory; in other words, experimentation may produce anomalies. One example that illustrates our argument is the "pay-what-you-want" approach, which entitles customers to pay what they think fit for a good or service. Some restaurants have started to experiment with this pricing approach and one manager has described it as "a test of human nature" (Strom & Gay, 2010: A18). If pay-what-you-want is seen to increase profits, traditional restaurant owners may view this effect as an anomaly that violates widely shared expectations about consumer behavior but is in line with the new theory.

In the context of investing, experimentation may also produce anomalies. Both theories on shareholder value maximization (Jensen & Meckling, 1976; Rappaport, 1998) and recurring stock-market reactions have fostered the expectation that companies will only be successful if they primarily focus on increasing profits and delivering returns to their shareholders. Generally, companies expect that they will gain easier access to capital if they increase their market share, cut their costs, or appoint a charismatic CEO (Goldstein, 2012; Khurana, 2002). Against the background of these expectations, investors may create anomalies if they devote enough capital to SRI. For example, SRI may facilitate access to capital for companies that exhibit low financial

performance, but have good stakeholder relations and a sustainable supply chain. In that case, SRI will create an anomaly that violates widely shared expectations about what companies must do to gain access to capital, lending support to theories that postulate a positive CSP–CFP link. Similarly, SRI may involve divesting from unsustainable sectors or companies and thus increase the cost of capital for financially successful companies (Hong & Kacperczyk, 2009), which would again create an anomaly. Another anomaly would arise if investors who espouse an SRI strategy made greater profit than traditional investment firms (Gollier & Pouget, 2014). These examples illustrate our fourth proposition.

> ***Proposition 4: The more actors experiment with new theories, the greater the likelihood that anomalies will emerge.***

One important boundary condition that moderates this proposition is the *visibility of effects*. This boundary condition concerns the degree to which the effects (including potential anomalies) that arise from using a new theory are visible to actors who have yet to become convinced of the merits of the new theory. The precondition of visibility that we posit echoes the views of Merton (1948: 195), who argued that self-fulfilling prophecies start with "public definitions of a situation." A related idea is encountered in social studies of science, which highlight that researchers often mobilize new technologies to make visible the effects that their new theories predict (Pinch, 1985). For example, in 1881, Louis Pasteur used a public experiment in an agricultural setting as a "large scale theatre" (Latour, 1988: 90) to display his new method of vaccination, thereby convincing a broader public of the scientific value of his new theory (Collins, 1988; Shapin & Schaffer, 1985).

In the case of theories on the CSP–CFP link, financial markets can be said to operate as stages that make visible the effects of the experiments that investors carry out, including anomalies. In financial markets, several factors influence the degree to which the effects of

experimentation will be visible. For example, status increases visibility. Market participants distinguish between "smart money," such as hedge funds or sovereign wealth funds, and "dumb money," such as individual investors (Akbas, Armstrong, Sorescu, & Subrahmanyam, 2015). Thus, if, for example, the Government Pension Fund of Norway decides to divest from a company with low CSP (Ang, 2014: 72), the effects of this experiment are likely to be more visible than the effects of a similar experiment that an individual investor carries out. Similarly, social networks enhance visibility. Intense communication between market participants (Beunza, Hardie, & MacKenzie, 2006; Preda, 2013) is likely to make the effects of experiments more visible, which implies that if responsible investors are well-connected to traditional investors, the effects of SRI—and the anomalies it may produce—will be more visible. These illustrative examples lead us to our next proposition.

> ***Proposition 5: The visibility of effects moderates the relationship between experimentation and the emergence of anomalies: higher visibility strengthens, while lower visibility weakens this relationship.***

Another important boundary condition that determines whether experimentation will produce anomalies is *counteracting behavior*. We define counteracting behavior as any attempt to undo the effects of experimentation. For example, if a startup company wants to test whether there is customer demand for a controversial product, the company may launch a new product and thereby conduct "experiments that test its strategy" (Reis, 2011: 56). If, however, this experiment triggers counteracting behavior—for example, if an NGO organizes a successful boycott that nips customer demand in the bud—the experiment will not produce any effects and no anomalies will emerge. Actors usually engage in counteracting behavior if they see an opportunity to make profit or are ideologically motivated (den Hond & de Bakker, 2007). At the same time, legal constraints (Zuckerman, 2012) or fear of stigma (Hampel & Tracey, 2016; Roulet, 2014) may limit counteracting behavior.

Some of the investment strategies that investors experiment with are more vulnerable to counteracting behavior than others. Divestments by investors who believe in a positive CSP–CFP link, for example, offer investors who do not believe in this link the opportunity to make profit through arbitrage (Haigh & Hazelton, 2004; Soederberg, 2009). When many responsible investors sell shares of a company they wish to divest from, its stock price usually falls and arbitrageurs can pick up the shares at a discounted price (Hong & Kacperczyk, 2009). Although that company's shares have changed hands, its stock price and access to capital remain the same. By contrast, SRI strategies such as impact investing (Eurosif, 2016) or shareholder engagement (Ferraro & Beunza, 2014; O'Sullivan & Gond, 2016) are less vulnerable to counteracting behavior because in these cases, later actions cannot fully undo the effects of previous actions. These cases illustrate the following proposition.

