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Corporate Culture

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Abstract

Corporate culture is an omnibus term that includes many elements that are relevant to a firm, like norms, values, knowledge, and customs. Economists have made great progress recently in devising methods of measuring different aspects of corporate culture. These empirical measures of culture have explained mergers and acquisitions, corporate risk-taking, and unethical behaviors observed in corporations, among other topics. We argue that unpacking corporate culture into its components is the right way to research it empirically. Theories of corporate culture are still in development, and we discuss the major contributions thus far. We argue that a theory of the firm and of corporate decision-making that is based on corporate culture is more germane to the practical realities of firms' inner workings than prevailing theories based on property rights and agency costs. Corporate culture has the potential to set the theoretical paradigm for all corporate finance research.

1. INTRODUCTION

Most people spend the majority of their lives working at firms (rather than spending or making savings-consumption decisions). Many firms have hundreds of thousands of employees who somehow cooperate to produce goods and services. In the United States, the volume of transactions (value added) that occurs inside firms alone is roughly equal to that which occurs in open markets (Lafontaine & Slade 2007). Some firms generate expansive wealth for their investors, offer innovative solutions to problems, and are persistently more productive, while otherwise similar firms are much less successful. The predominance and vastness of firms in a capitalist economy makes understanding their inner workings important.

The nature of firms has absorbed the energies of economists since at least 1937. In the same year that Toyota Motors established itself as an independent company, Ronald Coase asked why firms emerge at all in a decentralized economy orchestrated by the price mechanism (Coase 1937). Or, as the English economist D.H. Robertson put it, arousing the taste buds: Why do we find "islands of conscious power in this unconscious cooperation, like lumps of butter coagulating in a pail of buttermilk?" (Robertson 1923, p. 85).

Over the next 50 years, a theoretical paradigm gradually emerged with an answer. This paradigm combined the theory of property rights (e.g., Alchian 1965, Demsetz 1967, Alchian & Demsetz 1972, Williamson 1979, Grossman & Hart 1986, Demsetz 1988, Hart & Moore 1990) with the theory of agency (e.g., Wilson 1968, Berhold 1971, Ross 1973, Heckerman 1975, Jensen & Meckling 1976) to propose a theory of the firm. In sum, property rights that are specified in contracts prescribe how costs and rewards are distributed among participants in an organization. In modern firms, the separation of ownership and control creates an agency relation between principals (the firm's outside stockholders) and the agent they hire (an inside manager) to perform a service on their behalf. This relationship automatically produces problems, as the principals cannot possibly ensure that the agent always acts in their best interests. Restricting the deviant behaviors of the agent would come at a cost, either through monitoring the agent like a prisoner or by paying him off like a mercenary.

This principal–agent relationship sits comfortably at the definition of the firm as a nexus of contracts (Jensen & Meckling 1976, Demsetz 1988), and it explains both the behavior of managers and the firm's capital structure. The influence of the property rights–agency costs paradigm cannot be overstated. It has defined the economic approach to corporate finance.

Yet, the paradigm ignores the possibility that managers are essentially well-intentioned people operating in a complex and uncertain environment. The paradigm treats the firm as an arena of competing interests in constant conflict that are only brought to balance by binding contracts enforceable in court. This grim understanding of joint production ignores the innate capacity for human cooperation, driven by social norms existing outside the legal system and enforced by unselfish motives (e.g., Fehr, Fischbacher & Gächter 2002; Fehr & Fischbacher 2004; Gintis et al. 2005; Fowler & Christakis 2010).

Similarly, calling the firm a nexus of contracts also disregards the observation that, at least in the United States, employment relationships are generally at-will, which means that either party can terminate the relationship for any or no cause and without notice (Rothstein, Knapp & Liebman 1987). In fact, "a majority of employees in the United States are employed on an 'at-will' basis, without a written employment contract, and only with a written offer of employment that outlines the basic terms and conditions of their employment" (L&E Global 2013). Calling the unwritten norms and expectations that govern employment relations the same as the contracts that the paradigm has in mind would be a brazen misdirection.

Finally, the property rights–agency costs approach has also not adequately explained a topic that has animated researchers throughout the past decade: Why do otherwise similar firms differ

so much in productivity? Economists have traditionally argued that persistent differences in outcomes across firms emanate from production inputs, but recently some propose that the majority of performance variation is from unobserved forces within the firm (Syverson 2011, Backus 2020).

