Value Sinks: A Process Theory of Corruption Risk during Complex Organizing

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Abstract: *Theories and studies of corruption typically focus on individual ethics and agency problems in organizations. In this paper, we use concepts from complexity science to propose a process theory that describes how corruption risk emerges from conditions of uncertainty that are intrinsic in social systems and social interactions. We posit that our theory is valid across multiple levels of scale in social systems. We theorize that corruption involves dynamics that emerge when agents in a system take actions that exploit disequilibrium conditions of uncertainty and ethical ambiguity. Further, systemic corruption emerges when agent interactions are amplified locally in ways that create a hidden value sink which we define as a structure that extracts, or 'drains', resources from the system for the exclusive use of certain agents. For those participating in corruption, the presence of a value sink reduces local uncertainties about access to resources. This dynamic can attract others to join the value sink, allowing it to persist and grow as a dynamical system attractor, eventually challenging broader norms. We close by identifying four distinct types of corruption risk and suggest policy interventions to manage them. Finally, we discuss ways in which our theoretical approach could motivate future research.*

Keywords: *complexity, corruption, dissipative structures, structural attractors*

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INTRODUCTION

The global pervasiveness of corruption within organizations and governments has been the subject of considerable attention across all levels of organizing. As one prominent set of examples, consider the use of performance enhancing drugs (PEDs) and doping in professional sports (Perlroth and Panja, 2019). This series of scandals began to enter US public awareness in the mid 2000's when Major League Baseball star Barry Bonds, who broke Babe Ruth's decades-old home run record, was alleged to have used PEDs (Berg, 2019). Soon thereafter, Lance Armstrong was stripped of his seven Tour de France titles when his entire team was found to have engaged in a systematic doping scheme during those races (Shipley, 2012). Similarly, the entire Russian Olympic Team was banned from competing in the Brazil Olympics due to systematic doping on the team (Duval, 2017).

Sport-related stories of corrupt behavior represent just one arena where corrupt organizing has been penetrating popular culture. For our purposes, to define corruption we use John Stuart Mill's "harm principle" (see Collini, 1989), which suggests that individual liberty extends only to the point where one's actions do no harm to others (Appiah, 2007). Corruption, therefore, is a situation in which harm is done to others, minimally by illicitly taking away benefits (value) that should accrue to others. Corruption crosses levels of scale and boundaries between public and private entities and has been found within all layers of prominent corporations (Sartor and Beamish, 2019; Roberts, 2016; Orudzheva et al. 2018). For example, Volkswagen systematically violated governmental emissions standards (Pinto 2017), Lucent Technologies misrepresented its revenue in the public markets (Endlich, 2004), and Enron manipulated energy markets for its own benefit (Eichenwald, 2005). In the case of corporate

corruption, once drained from the organization, the extracted value often resurfaces in the economy through money laundering activities (Demetis, 2010; Zucman, 2017) as was clearly shown through disclosures in the Panama and Paradise papers (Garside, 2017; Harding, 2016). In sum, it is not controversial to state that corruption is a widespread problem within and across businesses, governments and non-governmental organizations, affecting all walks of life. Unfortunately, the multi-layered nature of corruption makes it difficult to study (Phillips & Margolis, 1999; Ashforth and Anand, 2003; Crane et al., 2001; Orudzheva et al. 2018; Zyglidopoulos, 2016).

However, despite the pervasive and complex dynamics inherent in corruption, the traditional view of corruption often focuses on a moral failure by an individual agent. This is often framed as an abuse of a moral right, or a misuse of power (Tanzi, 1998; Transparency International, 2015; World Bank, 2015; Rosenblatt, 2012—for a summary, see Palmer and Maher, 2006) by an individual acting alone or within an organization or institution (Pinto, Leana & Pil, 2008). In the traditional view, corruption is understood to be caused, not by the structural conditions in the relevant organizational systems, but the purposeful illegitimate actions of individual agents (Umphress and Bingham, 2011; Voliotis, 2017). While these traditional approaches are useful for understanding one potential layer of corruption, we argue that they oversimplify the complexity of corruption as a social phenomenon because they do not focus on how and why conditions emerge that increase the risk of corruption practices, on multiple levels of scale.

Process Models (Poole et al. 2000; Van de Ven, 2007; Martin, Johnson & Cullen, 2009) have begun to explore corruption as an organizational phenomenon, considering conditions beyond the "black box" of human morality and ethical decision making. For example, Brief et al.

(2001) explain how corruption develops when powerful individuals sanction or authorize corrupt practices within their purview; their overt acts are followed by compliance from those in weaker organizational positions. Over time, what had initially been seen as corrupt actions eventually become norms, and these are ultimately institutionalized and then legitimized as corrupt practice becomes "normal" (Darley, 2005). Other researchers have shown how similar dynamics can lead to corruption further down in the organization (Palmer and Maher, 2006). Still needed, however, is a theory that describes dynamic coupling across organizational levels, what this implies about when and where corruption risk is present, and the signals that might be used to identify risk conditions.

We thus begin by identifying a theoretical gap in the research literature, namely that certain social dynamics create conditions such that corruption risk increases – within and then across organizational levels (scales). This lack of incorporating the systemic pressures for corruption explain why, despite the multitude of initiatives to suppress it, corruption remains even after all the reforms (Persson et al. 2013). One challenge of corruption is that its manifestations are far less apparent than those of other crimes (Bussmann, 2015). Often the genesis of corruption risk runs deep in an organization's culture, and its practices are hidden from view. However, once corruption is embedded in organizational norms and structures, people just go along (Voliotis, 2017). In many cases, the system dynamics of corruption risk reveal why the question of whether a decision constitutes a moral or an ethical choice, never even rises to the conscious level of the decision maker. These types of embedded corruption risk may be particularly hard to discern for new employees who join after such deep-seated organizational norms have been established and legitimized through their continued use.

The purpose of this article is to explore the dynamic nature of corruption as a system phenomenon. Using well-established dissipative structures theory (Lichtenstein, 2014; McKelvey, 2004; Prigogine & Stengers, 1984) from complexity science, we show how seemingly benign organizing dynamics can give rise to specific system conditions wherein decisions must be taken that heighten the risk of corruption. We argue that disequilibrium conditions reduce the predictability of local outcomes; when this occurs, individuals experience both heightened urgency to take action and a complex decision space wherein the precise consequences of any particular action are ambiguous and difficult to predict. If these decisions involve contingent pathways that advantage the decision maker while potentially harming others, the risk of corruption increases. Further, we show how these conditions and choice dynamics can evolve and strengthen through self-reinforcing feedback loops, such that a subset of actors within an organization ('reference system') make choices that advantage those inside the group while disadvantaging—causing harm to—others who are outside the loop.