> ***Proposition 6: Counteracting behavior moderates the relationship between experimentation and the emergence of anomalies: weak counteracting behavior strengthens this relationship, whereas intense counteractive behavior weakens it.***

How Anomalies Lead to Practice Shifts

Finally, we elaborate on the third step of our process model, which leads from anomalies to practice shifts (see P7 in Figures 1 and 2). For actors who doubt the validity of a new theory, anomalies constitute "violated expectations" (Maitlis & Christianson, 2014: 66) that may prompt them to engage in sensemaking (see Barton, Sutcliffe, Vogus, & DeWitt, 2015: 76). Sense-making becomes necessary when actors "confront events, issues, and actions that are somehow surprising or confusing" (Maitlis, 2005: 21). In such cases, actors "seek to clarify what is going on by extracting and interpreting cues from their environment" (Maitlis & Christianson, 2014: 58). We argue that anomalies may convince skeptical actors of the merits of new theories and make them change their practices.

In financial markets, many investors search for anomalies. As one investor remarked in an interview with MacKenzie (2006: 102), "how you beat the benchmark is you have to look for these anomalies . . . The trick is to keep up on the academic literature that's always discovering new anomalies and be the first person to actually try to take advantage of them." Anomalies related to the CSP–CFP link may thus become cues for sensemaking for investors who are not convinced by the idea that CSP increases CFP. The continuous emergence of such anomalies will lead some among these investors to conclude that something is amiss with their existing practices. Over time, this "need for explanation" (Louis, 1980: 241) may trigger changes in the practices that these investors employ. Our next proposition reflects this process.

> **Proposition 7: The more anomalies emerge as a result of experimentation with new theories, the greater the likelihood that unconvinced actors will shift their practices in line with the new theories.**

An important boundary condition that moderates this relationship is *discontent with the status quo*. In line with the idea that researchers often overlook anomalies, as Kuhn (1970: 81) argued, research on the "confirmation bias" (Kahneman, 2011: 81) has shown that humans reduce complexity by searching for evidence that confirms their current views and in the process filter out evidence that refutes them. Similarly, research in sensemaking has shown that actors tend to ignore most of the cues that could prompt them to rethink their beliefs, because continuous sensemaking would be too burdensome (Dunbar & Garud, 2009). Indeed, unexpected events such as anomalies will only trigger sensemaking if actors have the impression that "the discrepancy between what one expects and what one experiences is great enough, and important enough" (Maitlis & Christianson, 2014: 70). On that basis, we argue that actors are more likely to perceive a discrepancy as "important enough" and thus acknowledge an anomaly if they are discontented with the status quo.

For investors, discontent with the status quo can take many forms: from worries about whether a particular country or industry is sufficiently competitive (Green, Li, & Nohria, 2009) to concerns about the economic benefits that different stakeholders receive (Aguilera & Jackson, 2003). We argue that discontent will increase the likelihood that investors take seriously the anomalies that may emerge through SRI. The following proposition captures this argument.

> ***Proposition 8: Discontent with the status quo moderates the relationship between the emergence of anomalies and shifts in practices: a higher degree of discontent will strengthen this relationship, whereas a lower degree of discontent will weaken it.***

A key boundary condition that influences whether anomalies lead to practice shifts or not is *sensegiving by convinced actors*. Through sensegiving (Gioia & Chittipeddi, 1991), actors who are convinced of the validity of a theory try to influence how unconvinced actors make sense of anomalies. Sensegiving can take many forms, from constructing narratives (Sonenshein, 2010) that put the observed anomalies in a broader perspective to framing activities (Cornelissen & Werner, 2014) that shape the inferences that other investors draw from anomalies. Sensegiving matters because unconvinced actors who try to make sense of anomalies have to cope with a great deal of uncertainty. Barnes (1983) argued that when actors face uncertainty, they usually take note of the inferences that other actors draw. The minimum proportion of actors within a group (such as an industry) who must draw a specific inference before an undecided actor in that group draws the same inference is described as a "threshold" (Granovetter, 1978: 1420). Thresholds or tipping points (Gladwell, 2000) influence how unconvinced actors make sense of anomalies. Thus, the sensegiving efforts of the initial espousers of a new theory will influence how hitherto unconvinced actors make sense of anomalies connected to a new theory, which in turn will increase the likelihood that the threshold will be reached—and practices will shift.