These criticisms do not imply that the theory is broken. Rather, we believe that the existing paradigm is not a suitable explanation of an entire firm—that interdependent collection of individual motives and choices that somehow cooperate, at times clumsily, to perform a vital function. The absence of any large-scale progress in corporate finance theory over the past two decades suggests that the property rights–agency costs paradigm has run out of steam.

A new paradigm for corporate finance is needed. We argue that one based on corporate culture can be the answer. In this review article, we selectively canvas the economics and finance literature on corporate culture. Research on corporate culture in economics and finance remained in a nascent stage until recently. Empirical research on the subject has advanced, largely by using tools from other disciplines, and theoretical work is still in development.

What have been the obstacles for economists in studying corporate culture? For one, the term is challenging to define, both as an empirical matter and in theory. Culture is a mental construct. Like any construct, it reflects a complex set of observable behaviors, and we use it to organize reality and predict other important behaviors (Levintin 1973). But the difficulty (or impossibility) of defining exactly what culture is should not turn economists off from studying it. Instead, economists should think of culture in the way that anthropologists and cultural psychologists have advocated recently. Culture should be analyzed in terms of its elements and how those elements relate to each other (Van de Vijver & Leung 1997, Singelis et al. 1999, Leung 2008, Minkov & Hofstede 2013).

In other words, the term culture should be unpacked. A sensible list of elements in that package, though neither nearly exhaustive nor likely satisfactory to all, include values, norms, conventions, shared beliefs, customs, traditions, symbols, rituals, knowledge, ideology, identities, and shared mental models. There is no one true concept of culture, just as there is no one true model of long-run economic growth. Different constructs of culture serve different purposes. Ultimately, we agree with Minkov & Hofstede (2013) and Jahoda (2012) that a researcher should clearly articulate the construct of culture that will be used, justify its use for a particular context, and explain how it will be measured—altogether in a way that makes sense to others.

The remainder of the review is laid out as follows. In Section 2, we discuss the different constructs that economic theorists have developed so far to mathematically represent corporate culture. In Section 3, we survey the methods used to measure corporate culture. In Section 4, we discuss empirical applications of corporate culture. Finally, in Section 5, we propose some future directions for research on corporate culture.

2. THEORY

In this section, we selectively review and comment on the important theoretical papers on corporate culture. The mathematical representations of corporate culture can be roughly grouped into four categories: (*a*) a stock of knowledge, (*b*) firm reputation, (*c*) shared beliefs, and (*d*) weights on cultural elements. We also propose a simple corporate finance model based on corporate culture that might serve as an alternative to the property rights–agency costs paradigm.

2.1. Corporate Culture as a Stock of Knowledge

Among the first important studies of corporate culture was Crémer (1993). Crémer defines corporate culture as "the part of the stock of knowledge that is shared by a substantial portion of the employees of the firm, but not by the general population from which they are drawn" (Crémer 1993, p. 354). Crémer provides a long discussion of the issues surrounding corporate culture,

which is certainly of interest. In fact, when he arrives at the model, he writes, "the reader can skip [the section] without loss of continuity" (p. 370).

Crémer thinks of culture as containing three elements: (*a*) a common language or coding; (*b*) a shared knowledge of certain facts; and (*c*) a knowledge of certain established rules of behavior. Coding refers to a language that is specialized within the firm and corresponds to the specific type of activity of the firm. As Crémer points out, this notion of coding had appeared elsewhere in the literature, such as in the work by Arrow (1974). The second element ranges from the knowledge of the location of staplers in the supply office to information gleaned from employee onboarding programs. The third element—rules of behavior—refers not so much to general etiquette but to firm-specific directions for dealing with other people.

Crémer, however, is specifically interested in the question of how corporate culture contributes to firm efficiency by its organization of information. He describes his approach as using "team-theory in a pre-Groves (1973) sense," which means that issues of incentives are assumed away (as in Marschak & Radner 1972). He writes, "for the purposes of this paper, human beings are perfectly honest and trustworthy, but have limited capacity for processing, receiving, and transmitting information" (p. 351). Crémer's rationale is that, while incentive problems are important, there has been a neglect in researching aspects of human decisions unrelated to incentives, particularly bounded rationality.