Further, we show how these conditions stabilize over time so that they become increasingly difficult to identify and eliminate, unless the underlying dynamics that protect their presence are pinpointed and addressed. More specifically, our model shows how 'disequilibrium conditions', described in the next section, are the genesis of corruption risk. This is because these disorienting conditions lead to increased systemic uncertainty and ethical ambiguity (Miller, 1978; Gunderson and Holling, 2001; Walker et al. 2004; Johnson, Martin & Saini, 2011) which together shape the decision space wherein individual choices are taken. Sometimes these conditions spread to the point where corrupt acts become normalized, and individual 'moral choices' are subsumed by large-scale organizational practices and imperatives. In the following sections, after a brief return to theory, we explore the implications of this theory to corruption

risk across scale, suggest policy interventions that derive from this theory, and conclude by proposing further research directions.

THE EMERGENCE OF SYSTEMIC CORRUPTION

Theoretically, "disequilibrium conditions" reflect the onset of excess resource flows. If effectively captured, this disequilibrium can lead to an emergence of new structures that increase the capacity and value of the entire system. If so, the new value is distributed across the system. However in certain cases, one or several agents (with power) in the system may decide to capture a small stream of this value for themselves. In theoretical terms, they literally drain some of the new value away from the reference system, for their own financial gain. The term "value sinks" represents this situation – in which new value is drained from the reference system, through the emergence of a dynamical attractor; this inequity causes harm to all other agents in the system. When an individual supports these dynamics through choices and actions that harm others, we call those choices 'corrupt'.

By taking the system point-of-view, we avoid the problem of considering corruption primarily in the context of a moral failing that occurs inside the 'black box' of individual moral choice. Instead, dissipative structures theory suggests how, in addition to individual choices, the initiation of systemic corruption occurs as a by-product of structural emergence. We believe the complex dynamics of this process, drawn out in detail in the sections that follow, are operant and applicable at all social levels, from the individual, to the work group, to the organization, and even to the national or international level (Emmeche et al. 1997; Orudzheva et al. 2018; Sartor and Beamish, 2019). Ultimately, by describing conditions that enable and support the formation of a value sink, our model contributes new insight into the nature of corruption as a systems

phenomenon; this provides increased leverage in the early identification of, and potential corrective actions for, all types of corruption.

The Origins of Dissipative Structures Theory

Social scientists have developed a very close analogy between the emergence of dissipative structures in physical systems[1], and the emergence of new order in social systems (e.g. Browning et al., 1995; Leifer, 1989; Lichtenstein 2014). These theoretical analogies have consistently shown that the dynamics of emergence can be parsimoniously summarized as four sequential phases of dynamic activity that characterize the local choices and interactions of agents, as energy and resource conditions change. Over the past 35 years, the presence of these four phases has been empirically verified in studies of emergence across multiple levels of analysis, including group dynamics (Smith, 1986; Smith and Comer, 1994), innovation (Nonaka, 1994; Saviotti and Mani, 1998), entrepreneurship (Foster, 2011; Lichtenstein, 2000), radical organizational change (MacIntosh and MacLean, 1999; Plowman et al. 2007), and the development of collaborative and regional clusters (Browning et al., 1995; Chiles et al., 2004).

We open up a new application of this work, extending the four-phase model of emergence to explain the onset of system conditions that generate significant corruption risk. In particular we examine the risk that what emerges in a dissipative structure is a value sink, which

[1] Complexity science includes a number of theories for modelling emergent structures in dynamic systems. The most common approach for explaining emergence across levels is Dissipative Structures Theory, which was originally developed in thermodynamics (Bénard, 1901; Prigogine and Stengers, 1984) and later extended to social systems (Leifer, 1989; Macintosh & Mclean, 1999; McKelvey, 2004). Empirical studies show that under certain conditions, when heat energy is dissipated through a non-isolated system, dynamic system structures spontaneously emerge that increase the capacity of the system to dissipate energy from its 'source' across the system's boundary to a 'sink' – i.e. to a lower energy state – that is also outside the reference system's boundaries (Prigogine and Stengers, 1984; Swenson, 1989). Stated differently, when there in an influx of new energy or resources into a system, viscosity frictions operate locally during interactions to enable new degrees of 'ordering' and 'self-organizing' through emergent structures. These dissipative structures channel resources and minimize the local unpredictability that is due to broader ambient disequilibrium conditions inside the system that would otherwise dominate interactions. Physical examples of this spontaneous order-creation process include convection cells in viscose fluids, a whirlpool around a sink drain, cyclones, and other weather patterns.

systematically siphons value away from the reference system, into areas (e.g. accounts) beyond the system's boundary and out of reach of system actors. Individual agents who are caught in these disequilibrium dynamics, are presented with conditions of high corruption risk. Their choices are sure to be influenced by those systemic forces, which serve to increase the ambiguity of the situation and unknowability of its outcomes, causing some to be swept up into a ring of corruption.

The Four Phases of Dissipative Structures Theory – Overview

The four phases of Dissipative Structures Theory are shown in Figure 1. As described in more detail in the next sections, we say that 'systemic corruption risk' is present in the system when internal tensions arise from the opportunity to exploit new value, within the system or across its boundary. The ambiguity and uncertainty of these tensions can bias individual choices and interactions toward activities that support the emergence of a value sink. This bias arises when individuals are attracted to actions that, although they would reduce this 'opportunity tension' overall (Goldstein, Hazy & Lichtenstein, 2010), they would do so at the expense of the reference system and its members.

These risk dynamics can occur during all four phases of its emergence; we present these as four types of corruption risk, one in each phase. The process is initiated by an opportunity, and the in-tension to capture it. That is the case when: (1) An agent—an individual or a multi-agent group or organization—acts to reduce the uncertainty surrounding opportunity tension, potentially at the expense of the broader reference system and its participants. (2) That agent enters into relationships that continue to exploit the opportunity, amplifying it so as to extract its potential value from the reference system. (3) These agents then recombine into emergent subgroups that more effectively support the exploitation of the opportunity through an organized

value sink. (4) Finally, this corrupt value sink becomes embedded, sustained, and legitimized through acts that leverage existing ethical ambiguities, thus stabilizing the value sink within the reference system.

Insert Figure 1 about here

Dissipative Structures Theory and Corruption

In the analysis that follows we use a generalization of the 'harm principle' of John Stuart Mill (see Collini, 1989) to parse requisite system conditions that might render these types of ambiguous ethical choice corrupt. Mill's original harm principle considers the ethics of individual choice in the context of the harm that the choice might bring to others whether directly or indirectly (Appiah, 2005). In the argument that follows, we infer that the original principle refers to what might be called 'predictable harm' to a specific other. This is in contrast to inadvertent harm that occurs due to intervening events that the decision maker could not have predicted.