In the case of CSP, when anomalies arise, investors often have to deal with a high degree of uncertainty. For example, if a highly profitable and highly polluting company becomes the target of environmental activists, consumer confidence in the company will sink. If this company ultimately files for bankruptcy, investors may infer from this anomaly either that there is a positive CSP–CFP link or, perhaps, that NGOs have become so powerful that companies should become more proficient in covering up the pollution they create (Mena, Rintamäki, Fleming, & Spicer, 2016). We argue that, in this context, sensegiving activities are likely to convince at least some investors that there is a positive link between CSP and CFP. Sensegiving increases the likelihood that a minimum number of other investors also come to this conclusion, the threshold is reached, and practices change as a result. This leads us to our last proposition.

Proposition 9: Sensegiving by convinced actors moderates the relationship between the emergence of anomalies and shifts in practices: a high degree of sensegiving effort will strengthen this relationship, while a low degree will weaken it.

In sum, if all the boundary conditions are met, a positive feedback loop will emerge through which the experimentation that a few actors engage in to start with will eventually become established as a widely shared practice (see P4–P9 in Figure 2). Generally, practices involve (1) shared language, (2) social norms, and (3) material devices (Vaara & Whittington, 2012: 287). New theories can influence each of these elements and thereby reshape practices (Cabantous & Gond, 2011; Ferraro et al., 2005a). On that basis, we argue that new social science theories have the potential to bring social reality closer to their assumptions or predictions and thereby become self-fulfilling.

In our context, a positive feedback loop means that the SRI approach, which some investors have already started to experiment with, will eventually become widely adopted in the financial sector. If practices shift in line with the principles of SRI, the rules of the game in the economy will change and investors will start to steer clear of companies that exhibit low CSP on the

grounds that such companies are likely to fail. As a consequence, companies that exhibit low CSP will have to pay more for their capital (Hong & Kacperczyk, 2009; Kölbel et al., 2017) and may become the targets of shareholder activism (Gollier & Pouget, 2014). The model that we propose in this paper provides a framework for exploring the possibility that theories on the CSP–CFP link can contribute to a shift toward a more sustainable economy in which investors will take for granted that CSP matters for the success of companies.

APPLYING THE MODEL TO OTHER CASES

We will now use our model to illuminate two well-known cases of self-fulfilling theories: the Black–Scholes theory (MacKenzie, 2006; MacKenzie & Millo, 2003) and theories of industrial betterment (Barley & Kunda, 1992). We will thereby show how our model is relevant to contexts beyond that of theories on the CSP–CFP link.

The Black–Scholes Theory

In financial markets, options are contracts that give investors the right, but not the obligation, to buy or sell an asset at a specified price and time. For example, if someone believes that a stock currently trading at $100 will rise substantially, this person could buy an option to buy that stock for $100 in one year. Up to the 1970s, most regulators saw options as wagers and restricted or banned their use (MacKenzie, 2006: 119). Then, in 1973, three financial economists—Black and Scholes (1973) and Merton (1973)—proposed a new theory of how options should be priced, which came to be known as the Black–Scholes model. The new theory constituted a "Kuhnian moment" (MacKenzie, 2006: 139) that not only redefined research on asset pricing, but also reshaped options trading. In what follows we show that experimentation, anomalies, and practice shifts played a key role in making this theory self-fulfilling.

The Black–Scholes model fostered different types of experimentation. For example, some traders experimented with "spreading," which "involved using the model to identify pairs of options on the same underlying stock, in which one option was, according to the model, underpriced relative to the other" (MacKenzie, 2006: 164). Other traders used the new model to develop "portfolio insurance" (Leland, 1980: 581), which is a strategy to protect portfolios against big losses. On closer scrutiny, it becomes evident that our first two boundary conditions facilitated experimentation. First, various material devices made experimentation easy for traders. For example, one of the model's co-creators, Fisher Black, sold weekly updated paper sheets that traders could use to look up the theoretical price of different options (MacKenzie, 2006: 160). Second, the new theory had powerful initial backers: financial economists quickly agreed that it was "superior to its predecessors" (MacKenzie, 2006: 163) and leading practitioner manuals recommended it (MacKenzie, 2006: 164).

Traders who experimented with the Black–Scholes model "hoped, of course, to make money" (MacKenzie, 2006: 164). And they did. A key reason for this success was that the new theory tended to calculate lower prices than the "traditional rule-of-thumb heuristics" (MacKenzie, 2006: 257) did. As a result, traders who used the new theory had a "selective advantage" (MacKenzie & Millo, 2003: 126) and increased their market share. The success of the traders who dared to experiment with the new theory was an anomaly that violated the widely shared expectation that the fastest traders will be the most successful (MacKenzie & Millo, 2003: 125). Our next two boundary conditions help explain how these anomalies came about. On the one hand, the effects of experimentation were highly visible. MacKenzie and Millo (2003: 116–117) note that the new theory was used in "a context of ample face-to-face interaction," where market participants had "the incentive to monitor each other's conduct and (because so much of

this conduct occurs in a public arena) have the capacity to do so closely." On the other hand, traders who used the new theory did not meet with significant counteracting behavior, which tends to be limited in options markets because dozens of options exist for each underlying stock. To engage in counteracting behavior, interested actors would have to know the exact positions of competing actors, which is close to impossible.