Crémer presents a model in which better shared information leads to better coordination. He asks: How much shared knowledge is optimal? He considers a team of two people $i \in \{1, 2\}$. The task of each person is to specify a value for a real variable x_i. The team's payoff is

$$\Pi(x_1, x_2; A) = A(x_1 + x_2) - \frac{B}{2}(x_1 + x_2)^2 - \frac{C}{2}(x_1 - x_2)^2. \quad 1.$$

Team welfare depends both on the total output of the two people $(x_1 + x_2)$ and their coordination, which is represented by the proximity of their chosen values $(x_1 - x_2)$. Each team member will not know the value x_i chosen by the other team member. The team members act in good faith, and there are no agency problems. The parameters B and C are known to all, whereas A is imperfectly known. Both team members observe a public noisy signal about it, and each member is privy to private noisy signals about it. The question for Crémer is the extent to which knowledge about A should be shared among team members to optimize team welfare.

The optimal policy x_i^* is a linear function of the noisy signals. Crémer shows that there always exists an optimal plan in which either all the information is shared between team members or none of the information is shared. Note that a large value for C favors sharing information because it reflects the benefits of coordination.

Crémer writes a rich explanation of the issues surrounding corporate culture, but his conceptualization of culture suffers from limitations that even he openly admits. For example, speaking of his definition of culture, he says it "is very one sided: Culture is seen as knowledge, not at all as values. This is partly due to the use of economic discourse, as standard economic methodology precludes us from assuming that the utility functions of the individuals are dependent on their environment" (p. 354). Crémer is onto something by suggesting that neoclassical economics wrongly restrains the modeling of corporate culture, but he chooses not to unfasten himself from the shackles.

The idea of coding as a part of shared knowledge is pursued further by Crémer, Garicano & Prat (2007). Using a specialized language in the firm economizes on communication costs, but limits employees' ability to communicate with others outside the firm or with different divisions or subsidiaries. People are boundedly rational, which is taken to mean that they can only learn a limited number of words with respect to a specific problem. The firm is assumed to set the code,

which is represented mathematically as a partition of a set. Then, for example, one employee can communicate the partitioned subset that is relevant.

The authors offer the following example as an illustration: Two doctors work in a hospital, where one is a general practitioner and the other is a specialist. Their problem at hand is to diagnose a patient with several symptoms. The patient sees the general practitioner first. Upon seeing the patient, the general practitioner then describes the symptoms in a referral to the specialist using a code. The more precise the code, the faster the specialist can diagnose the sickness. But the two doctors can only learn so many words in a code. The less precise the code (i.e., the greater the number of broad words used to describe distinct diseases), the more costly time the specialist spends diagnosing the patient's true illness. The basic trade-off between synergies and efficiency is exemplified by the organization choosing a general versus a precise code of language.

2.2. Corporate Culture as Firm Reputation

The work by Kreps (1990) (and its important interpretation by Hermalin 2001) defines corporate culture as a firm's reputation. This reputation is built over time through repeated behaviors and signals to employees about what decision the firm would take on the occasion of unforeseen contingencies. This concept of corporate culture aligns with early work by Thomas Schelling and others that envisioned cultural traditions or norms as forming focal points that select an equilibrium when multiple ones are present (Schelling 1960). A difficulty of this framework has been modeling unforeseen contingencies rigorously (see Dekel, Lipman & Rustichini 1998). Unable to overcome this hurdle, the Kreps (1990) framework for corporate culture has observed no further progress.

2.3. Corporate Culture as Shared Beliefs

Another important economic thinker about corporate culture has been Eric Van den Steen, who proposed modeling corporate culture not as shared knowledge but as shared beliefs. Van den Steen (2010) proposes this definition of corporate culture: "[Corporate culture] is then defined as the degree to which members have similar beliefs about the best way of doing things" (p. 1718).