We propose, however, that recent developments from Dissipate Structures Theory suggest it might be valuable to extend Mill's thinking to include probabilistic prediction. By this we mean that if one can reasonably predict that there is a significant probability that a certain act will bring harm to others, even though exactly whom it may harm is unknowable, then this decision carries with it measurable corruption risk. It would follow that even decisions that involve only a probabilistic prediction of harm to others should require mitigating actions as an ethical imperative.

Importantly, the systemic nature of this definition and theory means that these dynamics will be present across levels of organizing, from individual choices and relationships to group-

level actions, to organizational level processes, and even up to the national and transnational level. As a means to exemplify these scale crossing dynamics, the next section describes four types of corruption risk, the dynamic mechanisms that foster them, and how each of these types of risk might be recognized, modelled, and studied. For reference, these four risk-types and how they might be recognized across levels of scale are summarized in Table 1.

Insert Table 1 About Here

A CONTINUUM OF CORRUPTION IN THE LITERATURE

Business scholars often consider corruption in terms of unethical workplace behaviors, often by highly-placed individuals who abuse their power through bribes, or more broadly by incidents of trading public influence for personal benefit (Trevino, 1986; Pinto et al. 2008, Ashforth et al. 2008; Ata and Arvas, 2011). Under conditions of uncertainty, however, lack of clarity regarding any particular local – and perhaps harmful – outcomes, let alone the predictability and visibility of more distant events, often renders the requisite identification of harmed others highly ambiguous. This ambiguity further increases corruption risk of four types, each associated with its corresponding phase of emergence.

The Incident-Type of Corruption Risk Increases during Disequilibrium Conditions

The first type of corruption risk we examine involves a particular choice to follow one contingent path which would probably harm others, even if this potential harm may be difficult or impossible to determine. This incident type of corruption risk is most easily observed at the lowest level of analysis, that is, when there is a single incident with specific individuals at a particular place and time that may or may not be corrupt. However, incident risk can be present at all levels. For example, there is incident risk when an organization takes a decision with regard

to product safety and there is a significant probability that some unknowable members of a class of others will be harmed.

What is an incident of corruption?

An example that involves incident risk was the deliberate illegitimate act by prominent US Baseball player Roger Clemons late in his career. It was alleged that Clemens had used Performance Enhancing Drugs (PEDs) to extend his career in direct violation of league rules (Schmidt, 2010). Although Clemens denies he ever used PEDs, the allegations would suggest that there were many incidents during which he acted illegitimately in order to extract incremental value from the profession baseball system that, absent the PEDs, would most probably not have accrued to him legitimately, that is according to league rules. The value that Clemens presumably extracted was a higher performance level that supported his high salary. This would have caused harm to younger players who could have outperformed the aging Clemens (Schmidt, 2010) absent the PEDs.

In the traditional view, Clemens himself is alleged to have made this choice; one could infer that he was likely aware that his reward would disadvantage—do harm—to, others. However, from a complex systems view, the risk (attribution) of corruption here is predicated on a set of social structures that condition the opportunity tension he was responding to, including the high salaries of successful players, the norms of the sport, and the challenges of remaining competitive over many years in the game. For those reasons, what is of interest is not the social psychology of his actions; instead, we seek to explain the dynamic structural conditions which impact the decision space within which individual choices, like the one taken by Clemens, must

be considered.

Incident-Type corruption risk and disequilibrium conditions.

How might one analyse this example of Incident-type Corruption Risk? Table 1 presents a summary of this dynamic process. Specifically, in the first phase of dissipative structures theory (shown in the lower left corner of Table 1), corruption risk is present when a potential opportunity for new value-creation becomes available, while at the same time the disequilibrium conditions in the system make local outcomes less predictable. More precisely, the opportunity tension pushes the system out of its current state into disequilibrium conditions, which limits the predictability of future events—including which actions may capitalize on the opportunity.

This uncertainty about the future can heighten the need to act quickly to realize the opportunities. At the same time, disequilibrium conditions increase ambiguity, making it more difficult to gauge the direct and indirect implications of how choices may influence others (e.g. costs or harm to others). Moreover, certain agents may be more affected by these systemic tensions than others, thus increasing the challenge of predicting future events. Similarly, disequilibrium conditions also make some individuals more susceptible than others to social influence (Rosenblatt, 2012; West et al. 2014) and emotional contagions (Smith-Crowe and Warren, 2014; Hazy and Boyatzis, 2015), which also heightens the prospect of corruption risk.

Under these high-risk disequilibrium conditions, the agents most affected may enact solutions which reduce the attendant tensions, by leveraging these opportunities for their own benefit, rather than for the benefit of the entire system. Thus, one or more individuals may choose to capture and extract new value for their own benefit (alone), irrespective of the potential that the choice will to do harm to others. These insiders siphon away the potential value from the opportunity, in violation of the reference system norms which are now weakened

(Darley, 2005; Palmer and Maher, 2006). An informal example of this would be when one member of a crew is given a gratuity meant for everyone, but the rest of the crew has already left the scene. This disequilibrium situation raises the individual's internal tension around how to distribute the gratuity; for some actors, the easiest solution for reducing this internal tension would be simply to pocket the entire amount and then later, upon reflecting, rationalize that the decision was fair given the situation.

In our model, when encountering incident-type corruption risk, offending agents are those who choose to 'defect' from now weakened reference system norms, rather than cooperating with others – that is, rather than sharing the new value across the reference system. Here, the risk of corruption arises when disequilibrium leads to what Durkheim (1966/1951) called anomie—weakened normative controls (Johnson, Martin, & Saini, 2011), which increase the likelihood that individuals may make the choice to capture and extract new value for their own benefit, regardless of the harm their choice will to do to others (Darley, 2005; Palmer and Maher, 2006).

Relational-Type Corruption Risk Can Amplify Opportunity Tension

Corruption also occurs through cooperative relationships between two or more agents (Trevino, 1986). Research on corrupt relational-interactions is typified in the literature by the framing of the principal-agent problem of corruption (Becker and Stigler, 1974; Banfield, 1975; Rose-Ackerman, 1975; Klitgaard, 1988; Tirole, 1996). In this approach one agent who benefits from value-creating activities, does so for beneficiaries who, due to the particulars of their relationships, may be shielded from negative consequences that may result if the corrupt acts are discovered (Hargrave and Van De Ven, 2006).

What is a corrupt relationship?