Over time, these anomalies led to a shift in trading practices. The Black–Scholes model "came to shape the very way participants thought and talked about options" and how they traded options, which had "the effect of reducing discrepancies between empirical prices and the model" (MacKenzie & Millo, 2003: 137). In the "Black–Scholes World" (MacKenzie, 2006: 166) that emerged in the mid 1980s, most actors used the new theory to price options and traded prices diverged less than one percent from the Black–Scholes values (Rubinstein, 1994: 774). Our two last boundary conditions help explain this practice shift. On the one hand, discontent with the status quo was substantial among traders who used the old heuristics. For example, these traders often underestimated the risks from rising stock prices and during a surge in stock prices in April 1978 incurred "huge losses" (MacKenzie, 2006: 167). Such "expensive errors made pricing models seem indispensable" (MacKenzie, 2006: 169). On the other hand, convinced actors engaged in sensegiving. For instance, finance professors integrated the new theory into finance textbooks (MacKenzie, 2006: 70), thereby influencing how current and future traders made sense of the anomalies.

Theories of Industrial Betterment

To gain further insights into self-fulfilling theories, we will look at how theories of industrial betterment reshaped managerial practices between 1870 and 1900. Barley and Kunda (1992) examined the rise of industrial betterment in the context of a broader study on how managerial

discourse and practices have oscillated historically between "rational" and "normative" periods. Periods of rational control were dominated by theories that emerged in the fields of economics or engineering, according to which organizations are machines that managers need to configure efficiently. Periods of normative control, on the other hand, were dominated by theories that developed in the fields of psychology or sociology, which portrayed "the organization as a locus of shared values and moral involvement" (Barley & Kunda, 1992: 384). Following Abrahamson et al. (2016: 377), we argue that performativity helps explain the shifts between rational and normative periods. Specifically, we will show that experimentation, anomalies, and practice shifts played a key role in bringing about the first of these shifts: the rise of industrial betterment.

Theories of industrial betterment posit that increasing the welfare of employees will ultimately make factories more productive (Wren & Bedeian, 2009: 104). Industrial betterment was a radically new idea, because before the 1870s, employers in the United States paid hardly any attention to employee welfare (Barley & Kunda, 1992: 365). These new ideas gave rise to experimentation. "Experiments with industrial betterment began in the railroad industry" (Barley & Kunda, 1992: 366) and quickly spread to other industries. Ultimately, "the most celebrated experiments sought to create total institutions by furnishing the infrastructure of community: houses, schools, churches, libraries, stores, and recreational facilities" (Barley & Kunda, 1992: 368). The first two boundary conditions we identified help explain why industrialists started to experiment with the new theories. First, the material devices (houses, schools, etc.) for testing the new theories were available to industrialists because their large companies generated the resources necessary to construct these (Chandler, 1977). Second, the new theories were endorsed by powerful initial backers, who included popular clergymen, widely read novelists, and prominent businessmen who endorsed the new ideas (Barley & Kunda, 1992: 365).

Experimentation soon created anomalies. For example, in 1883, a journalist observed a "middle-class demeanor" among working-class employees when he visited a factory town created by the industrialist George Pullman (Barley & Kunda, 1992: 368). The journalist wrote: "The scenes which the streets and public resorts of the village present after nightfall are entertaining in the extreme and prove perhaps more conclusively than anything else the fact that Mr. Pullman's estimate of human nature is far from wrong" (cited in Buder, 1967: 93). We argue that observing a middle-class demeanor among working-class employees constituted an anomaly that contradicted the then prevalent view that workers are inherently lazy. Our next two boundary conditions help explain why these anomalies arose. On the one hand, the effects of the experimentation were highly visible because "News of such experiments spread by word of mouth and by the popular press" (Barley & Kunda, 1992: 366). On the other hand, counteracting behavior was close to impossible because the experimentation took place mostly within the confines of the sites that belonged to the industrialists.

Eventually, the anomalies fostered a shift in labor relations. The new practice, which relied on cooperation between employers and employees, became increasingly widespread. Around 1900, many of the largest companies in the United States had industrial betterment programs in place (Barley & Kunda, 1992: 366). The last two boundary conditions help explain this practice shift. First, the theories of industrial betterment became popular during an economic downturn that created discontent with the status quo (Guillén, 1994: 38). Barley and Kunda (1992: 391) argue that "when returns on capital begin to decline, managers should show greater interest in rhetorics that focus on the utilization of labor, industry's second factor of production." Second, convinced actors engaged in sensegiving. Indeed, Barley and Kunda (1992: 366) note that by "the turn of the century, industrial betterment had become so widely touted as the wave of the

future that the Paris Exposition of 1900 showcased an exhibit on the betterment practices of American corporations."