Van den Steen sees agency problems as arising from differences in objectives. And crucially, when beliefs are aligned via homogeneous culture, there are no such differences, which eliminates agency issues. Van den Steen writes, "This link between the general agency problem, on one hand, and corporate culture, on the other hand, is an important underlying insight of this paper" (Van den Steen 2010, p. 1718). But there are costs and benefits of homogeneity. The benefits stem from employees jointly focusing on the organization's goals, leading to less monitoring, faster coordination, higher motivation, and more communication. The costs are less experimentation and less information collection.[1]

Van den Steen (2010) analyzes a model where a firm consists of a manager and several employees. They all must choose between two mutually exclusive actions, A or B. Each action has a positive probability of a positive payoff, ρ_A and ρ_B, respectively, or else zero. The object ρ_A is a random variable drawn from a known distribution. The value of ρ_B is unknown, but each person has a subjective belief about it. Person i's expectation of ρ_B is $r_{B,i}$. The set of prior beliefs are known to all (that is, they agree to disagree). People are risk neutral and care about the firm's overall payoff.

[1] Song & Thakor (2019) also show in a banking context how culture can alleviate agency problems in a way that incentive contracts cannot.

Distinct prior beliefs are exogenous and differentiate people. Van den Steen then introduces a measure of similarity between two people, the Euclidean distance of their priors. For persons i and j, that is

$$\delta_{ij} = \left| r_{B,i} - r_{B,j} \right| . \qquad 2.$$

Van den Steen's first application concerns whether a manager wants to delegate a decision when centralization is costly. If the manager delegates, she can still influence the outcome by monitoring, which gives the manager some probability of ensuring the employee makes the decision the manager would have made. The first result is that the manager delegates the decision if the employee's beliefs are sufficiently similar to her own. Conditional on delegation, the manager monitors less when employees have similar beliefs. More important decisions are delegated to employees with similar beliefs.

To examine experimentation in firms, Van den Steen extends the model to allow a person to expend effort e at a cost to collect new information via an experiment on action B. The new information is observed with probability $P(e)$ by both people. Van den Steen shows that the effort spent to collect the experimental information increases with the level of belief heterogeneity. The result derives from updating the other person's prior belief about B. The gain to convincing the other person is higher when the prior belief difference is larger. A benefit of having diverse beliefs in an organization is that it induces greater experimentation to convince others that the experimenter's belief is right. (Each person believes, by definition, that the experiment will, on average, confirm her prior belief over the other person's prior belief.) Conversely, the price of diversity of opinions is that a culture based on homogeneous beliefs makes coordination easier, as discussed by Crémer (1993).

Finally, Van den Steen discusses the issue of culture clashes in mergers. In this case, two managers, each running a separate firm, each draw several employees from a common distribution. As part of the hiring process, each manager selects employees who have similar priors to their own. Depending on the priors of the managers, the resulting distribution of employee priors within the two firms might be very different or very similar. Van den Steen shows that upon the firms merging, the average likelihood of delegation, communication, and fast coordination declines but the likelihood of experimentation rises.

2.4. Corporate Culture as Weights on Cultural Elements

Both Crémer (1993) and Van den Steen (2010) collapse the multidimensional concept of culture into a single dimension: knowledge, in the case of Crémer, and beliefs, in the case of Van den Steen. In contrast, Gorton & Zentefis (2019, 2020) retain the multilevel feature of culture. They remain agnostic on the exact underlying components that make up culture, instead relying on the existence of some set of cultural elements (e.g., values, norms, traditions, rituals, codes, etc.). Their novelty is to focus on shared weights that a group places on these elements in terms of how important they are to its culture. Weights range from zero to one. A larger weight signifies greater importance; a zero weight signifies no importance.

This mathematical representation of culture advances from prior theoretical work because it circumvents the unending back-and-forth about the indisputable definition of culture or what elements constitute it. Instead, energies shift to the relative importance that some groups place on certain cultural components over others. Their structure is flexible to accommodate a researcher's particular focus of inquiry, such as, say, examining corporate values related to social progress (e.g., inclusiveness, equal access to resources, and shared respect for personal dignity). Researchers need simply choose the cultural components to study and assign the appropriate weights.