A situation of this type that did eventually have consequences for its collaborators occurred in sports doping. This example relates to the BALCO (Bay Area Laboratory Co-operative) scandal, wherein the founder of this sport supplement company was ultimately found guilty of lying to prosecutors about the personal relationships he generated with professional athletes, to provide them PEDs while helping them manoeuvre around league rules and avoid detection. These relationships are exemplified by ongoing interactions between the BALCo Founder and athletes such as US baseball star Barry Bonds and Olympic athlete Marion Jones (Fainaru-Wada and Williams, 2006), who were both alleged to have used PEDs provided by BALCO. While specific corrupt incidents like the Roger Clemens example might be perceived as independent and limited transactions, over time, amplifying interactions in relationships can escalate the opportunity tensions arising from disequilibrium conditions. These dynamics can lead to system conditions of increased value sink potential and thus corruption.

This dynamic spread of value sink potential can be insidious, because a few illicit relationships that are neither detected nor penalised may eventually lead to the formation of a persistent corrupt group of interacting relationships that operates locally, as BALCO did, within the broader reference system. Furthermore, because normative controls are weakened by these corrupt incidents, other athletes might come to believe that if they too decide to work with BALCO and use PEDs, they would very likely not be caught and be able to avoid the harm caused by these relationships (Martin, Johnson &Cullen, 2009). In fact, some players who are sitting on the fence, could plausibly argue that the rules themselves are changing and furthermore, that since PEDs are in common use, no one is in fact being harmed.

Relational-type corruption risk arises through amplifying actions.

In the second phase of dissipative structures theory, the potential gain of renegade agents

can be advanced and amplified through relationships that generate positive feedback locally between individuals within the system (O'Higgins, 2006). This prospect – best shown in the ascending diagonal of Table 1 as 'Interpersonal Feedback' – increases the structural tension between the existing (normative) social structures in the reference system versus the nascent and non-conforming actions that are being enacted within local relationships. Amplification is increased through positive feedback – when the agent's potentially corrupt actions create outcomes that increase the viability of taking further actions of the same type. This process is an example of emotional contagion (Smith-Crowe & Warren, 2014; Hazy & Boyatzis, 2015), arising through rationalizations that justify non-conforming events on behalf of potential value-creation when performed in the context of these relationships (Zyglidopoulos et al. 2009).

This type of corruption risk is present when relationships between cooperating agents are able to amplify individual actions, by channelling their effects through repetition, imitation and resonance. These amplifying actions build structural momentum in an emerging pool of social influence surrounding the growing value sink. Corruption of this type can occur when agents form a relationship inside the system and agree, or are manipulated or otherwise drawn to participate in this momentum building process (Zyglidopoulos et al. 2009; Karmann et al. 2016; Smith-Crowe and Warren, 2014; Hazy and Boyatzis, 2015). Alternatively, this amplification could also be reinforced through a 'periodic forcing' dynamic that originates through boundary-crossing relationships as individuals outside the system, such as lobbyists, service providers, regulatory agencies, licensed professional services, or government officials (e.g. Eichenwald, 2005) encourage, for example through kickbacks, suspect behaviors by those inside the system.

In any of these cases, this type of corruption risk becomes an instance of 'corrupt relationships' when they siphon value away from the reference system for the personal benefit of

some to the exclusion of others and does so in violation of legitimate system norms (e.g. Zyglidopoulos, 2016). If continued, this amplification and resulting structural tension can spread throughout the reference system, increasing the likelihood that the new value will indeed emerge as a value sink. These dynamics operate at each level of scale, as well as across and between levels of scale, to impact the reference system, its agents, the entire system, and its broader ecosystem. An informal example this amplification dynamic is the gradual normalization of kickback payments to purchasing agents or supplier cartel arrangement (cf. Black, 2004) that are associated with systematic overcharges to the reference system on supply contracts.

As Table 1 shows, these dynamic conditions begin to approach a tipping point further blurring the predictability of both direct and indirect harm to others. As this occurs, they become a putative force of attraction that allows a value sink to draw others in, stabilize, and eventually expand into a fully corrupt subsystem. Note that the transition from a few illegitimate acts to a prevailing systemic condition of corruption risk, shapes the decision space for all future transactions in that reference system. This includes altering domination structures (Giddens, 1984), like power-dynamics, as well as a changing legal environment of legitimation (Giddens, 1984), like what is occurring in the US cannabis market (Dorbian, 2019).

In these cases, it is the deinstitutionalization of normative control that creates the conditions for increased risk of corruption (Martin, Johnson &Cullen, 2009). This is why we argue that the causal influence of organizational and institutional conditions under which choices are taken requires a systemic ethical framework. The one we describe in the next main section effectively generalizes the notion of 'harm' to others as support for a 'value sink' in the systemic context. We believe that this approach allows researchers and policy makers alike to better

identify the determinants of corrupt transactions, in business practice, broadly considered, as well as in the context of individual moral choice.

Group-Exclusion-Type Risk Systemically Excludes Entire Groups or Subsystems

To continue our conceptual journey across levels of analysis, corruption during structural reconfiguration scales up from the incident and relational levels. At this higher level, corruption risk increases when continuing incidents across multiple relationships interact. This occurs when reconfigurations of structure generate a new emergent shared identity within a workgroup or team (e.g. Kesner et al. 1986; Greve et al. 2010), through the process of structuration (Giddens 1976; 1979; 1984; also Archer 1995). Importantly, the stabilization of a new social order can produce structures of signification, legitimation, and domination that together provide ideological cover for actions which would have previously been called illicit acts. These structures increase corruption risk (Zyglidopoulos et al. 2009), particularly when new legitimation or signification structures are actualized by powerful actors who claim that certain suspect norms are in fact 'legitimate' in the context of 'our' team's benefits for 'us' vis a vis 'them' who might be harmed. For example, under claims of legitimacy in the new order, some of the value from new business opportunities might be diverted into personal accounts by those with decision-making authority. Specifically, powerful actors accomplish this by using their group's emerging domination structure as a cover for consolidating these new resource flows as being 'ours'. This rationalization by those in power often goes beyond justification of the immediate non-conforming acts alone (Zyglidopoulos et al. 2009). This ideological overhang can open the door to escalating corruption risk that is continually justified by reframing additional non-conforming social structures as legitimate norms, thus incorporating them in a strengthening collective identity (Darley, 2005; Zyglidopoulos et al. 2009) surrounding a value sink.

As an unintended result, the team as a whole can be caught in these power dynamics which control resource flows to them. Further, they are provided cover for their actions through new ideological justifications that define membership – and thus claims to benefits – in ways that authorize non-conforming decisions (Warren, 2003; Voliotis, 2017). These governing structures can be further strengthened and legitimized as powerful individuals threaten to impose punishment, exclusion for example, against team members who resist participation, which is clearly a type of predictable harm (Brief et al. 2001; Leavitt and Sluss, 2015; Baur et al. 2019; Bussmann and Niemeczek, 2019).