DISCUSSION

In this paper, we addressed the "success bias" in existing research on performativity by examining how boundary conditions determine whether a theory will become self-fulfilling or not. The model we developed shows that theories will only become self-fulfilling (1) if using new theories leads to experimentation, (2) if experimentation produces anomalies, and (3) if anomalies lead to a practice shift (see Figure 1). We then added to our model six boundary conditions that moderate this process and determine which theories become self-fulfilling (see Figure 2). Below we discuss the contributions that our paper makes to research on performativity and to research on CSR.

How Feedback Loops Create Self-fulfilling Theories

The first contribution of our paper is to the literature on performativity (Cabantous & Gond, 2011; Ferraro et al., 2005a; Marti & Scherer, 2016). Existing research distinguishes between three types of performativity (generic, effective, and Barnesian; see MacKenzie, 2006) and three outcomes that performativity can lead to (reshape language, social norms, and material devices; see Cabantous & Gond, 2011; Ferraro et al., 2005a). However, the literature lacks a detailed account of the process through which theories become self-fulfilling. Our process model addresses this gap in the research by extending the idea of "feedback-loops," which was introduced by Barnes (1983: 524). In our model, new ways of acting (experimentation) create effects in the world (anomalies) that reinforce the new ways of acting (shift in practices). We thereby advance research on the performativity of theories as a distinct social mechanism, rather

than as a broad "onto-epistemological position" (Garud, Gehman, & Tharchen, 2017: 3) or "cultural condition" (Muniesa, 2017: 1).

Importantly, the feedback loop that we outline combines social construction processes with a number of "objective constraints," which, according to critics such as Zuckerman (2012: 225), existing research on performativity does not consider adequately. Anomalies emerge when some aspect of reality does not work as actors expected (see Landry, 1995: 328). Whether anomalies emerge or not depends not only on what actors believe and how they act, but also on some "constants in human nature" (Felin & Foss, 2009b: 657)—such an fundamental patterns of human cognition and interaction—that socialization and tools can change only up to a certain point. Anomalies help explain why "not every theory can become self-fulfilling" (Ferraro et al., 2009: 670). We argue that not all theories can become self-fulfilling because not all theories will produce anomalies. In light of this proposition, we will reassess the argument of Felin and Foss that economic theories positing that actors are omniscient cannot become self-fulfilling because they are "based on a false and unrealistic conception of human decision-making capabilities" (Felin & Foss, 2009b: 657). By contrast, we argue that if some actors start experimenting with theories that assume omniscience, their actions will be infused with mistakes and thus fail to produce the anomalies that hitherto unconvinced actors might see as evidence of omniscience. The concept of anomalies, which is central to our model, extends the argument of Felin and Foss (2009b: 657), offering a more theoretical account of how "objective reality intervenes" in performativity.

The feedback loop that we outlined also helps clarify the processes of social construction that are involved in performativity. Theories become self-fulfilling, as we have seen, when new ways of acting eventually become widely accepted—in other words, when experimentation leads to a

shift in practices. This feedback loop indicates that practices are the "material" that social science theories must transform to become self-fulfilling. In our view, it is the shift in practices, rather than the scholar who identified it first, that defines this type of performativity, which MacKenzie (2006: 19) calls "Barnesian performativity." For that reason, we suggest that *practice-shifting performativity* might be a more apt term. Our analysis of how new theories can lead to shifts in practices contributes to practice theory a novel perspective (Guérard, Langley, & Seidl, 2013; Jarzabkowski, 2005; Smets, Aristidou, & Whittington, 2017). Our model suggests that theories can generate a "shared practical understanding" (Schatzki, 2001: 2) that gives meaning to practices. Future research could examine whether theory-based practices and other practices differ with regard to adoption and diffusion patterns. Researchers could also explore situations in which theory-based practices challenge practices that are not based on theories, or the other way around, and analyze the role of theories in such contestations.

Our process model should furthermore prompt researchers to rethink the controversial idea that self-fulfilling theories are "false" theories that become "true," which can be traced to Merton (1948: 195). In most cases, we would argue, self-fulfilling theories expand their original scope; that is, the "range of phenomena encompassed by the theory" (Bacharach, 1989: 509). Specifically, we argue that during the process that leads from experimentation to anomalies and finally to practice shifts, self-fulfilling theories expand the range of situations in which they are "true." Although to start with a self-fulfilling theory may be "true" only within a very specific context (say, an NGO in Seattle that an ethnographer analyzed), if it looks promising, practitioners may start experimenting with it in a new context and thereby expand its scope (say, to NGOs in other cities). If anomalies arise, actors from yet other contexts (say, from corporations) may start using the theory and change their practices accordingly, extending its

scope even further. By shifting the focus from the true/false dichotomy toward the scope of contexts in which theories are "true," our process model helps disentangle performativity from thorny debates about the nature of "truth" (Scherer, Does, & Marti, 2015: 34). The assumption of our argument is merely that in the social sciences researchers cannot specify ex ante all the contexts in which their theories may be "true," because such contexts are enacted and may thus change (Smircich & Stubbart, 1985).