For mathematical convenience, Gorton and Zentefis represent cultural weights by continuous densities. Each employee i is endowed with a cultural density f_i that may have formed over many years from personal experiences in a profession. For instance, a surgeon's cultural weight regarding bedside manner in the hospital might differ from a nurse's. For the analysis, the authors assume that these cultural densities can be characterized by parameter vectors η_i. Gorton & Zentefis (2019) introduce this conceptualization of corporate culture and show whether and when competitive pressures can cause corporate cultures to adapt to forces of progressive social change. Gorton & Zentefis (2020) continue with the formulation of corporate culture as a density, but they microfound corporate culture's origination and demonstrate how corporate culture determines the boundary of the firm.

Corporate culture forms at a deep level in their model. Like Crémer, Garicano & Prat (2007), Gorton & Zentefis (2020) consider language to be a critical piece of corporate culture. But distinctively, Gorton & Zentefis (2020) argue that the formation of corporate culture and its transmission among employees center around language itself. Individuals have personal cultural densities that then combine into a corporate culture via interactions involving language. In their model, a manager sets a so-called tone at the top (i.e., a desired corporate culture) through speeches, written words, and actions. But language is inherently imprecise, and it can imply meanings based on context beyond the originally intended meaning from a manager. These implied meanings complicate giving instructions, and the corporate culture that develops in part from a manager's espoused values can deviate from what she intended.

Gorton & Zentefis (2020) analyze the outcome of conversations between employees upon hearing a manager's directions. These interactions microfound the endogenous development of a corporate culture. At the end of this communicative process, the corporate cultural density, represented by its parameter vector η_c, that forms is

$$\eta_c = \underbrace{\eta_m}_{\substack{\text{manager's} \\ \text{desired culture}}} + \underbrace{\xi_v}_{\substack{\text{employees'} \\ \text{firsthand and secondhand} \\ \text{interpretations}}} . \qquad 3.$$

The corporate culture is anchored by the CEO's desired culture η_m. But employees' firsthand interpretations of the manager's instructions, along with their secondhand interpretations from communicating with each other about the manager's instructions, together shift the observed corporate culture away from the manager's intended one. Gorton and Zentefis show that greater cultural differences between employees lead to a sharper disparity between η_m and η_c. This communicative process generates both a corporate culture at the overall firm-level and individual team cultures across different divisions of a firm.[2]

Where Gorton & Zentefis (2020) differ from other theories of corporate culture is their focus on how corporate culture directly influences employee behavior. A behavior is conduct that materially affects the production process (e.g., exerting meticulous effort, creating quality standards, or inspecting processes). Behaviors are taken to be consistent with the values, norms, rules, etc. of a culture. Each employee i working in team k inelastically provides a single unit of labor at

[2]Gorton and Zentefis's model implies a similar notion about firms as the one Bengt Holmström provides when he labels firms subeconomies: Managers of firms, unlike agents in markets, have the unique power to regulate employees through directives (Holmström 1999). But Gorton and Zentefis suggest that such power is not absolute. It is naturally constrained by the inherent limitations in the language required to express the directives.

wage w and chooses a behavior b_i to maximize utility. In making her choice, an employee trades off straying from behavior consistent with her personal culture η_i, her team's culture η_k, and the corporate culture η_c. An employee's utility function is

$$U_i = \underbrace{w}_{\text{wage}} - \underbrace{\lambda_1 \left(b_i - b\left(\eta_i\right)\right)^2}_{\text{personal conflict}} - \underbrace{\lambda_2 \left(b_i - b\left(\eta_k\right)\right)^2}_{\text{team culture conflict}} - \underbrace{\lambda_3 \left(b_v - b\left(\eta_c\right)\right)^2}_{\text{corporate culture conflict}}. \quad 4.$$

Greater deviations from either of the three cultures lowers utility. The authors argue that inner conflict may arise from behaving differently than suggested by one's personal values (Cote & Levine 2002, Weinreich 2003). Social pressure or threats to conform may create the loss in utility from deviating from a team or corporate culture (Asch 1955, Kandel & Lazear 1992).

The utility function of Equation 4 displays sociality in that the employee's choice of behavior is affected by a team culture and the corporate culture. The social milieu matters in the person's decision. It is not that the employee's utility depends on the utility or even on the behaviors of others. Rather, the cultural and social setting around the person matters to her choice. The utility function in Equation 4 is key to their representation of corporate culture.