At this level of analysis, the scale-crossing structuration of group identity—through norms determined and sanctioned by attendant domination structures—creates the conditions for systemic corruption risk (Brief et al. 2001; Darley, 2005). This growing structural tension can ultimately destabilize the dynamics of the reference system as a whole (Dooley, 1997). Corruption risk is amplified when team activities are authorized or incentivized by a legitimate actor whose articulated goal is to improve local group performance (McCaw, 2002; Lee et al. 2017) but who in actuality is staking a claim on the benefits of an emerging value sink, for example, a lucrative contract with a contractor who spends lavishly or perquisites and gifts.

What is corruption of the group-exclusion-type?

This level of corruption is exemplified by the case of Lance Armstrong, who conspired with his coaches and teammates of the US Postal Service Team to create a unique set of norms within an entirely new subsystem, thus hiding a systemized doping operation within the competitive bicycling reference system even as other teams, although systematically disadvantaged or 'harmed', were not considered consequential within the US Postal Team's normative constructs. By reconstructing the team's purpose and identity, as maximizing 'us' at

the expense of 'them', resources were repurposed to produce and sustain a value sink for the exclusive use of Armstrong and his team, a clear case of predictable harm. The presence of the US Postal Team PED value sink systematically harmed other teams and therefore other riders: The effectiveness of this subsystem enabled Lance Armstrong to win seven Tour de France titles (Shipley, 2012) while earning hundreds of millions of dollars in endorsement contracts. As in the previous examples, a key causal factor is that the hidden subsystem operated around its value sink for its own purposes—within emergent structures and corresponding (internally) legitimized norms—such that the larger reference system was initially 'blind' to the net costs involved.

Group-Exclusion corruption risk through structural reconfiguration. During the reconfiguration phase of Dissipative Structures Theory, entire subsets of the system are isolated and thus harmed due to a structural disruption at the organization or macro level. As cooperating relationships are amplified during repeated interactions, and as internal structural momentum around a value sink increases beyond the tipping point (Smith-Crowe and Warren, 2014), the broader reference system may be totally reconfigured, such that the renegade agents can continually capture the new value (Nonaka, 1988; Chiles et al., 2004). This emergent order reduces systemic tensions and internal conflicts, generating new interaction patterns within workgroups with attendant power dynamics and social networks that normalize the actions, thus systematizing value-sink dynamics (Brass et al. 1998).

Inherent in this structural reconfiguration is a shift in the ideology of the local system as other process models have described (e.g. Brief et al. 2001; Palmer and Maher, 2006). In cases of an emergent and increasingly dominant value sink, the shift alters legitimate norms (Giddens, 1984; Johnson, Martin & Saini, 2001) thus structurally embedding the value sink at a new level of order. In these cases the newly reconfigured system reduces the systemic tensions and internal

conflicts, leading to new interaction patterns that are intended to hide the presence of the soon to be legitimized value sink as a corrupt subsystem forms within the reference system. An example of this would be the approval by senior executives and the board of directors of an overly generous retirement package that applies only to them (Zyglidopoulos, 2016). This risk may be hard to detect due to positional power of the renegade agents' and their conspiratorial efforts to hide or defend their actions (Zyglidopoulos et al. 2009).

Organization-Ecosystem Type Risk Can Harm Others in the Ecosystem.

At the next higher level in the continuum, corruption risk can extend throughout an entire organization (e.g. Pinto et al. 2008; Zyglidopoulos et al. 2017). Similar to the team dynamics explained above, organizational members pursue actions which apparently maintain high performance, but they do so by reconfiguring social norms and decision-making processes that legitimize certain non-conforming behaviors by some of its members (Brief et al. 2001; Darley, 2005; Zyglidopoulos et al. 2009). In particular, embedded within these emergent social structures are compromises which tolerate the genesis of a hidden value sink within the reference system.

What is corruption of the organization-ecosystem type?

It turns out that these conditions have been causal factors in many examples of corporate corruption. Examples of this include charges of bribery against well-regarded companies like Siemens (Clinch and Gamble, 2015), BAE Systems (U.S. Department of Justice, 2010), and Daimler (United States District Court, 2010). In the extreme, corruption risk extends beyond the reference system, such that the value which should accrue to the organization and its stakeholders is instead lost to a systemic value sink, thus causing predictable, albeit probabilistic, harm to stakeholders of the broader ecosystem who are excluded or otherwise disadvantaged. An example of this in sports is the systematized state-sponsored Olympic doping conspiracy that

was operating within the Russian Olympic team in 2012 and 2014, ultimately leading to Russia's ban from the 2016 Olympic Games in Brazil (Russian Doping, 2016; Duval, 2017). This exemplifies a value sink whereby international prestige and the economic benefits of winning Olympic medals were siphoned away from other Olympic Games participants for the sole benefit of Russia and its athletes. The result is a value sink precisely because it harmed others by diminishing the reputation and the value of legitimate achievements by other Olympic athletes even though it might be impossible to know exactly who was harmed and how much.

Stabilizing feedback enables corrupt organizations.

This fourth type of corruption risk occurs when this emerging value extraction become a stable value sink and thus a source of positional power for individuals within the newly legitimized subsystem of the reference system. That is, following the nonlinear emergence of this new configuration, a period of *stabilizing feedback* ensues. In this phase, the system can stabilize into a new dynamic state, increasing the effectiveness of its now corrupt organizing structures (Goldstein et al. 2010). Here, the emergent structures of new value creation – which now includes a non-conforming value sink – become embedded into the reference system that is now operating with a higher degree of resource flows. The result is the generation – and potential extraction from other ecosystem stakeholders – of additional value in an increasingly efficient way.

This risk is structural because it is maintained and strengthened through stabilizing feedback within the reference system that now incorporates an embedded value sink. Examples of this stabilizing feedback include obfuscation routines, deceit-promoting norms, legitimizing actions by authority figures, as occurred at Enron and at Volkswagen. Even more nefariously, this feedback may come in the form of physical or psychological threats to those who do not

participate in emergent norms that sustain and protect the value sink. This type of corruption risk will allow the corrupt subsystem to quickly become more dominant and achieve higher degrees of self-organization, thus the newly corrupt reference system systematically extracts value from the ecosystem. This harms others not in the reference system. Over time, the corrupt subsystem can threaten the stability of the reference system itself as it progressively delegitimizes and disables the legitimate monitoring and control routines that remain in the reference system. The beneficiaries of a value sink effectively become quasi-legitimate stakeholders of the now systemically corrupt reference system; an example of this might be some of the plutocrats in Eastern Europe (e.g. Gebrekidan et al. 2019).