Why Some Theories Are More Likely to Become Self-fulfilling

The second contribution of our study to research on performativity is that the boundary conditions we identified help explain why some theories are more likely to become self-fulfilling than others. Which theories reshape social reality matters because it is possible to create multiple futures in many areas of social life, from different modes of collaboration within organizations (Ghoshal & Moran, 1996; Parker & Parker, 2017) to different organizational forms (Leca, Gond, & Cruz, 2014; Paranque & Willmott, 2014) and different ways of structuring the economy (Hall & Soskice, 2001; Rawls, 1971). If the boundary conditions we identified are met, theories may help realize one of these many possible futures.

To start with, the boundary condition of "material devices" may help explain why theories from economics are more likely to become self-fulfilling than theories from other disciplines, such as psychology or sociology (Bazerman, 2005; Ferraro et al., 2005b). Economics has a long tradition of creating material devices that make visible the entities that economists deal with (Callon, 1998, 2007). For example, volatility indexes make visible the notion of "volatility," as financial economists understand it, while monitoring mechanisms developed according to agency theory help detect opportunism in employees (Ghoshal & Moran, 1996). Most other theories, including theories advocated by the proponents of "critical performativity" (Spicer, Alvesson, &

Kärreman, 2009) or "progressive performativity" (Wickert & Schaefer, 2015), have created

fewer material devices. The lack of such devices undermines experimentation and, ultimately,

effective or Barnesian performativity (see Cabantous, Gond, Harding, & Learmonth, 2016: 203).

Similarly, the boundary condition that we termed "sensegiving by convinced actors"

indicates that economists who support a new theory can use their influence in the public

discourse (Riaz, Buchanan, & Bapuji, 2011) to spotlight anomalies that confirm their theory. If

scholars from other disciplines cannot influence the public discourse to a similar extent, even if

their theories produce anomalies, other actors are less likely to see the anomalies and change

their practices in line with those theories. The "competition" in terms of performative success

between management theories and theories from economics, which Abrahamson et al. (2016:

379) envision, may thus be skewed from the start (see Malhotra & Bazerman, 2006).

Future research could explore whether the relative importance of these boundary conditions

varies for different types of theories. For example, the "visibility of effects" may have greater

impact on the performativity of theories that are strongly prescriptive (Bazerman, 2005) or

predictive (Lockwood, 2015), while "sensegiving by convinced actors" may play a greater role

in the case of theories that refrain from clear prescriptions and predictions and thus leave more

room for sensemaking with regard to anomalies. Distinguishing between different types of

theories should help clarify in greater detail in which circumstances theories will become self-

fulfilling (see Busse et al., 2016: 16, on how differentiating constructs can help clarify boundary

conditions).

Why Theories Matter for Corporate Social Responsibility

The third contribution of our paper is to research on CSR (Aguinis & Glavas, 2012; Banerjee,

2008; Scherer & Palazzo, 2007). Over the last 40 years, various economic theories have

fundamentally reshaped the way in which managers think and act (Davis, 2009; Ferraro et al., 2005a). For example, recommendations that spring from transaction cost economics have led to tighter monitoring and control mechanisms within corporations (Ghoshal, 2005), while agency theory has fostered performance-based compensation for top managers (Jung & Dobbin, 2016). These changes tend to reduce the motivation and incentives for managers and other employees to take CSR issues seriously (Burns & Kedia, 2006; Paine, 1994). As a reversal of this development, our paper suggests that the conditions may be right for theories that foster CSR to have a similar impact on the thinking and attitudes of managers and employees (see also Bansal & Song, 2017: 131).

Our new perspective is particularly relevant to research on the CSP–CFP link. While existing research assumes that theories on the CSP–CFP link merely describe what happens in the economy, we argue that under certain conditions these theories can reshape the practices of market participants. If this argument is correct, these theories will eventually be confirmed, even if they were initially biased toward finding a positive link (see Orlitzky, 2011; Rost & Ehrmann, 2015). This possibility suggests that researchers should pay more attention to how the CSP–CFP link changes over time. Notably, while only 43 percent of studies published up to 1995 found a positive CSP–CFP link, a significantly higher 59 percent of studies published after 1995 have come to the same conclusion (Rost & Ehrmann, 2015). While Rost and Ehrmann (2015: 10) attribute this trend to a reporting bias among researchers, we suggest that earlier theories on the CSP–CFP link may have reshaped social reality in such a way that this link is becoming increasingly positive. Beyond academia, future research could investigate how consultants, CSR managers, and think tanks reinforce this process by producing reports that justify the business case for CSR to corporate executives.