The National and Transnational Levels of Corruption

At the next higher level, national cases of corruption risk involve the actions of government officials which may be legitimized within the norms and power dynamics of a particular country, even though they go against international norms of behavior. This is especially true in autocratic governments, which often use embedded corruption as a means of accomplishing their political and social goals (e.g. Gebrekidan et al. 2019). For example, research has shown a correlation between a country's "shadow economy" and instances of corruption within it (Batrancea et al, 2018); in a similar way, autocratic governmental interference in democratic elections is increasingly common (Potrafke, 2018).

Stopping behavior at this level often requires strong norms at the next higher (global) level; this is well expressed by the president of the World Bank, James D. Wolfensohn, who argued that solving world-wide poverty depends on solving corruption internationally. "[T]here is nothing more important than the issue of corruption…. At the core of the incidence of poverty is the issue of equity, and at the core of the issues of equity is the issue of corruption" (in Renoe,

2002, p. 103). Here again, the causal factor of corruption risk relates to institutionalized norms, far beyond individual moral choices. Others examples or systemic harm or harm to others from organization-ecosystem type corruption risk that could reasonable be studied include: globalization of supply chains, climate change, deforestation, and declining species diversity.

Corruption Across and Between Levels of Organizing

To summarize this multi-level analysis, the examples and theory we have explored describe how corruption, defined as choice and action that harms others, can occur in a continuum—across and between all levels of analysis. Further, we argue for expanding the definition of harm to others to include probabilistic harm to a class of others. To do this effectively a multi-level systems model is needed to describe observable conditions that increase corruption risk. Such a model could also offer tools for identifying and combating it, or at least dampening its effects.

We believe that the approach described herein explains how corruption risk arises, and furthermore it goes on to demonstrate that there is a systemic generative mechanism of corruption risk, i.e., the potential that new structural order will emerge to surround and sustain a value sink. If this potential value sink is supported by individual choices and actions – whether explicitly and thus nefariously or implicitly and therefore innocently – the resulting systemic attractor dynamics of reinforcement and amplification can challenge the stability of the existing organizing structures of the reference system, potentially weakening the system's normative control structures, and increasing the risk that corruption will emerge across levels of scale. The uncertainty surrounding the disequilibrium conditions that engender this emergence increases outcome uncertainty and ethical ambiguity and therefore complicates the predictability of

individual outcomes, or sometimes even render moot, the moral and ethical choices faced by individual actors.

The four-phase process by which a value sink emerges is explicated in Table 1, with the sequence of stages shown along the horizontal axis. Importantly, the systemic nature of the theory reveals similar dynamics across and between multiple levels of analysis, as numerous studies have shown (e.g. Nonaka, 1988; MacIntosh and MacLean, 1999; Lichtenstein, 2000; Chiles et al. 2004). These levels of structural hierarchy are shown along the vertical axis of Table 1. Before turning to the implications of this approach, we close this section by using a well-known example of corruption to illustrate the approach we propose.

Corruption's Expansion across the Continuum – The Case of Enron Reconsidered

A good example of the initiation and spread of emergent corruption across levels occurred at Enron, leading to the firm's eventual demise. Early in the process, individual traders were caught using internal flows of information to make trades in energy futures for themselves, in parallel with the trades they made on behalf of their firm (Eichenwald, 2005; McLean and Elkind, 2004). The onset of incident-type corruption is clear: Although the information flows generated new value for the reference system in the form of trades on Enron's account, the personal trades also extracted potential value, siphoning it away from Enron for the trader's own benefit. Importantly, this occurred beyond the reach of the references system's normative controls. Due to contagion effects, awareness of these personal trade opportunities was transmitted through relationships caused these corrupt practices to be amplified, a clear case of relational-type corruption, and to spread quickly and effectively, soon engendering an emergent group identity among energy traders and becoming the norm for "how we do things around here"

(Darley, 2005). At this stage, the 'we' referred to energy traders rather than the entire reference system. This signalled the presence of group-exclusion-type corruption.

It is, of course, possible to argue that no harm was done to the firm or its stakeholders by these early trades because value was created for the firm as well as for individuals. In fact, when these trades were brought to the attention of CEO Ken Lay he argued for accommodation, one might even say legitimation, saying that the trades appeared to help Enron by motivating the employees to make even more profitable trades for the firm (McLean and Elkind, 2004; Eichenwald, 2005; Nix, et al. 2017). The bigger issue, however, is that this personal use of valuable firm-owned information by a few players creates disequilibrium conditions and opportunity tensions within the firm as a whole, by co-opting the potential for others to gather additional value and thus disadvantaging or harming them. Thus, these acts reflect corruption even though they were praised and sanctioned (Brief et al. 2001), and thus legitimized (Giddens, 1984) by the firm's CEO.

These actions were the beginning phase of reconfiguration and thus suggests the presence of organization–ecosystem type corruption risk. In the longer term one can see this risk realized as systemic corruption as the emergent value sink became institutionalized and even came to include price manipulation of energy contracts within the energy futures ecosystem. This reconfigured business model within its now corrupted ecosystem brought Enron's auditor, Arthur Anderson LLP, into the scheme in an illicit partnership. This ultimately led to the collapse of that highly respected big-five accounting firm (Eichenwald, 2005; McLean and Elkind, 2004) when it fell to regulatory scrutiny along with its client Enron.

As the Enron case illustrates, in certain instances, the emergence of system-level corruption can attract individuals who are influential in certification agencies like Arthur

Anderson, or national agencies like permitting offices (Batrancea et al. 2018). This can lead to the spread of these practices to other firms and institutions until organized corrupt activities occur within an entire regional, national or even international system (Batrancea et al. 2018). Corruption at this national or international level has significant impacts, especially when it emerges through activities at the preceding levels which legitimize certain practices as 'the norm,' i.e. the new normal. The appearance of a 'common practice' allows national agencies to fall to incident–type corruption risk (now at the organization level of analysis) as they officially legitimize these activities (Kaufmann and Vicente, 2005). At the same time, by establishing inter-institutional relationships that direct some of the benefits of the now legitimized value sink toward the outside accounts of some high-influence agents and organizations (Roberts, 2016; Zucman, 2017) relational-type corruption emerges at this higher level of scale, and so on, as the self-similar dynamic process unfolds at the ecosystem level.

To summarize, systemic corruption emerges as corrupt acts occur over time under conditions characterized by each of the four types of corruption risk. Together these actions cause harm by creating and sustaining momentum around a structural value sink that is hidden or protected within the reference system. The value sink siphons value from the reference system for exploitation by renegade actors at the expense of others in that reference system. Thus, any conditions which exhibit one or more of these types of corruption risk, should be investigated.

POLICY PRESCRIPTIONS FOR MANAGING CORRUPTION RISK

This complexity-informed definition of corruption provides clarity around how the phases of emergent organizing structures can create conditions such that there is a significant probability that some unspecified others may be harmed by local choices and actions. These

conditions signal four distinct types of corruption risk. To conclude our analyses, we highlight principles that policy makers can use to identify and mitigate each type of corruption risk.

Risk 1: Opportunities in and around a reference system engender disequilibrium conditions that limit predictability, including harm to others. This signals incident-type corruption risk.

One way to mitigate this risk is to limit the ambiguous effects of disequilibrium conditions. For example, one might increase the consistency and transparency with which leaders respond to local uncertainties that arise across the organization (Bussmann and Niemeczek, 2019), or clarify norms in this new context. This is especially important when new opportunities – like PEDs in sports or lucrative energy trades at Enron – arise to push the system out of its dynamic equilibrium. When disequilibrium conditions are experienced locally, greater uncertainty about the future distribution of benefits and the potential for collateral harm reduces the predictability of individual outcomes. This can challenge the potency of generalized trust and loyalty as individuals choose with whom to cooperate in and across their groups (Adelopo & Rufai, 2018).

One policy approach, therefore, is to design clear procedures and norms that govern the legitimate discovery and initiation of new projects in response to emergent opportunities, while also highlighting potential for harm to others that may follow those projects. This would reduce uncertainties with respect to the distribution of benefits and costs in the population. An expanded perspective that includes the secondary effects of probable harm to others would limit the perceived net benefits available through risk-taking while increasing the relative benefits associated with the choice of keeping the benefits of innovation within the reference system (Karmann et al. 2006).

In practical terms this policy would be enacted by identifying opportunities that lead to disequilibrium conditions, and then triggering a process that clarifies current norms and expectations, thus increasing predictability through enhanced transparency and collaboration. An additional policy could be pursued whereby all individuals who identify and help to realize the benefits of new opportunities can count on being rewarded financially and otherwise, once the idea is enacted. The promise of consistent and predictable reward for working within the system would reduce the inner tension and ambiguity associated with calculating the eventual payoff or probability of harm to others associated with conditions of increasing corruption risk. Rather than blindly relying on individuals to 'do the right thing' under increasingly difficult and ambiguous ethical conditions, these policies would motivate agents to continue operating within reference system norms (Ashkanasy, Windsor & Trevino, 2006; Bussmann & Niemeczek, 2019).

Risk 2: During disequilibrium conditions, feedback relationships that amplify value-capturing opportunities can harm excluded others. This may signal relational-type corruption risk.

One way to encourage people to comply with reference system norms in their relationships is to make clear that any self-dealing with participating agents inside or outside the reference system, or any lack of transparency therein, signals that others who are excluded are likely being harmed. Thus, these behaviors should be considered explicit violations of system norms and therefore should be disciplined (Bussmann and Niemeczek, 2019). This is especially important when value capture opportunities become accessible to more and more agents, all of whom are embedded in a distinct component of a complex social network of emotional relationships, because the risk can be amplified by social contagion (Smith-Crowe and Warren, 2014; Hazy and Boyatzis, 2015) further excluding, and thus potentially harming, others in disconnected network components. Further, we suggest putting extra scrutiny on amplifying

actions which build loyalty to certain individuals (i.e., network hubs) rather than the system—including the distribution of performance bonuses, personal access to political power hubs, and control of resources—which could therefore build momentum around charismatic individuals whose actions run counter to commonly accepted norms (Campbell and Göritz, 2014; Jurkiewicz and Giacalone, 2016).

Such non-conforming and amplifying actions can also be suppressed through additional controls that enhance organizational culture and develop a shared sense of identity within the reference system. This can be accomplished by clarifying and amplifying visibility associated with the potential that others in the reference system will likely be harmed by non-conforming actions. Examples include instituting rotations of staff, conducting insider threat monitoring, and implementing data masking tools that can limit illicit cooperative transactions and the exfiltration of valuable data. In parallel, care should be taken that the rewards associated with cooperatively enacting new value creation are predetermined so that the benefits are predictably shared equitably across participating agents in the reference system (e.g. the team or organization) rather than allowing the benefits to accumulate at the apex of that system's power hierarchy. In a similar spirit, monitoring and actively supporting information sharing across and within communities of practice increases the visibility of broader benefits that flow from continuing to participate in the reference system. This will help clarify the stakes for those who must decide whether to stay with the norms of the reference system or succumb to relational corruption risk.

Risk 3: The re-configuration of social structures with the reference system can signal a structural phase transition. This may signal group-exclusion type corruption risk.

Transparency and whistle-blower policies should include a special focus on periods when there is noticeable structural recombination or reconfiguration, a condition which can increase

corruption risk (Vadera, Aguilera & Caza, 2009). This might be observed as sudden shifts in relative political power, levels of activity, or management interest in certain projects, particularly when these changes are observed with no clear organizational (i.e. reference system) purpose.

Such increased activity may suggest the structural disassociation of entire groups whereby the remaining or excluded members of the reference system are thus at risk of relative harm. These reconfiguration patterns signal corruption risk and suggest that the risk may extend beyond the organization's boundary to broader macro contexts such as supplier or customer relationships. It may be feasible to produce tangible evidence for this risk by looking for unexpected changes in unit-level metrics such as budget overruns or unsubstantiated change requests, personnel turnover, workload variances, unusual inventory levels, unexplained costs or expenses, or changing profit margins. These investigations might also involve attempts to uncover money laundering activities (Demetis, 2010).

Risk 4: Stabilizing feedback may be integrating value sink dynamics into the reference system. This signals increased organization-ecosystem type corruption risk.

The fourth type of risk, in which new structures are legitimated and institutionalized, emphasizes the need to scrutinize new structures and practices that emerge in the reference system. Although it is common to reward success with managerial autonomy, such practices, when implemented without transparency, increase this type of corruption risk. Less risky is ongoing transparency and inquiry into resource flows to determine whether a newly emergent culture may actually be hiding, supporting or protecting an embedded value sink (Campbell and Göritz, 2014). As a matter of policy, routines that support new resource flows should be fully transparent and subject to monitoring and regulation.

In addition, when some resource flow(s) in an emergent subsystem become controlled by

newly formed domination structures (Giddens, 1984), previous norms and motivations may no longer operate to mitigate or prevent illegitimate actions within those parts of the reference system. The gathering momentum of this type of renegade subsystem generates a whirlpool-like structural attraction that surrounds and the value sink can be difficult for individuals to overcome. This further increases corruption risk. This is one reason why consistency, transparency, and the reinterpretation of system norms are critical when fighting corruption (Bussmann and Niemeczek, 2019), particularly in the early stages of disequilibrium.