Our model also has implications for CSR research at the micro-level (Gond, El Akremi, Swaen, & Babu, 2017; Risi & Wickert, 2017). In an experiment whose subjects were business and economics students, Hafenbrädl and Waeger (2016) found that studying business and economics—rather than other disciplines—increases the belief in a positive CSP–CFP link, and that 80 percent of their subjects believed in that link. Future research could use these insights into how social-psychological processes affect the formation of beliefs to investigate the conditions that make it likelier for individuals to engage in experimentation and recognize anomalies. Such research could help clarify the psychological conditions and sensemaking processes (Basu & Palazzo, 2008) that enable the self-reinforcing feedback loops that our model described at the macro level to emerge on the individual level.

Our model can also serve as a starting point for research on SRI (Dumas & Louche, 2016; Slager et al., 2012). Socially responsible investing involves different strategies, such as negative screening, best-in-class, shareholder engagement, and impact investing (Eurosif, 2016: 12). However, researchers and practitioners disagree on which strategies have the greatest potential to transform the economy. Our model predicts that SRI strategies will be more transformative if they are supported by theories that encourage experimentation and if the experimentation produces anomalies that may convince initially unconvinced investors. For example, recent academic studies on shareholder engagement (Dimson, Karakaş, & Li, 2015) have been received very positively in the financial sector and may therefore lead to experimentation and, subsequently, to anomalies.

CONCLUSION

The fact that social science theories can become self-fulfilling has implications for the way in which researchers think about their own work. Our model suggests that researchers can make it

likelier for a new theory to reshape social reality in two ways. First, researchers can encourage practitioners to start experimenting with a new theory. Second, if a new theory produces anomalies, researchers can spotlight these anomalies and engage in sensegiving to change the minds of hitherto unconvinced actors.

Acknowledging this power, however, raises new questions about the responsibility of researchers. If researchers can encourage experimentation, the question is, what experimentation should they encourage and to whom should they be accountable for their choices? Similarly, if researchers can spotlight anomalies, one may ask, which anomalies should they focus on and on what normative basis? We hope that our paper not only advances research on the performativity of theories as a distinct social mechanism, but also offers researchers some guidance on how they can start reflecting more holistically on their role as producers of theory.

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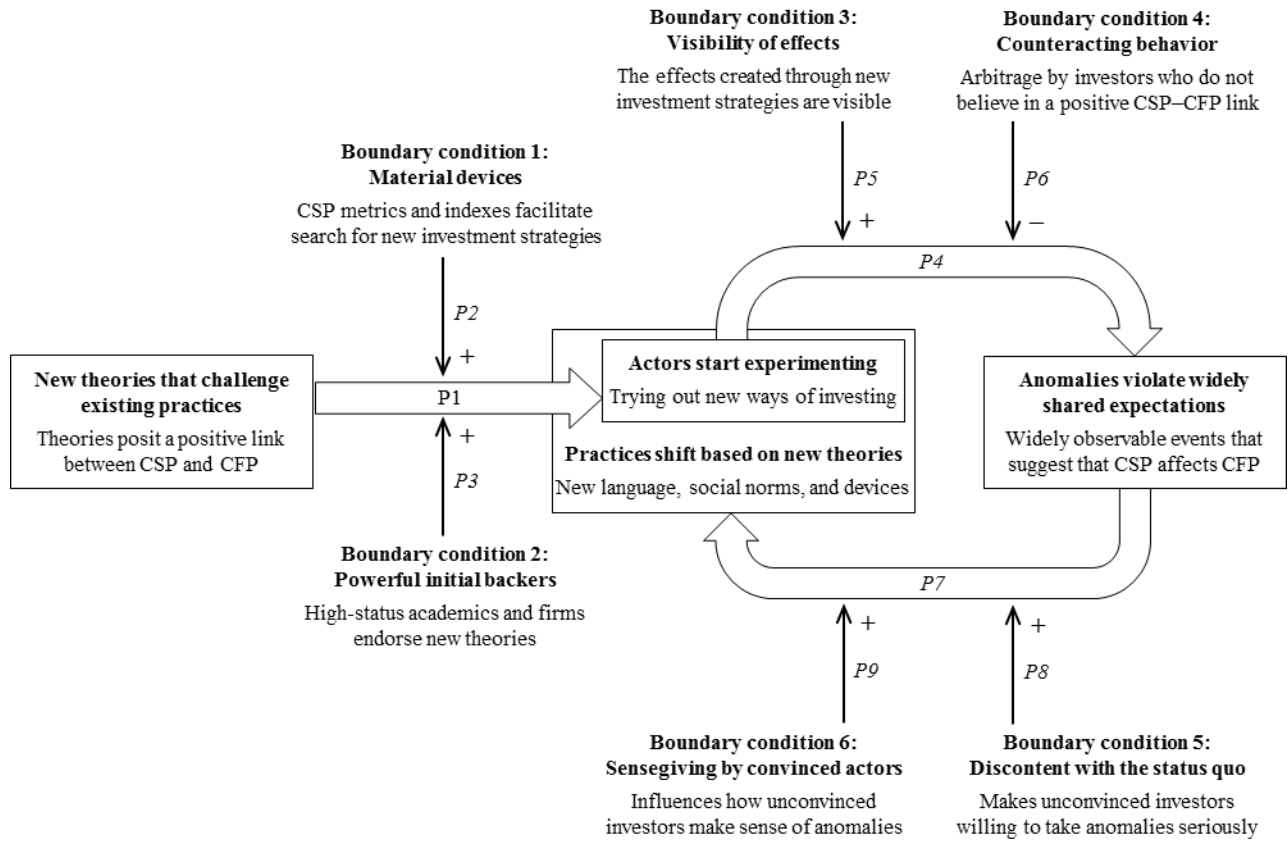
FIGURES