Overall, when transparency across the reference system is high, managers can identify instances of non-conforming behaviour and attempt to determine whether others are being harmed. In contrast, when transparency is low, illicit norms can work to conceal the actions and intentions of non-conforming agents, as well as the follow-up stabilizing actions that protect the value sink from detection from existing monitoring routines and policy mechanisms. Thus, we emphasize the positive and ongoing role that auditors and regulators play in supporting and enforcing norms that first, consider potential harm to the ecosystem and thus indirectly those individuals within it, and second reinforce the importance of each individual's free, independent, and informed choice to participate or not in subsystem processes within organizations.

CONCLUDING THOUGHTS AND CALL FOR FURTHER RESEARCH

In this article we have proposed a process theory of systemic corruption based on the complexity-inspired notion of 'value sinks'. Our goal is to offer a dynamical systems approach to the study of corruption. To do this, we propose what amounts to a generalization of John Stuart Mill's (see Collini, 1989) 'harm principle' and define corruption according what might be called the 'value sink principle'. Thus, we say that corruption is expressed at the system level through the presence of a value sink. This is because a value sink creates conditions where some

individuals benefit, but at a cost to others. Those who actively participate in a value sink are swept into a whirlpool of corruption whether by choice or through complicity.

This systems definition goes beyond individual incidents of corrupt acts that are driven by the moral choices of individuals. It explicitly includes interactions that cause harm to others through systemic effects at all levels of scale which, through their dynamic unfolding, provide advantage to some, i.e. 'benefit', at the expense of others, i.e., 'harm'. We believe that this descriptive analysis offers a more nuanced and we hope explanatory understanding of the deep nature of systemic corruption by reframing the notion of individual ethical choice during dynamic human organizing within the broader literature of organizational systems and economic complexity.

In addition, the 'value sink principle' allows policy makers to apply systems thinking techniques to identify the four distinct types of corruption risk which can emerge in and across organizations. Each of these risks is associated with one of the four phases of emergence dynamics that have been shown in the literature to unfold across multiple levels in complex systems. Finally, our model includes a set of systems-thinking inspired policy principles that leaders and managers can use to diagnose corruption risk and ultimately reduce the onset of systemic corruption early in its progression.

More Research Is Needed

As one of the few models that focuses on systemic forces that inform or complicate the personal ethical choices of individuals for or away from corruption, this is only an initial step. This work calls for considerable further research and application. Firstly, empirical research is needed to explore more deeply the specific mechanisms and dynamics that can result in corruption risk and the potential that value sinks may emerge across all levels of scale. This

includes studies that clarify the distinct types of risk identified herein, and explore how the specific aspects of each of these, both separately and in interaction, enable or inhibit the emergence of corruption. Of particular interest would be research that could specify mechanisms that allow value sinks to become embedded and hidden in emergent organizing structures. Ultimately, we hope this work will inform more precise countermeasures that could be implemented to mitigate these risks and identify effective policy correctives to deconstruct various forms of institutionalized corruption.

Secondly, more research is needed to explicate the micro-dynamics of disequilibrium organizing which would increase the risk that certain individuals will partake in illicit acts that lead to systemic corruption. In particular, why are certain individuals more likely to be influenced by the uncertainty of complex organizing conditions? Carefully exploring this question can uncover the micro-dynamics that cause them to exchange their normally ethical behaviors for ones which reduce their perceived tension (due to uncertainty) through actions that may be illicit. Likewise, such research would help those individuals who are caught in these conditions of corruption risk, to better understand their ethical predicament, allowing them to more thoughtfully consider their motivations as well as the ethical implications of their various attempts to resolve local disequilibrium by acting in ways that may or may not be corrupt.

Finally, one intended contribution of this article is to highlight dynamics of corruption risk, showing how these conditions are neither black and white nor hopelessly ambiguous. The operational ethical space in today's complex organizations resides somewhere in the space between those extremes. More work is needed to parse these ethical and moral complexities to enable confident ethical action even under difficult contextual conditions.

Concluding Remarks

We believe that the complex systems approach avoids many of the limitations that arise when attempting to explain corruption one level at a time. For example, viewing corruption as an individual-level phenomenon means that it can only be identified and corrected by policing the 'immoral' acts of individuals (e.g. Rosenblatt, 2012). However, the persistence and prevalence of corruption suggests that there may be system-wide influences that would seem to enable or even promote corrupt acts. These disequilibrium conditions can draw unsuspecting individuals to engage unwittingly in corruption as they instinctively reduce their internal tensions by taking stress reducing, but also potentially suspect, actions, the implications of which they may not fully understand (Darley, 2005; Jurkiewicz and Giacalone, 2016).

It is therefore our hope that future research in all of these areas will extend and strengthen this theory of systemic corruption in ways that help policy makers and leaders recognize how individuals, groups, and entire organizations are drawn toward corrupt activities (Darley, 2005). We are hopeful that by better understanding the varieties and inevitabilities of corruption risk – treating it as a fact of life in human organizing rather than as simply a defect of character – and by having the tools to identify these risks, policy makers may at last have the means to better manage corruption at all levels, and perhaps, one day, even eliminate it.

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Table 1. Continuum of corruption risk across scale: Cells in bold are discussed in the text.

Scale \ Risk Signal Type	Incident	Relational	Group Exclusion	Organization in Ecosystem
National / Transnational Ecosystem	Opportunities for organizations to "defect" from benign national norms	Shared, supportive externalities, e.g., money laundering (ML), reinforces momentum	Reconfiguring value sinks to resolve inter-organizational tensions	***Institutions with Embedded, Dynamically Stable Value Sinks***
Organization	Informal value sink exploits "defection" opportunity	Momentum builds around value sink	***Conflicting Internal Momentum vs Prior System Alignment with Stakeholders***	Embedded, Dynamically Stable Value Sink
Informal Groups	Organizing to operationalize "defection"	***Interpersonal Feedback Reinforces Corrupt Relationships***	Value sink Insider/outside identifies form from relationships	Insider/outside bifurcation dominates limiting intergroup interaction
Individual Interaction Choices	***Local Opportunities to "Defect"***	Payoffs for coordinated defection reinforces corrupt relationships	Individual identity conflicts. "Defecting" whistleblower is 'rat'	Conformity with Corrupt Norms

Increasing Scale

Dynamic Phases of Emergent Value Sink Attractor

Disequilibrium Conditions | Amplifying Actions | Structural Emergence Through Systemic Reconfiguration | Stabilizing Feedback

Fig 1. The dynamic phases of the emergence of corruption