FIGURE 1
A Process Model of Self-fulfilling Theories
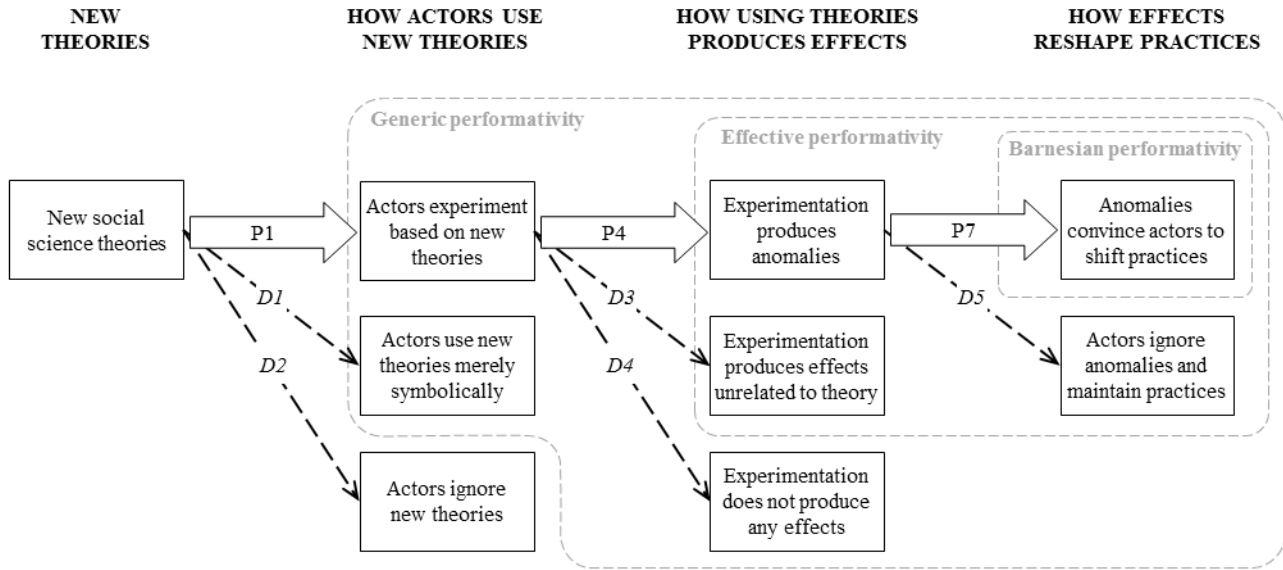
Explanation: Theories become self-fulfilling if they move through P1, P4, and P7. Figure 2 will outline boundary conditions for P1, P4, and P7. D1–D5 refer to "Dead-ends" that do not lead to self-fulfilling theories. The grey borders outline the different types of performativity.

FIGURE 2
Boundary Conditions for the Process Toward Self-fulfilling Theories

Boundary condition 3:
Visibility of effects

The effects created through new
investment strategies are visible

Boundary condition 4:
Counteracting behavior

Arbitrage by investors who do not
believe in a positive CSP–CFP link

P5

+

P6

−

Boundary condition 1:
Material devices

CSP metrics and indexes facilitate
search for new investment strategies

P4

P2

+

New theories that challenge
existing practices

Theories posit a positive link
between CSP and CFP

P1

Actors start experimenting

Trying out new ways of investing

Anomalies violate widely
shared expectations

Widely observable events that
suggest that CSP affects CFP

+

P3

Practices shift based on new theories

New language, social norms, and devices

Boundary condition 2:
Powerful initial backers

High-status academics and firms
endorse new theories

P7

+

P9

+

P8

Boundary condition 6:
Sensegiving by convinced actors

Influences how unconvinced
investors make sense of anomalies

Boundary condition 5:
Discontent with the status quo

Makes unconvinced investors
willing to take anomalies seriously

BIOGRAPHIES

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