Gorton & Zentefis (2020) then apply these ideas to form a theory of the firm. For each input to production, the manager can regulate the behaviors of the people making the input in one of two ways: contractual agreements or corporate culture. The manager relies on the first system when buying an input from the market, rather than making it in-house. In this system, incentives are aligned by the structure of compensation and the threat of litigation for breach of contract. But those contracts will inevitably have gaps, as the parties will have no realistic way of anticipating and translating unambiguously into words all possible conditions, needs, and contingencies when tailoring the terms of their agreement.

As an alternative to using detailed contracts, the manager can make the part internally and rely on a corporate culture to fill in the gaps that bedevil contracts (e.g., as the means to make adjustments, provide flexibility, or resolve uncertainty). In this system, by contrast, incentives are affected by a fixed wage and social pressures to abide by shared norms and values (i.e., the incentives implied by Equation 4). When deciding whether to make or buy a part of production, a manager chooses which of the two systems achieves the highest output from her perspective. Firms exist because corporate culture at times is a more efficient method to carry out production than are detailed contracts. The boundary of the firm is drawn at the limits of corporate culture.

For the canonical integration problem (Should two distinct production teams operate under separate firms or a single firm?), Gorton & Zentefis (2020) show that integration is less likely (*a*) if doing so would push the corporate culture further away from the manager's preference, (*b*) if the two teams would not coordinate or cooperate well internally, or (*c*) if personal cultural differences between the two teams are significant. A feature unique to a team's integration is the impact its members would have on the firm's existing corporate culture. If the distortion to the existing culture or the potential conflict with the first team is severe enough, better for the manager to sign an incomplete contract to purchase the second team's part. Alternatively, if the incentive structure that only accompanies a corporate culture (i.e., the social pressures to abide by norms and values) can improve upon an imperfect contract, better to integrate.

2.5. A Proposed Corporate Finance Model

To illustrate the use of corporate culture in a corporate finance context, we present a simple example model of corporate decision-making. The model relies on the formulation of culture developed by Gorton & Zentefis (2019, 2020). The decision-making process we outline borrows insights

from the literature on multi-criteria decision-making and social choice theory (Arrow & Raynaud 1986, Triantaphyllou 2000). We believe that ideas from these two areas are well suited to capture the way that major decisions are actually made inside firms, which is generally by committee, evaluating alternative choices by several criteria and balancing the interests of multiple stakeholders (Haka 2006). We propose the model as a starting point of origin that we hope can stimulate a new path forward in corporate theory beyond the property rights–agency costs paradigm.

A CEO c and Vice President (VP) v must make a decision among a set of alternatives. The CEO possesses ultimate decision power but takes the input of the VP into account. The VP might be a single person, a group of subordinates, or a stand-in for the general views of the firm's employees. The set of alternatives to choose from can be broadly interpreted as (*a*) which investment to undertake, (*b*) whether to acquire another firm, (*c*) which dividend policy to follow, (*d*) how much leverage to take on, (*e*) which new product line of business to enter, (*f*) which firm to select as a supplier, (*g*) which risk management method to adopt, or (*h*) any other of the various capital budgeting choices management encounters.

For the sake of the example, assume the decision is over investment opportunities and only two alternatives are available. The two investment opportunities are evaluated according to M distinct criteria. Each investment opportunity is characterized by an M-dimensional vector of attributes—a_x for investment x and a_y for investment y—where each element of the vector measures the investment's performance score when judged in terms of the particular criterion. Because decisions will be made in accordance with a culture, the criteria reflect subject matters that are germane to the customs, values, norms, etc. of a culture.

For instance, suppose that (*a*) the number of criteria $M = 2$, (*b*) the two investment alternatives are building a new production plant in one of two communities (x or y), (*c*) one criterion is "neutral impact on the environment," and (*d*) the other criterion is "equity in employment opportunities." Both investments share the same lifetimes, payback periods, and net present value. No uncertainty over investment returns exists.

Along the first criterion, suppose investment in community x scores low and investment in community y scores high, making $a_x(1) < a_y(1)$. In contrast, along the second criterion, community x scores high but community y scores low, making $a_x(2) > a_y(2)$. The differences in scores could be due to the towns' proximities to a major water reservoir and local residents' access to other employment options. Community x might be closer to the reservoir, and installing a factory there would create material risk of polluting a drinking source (making it score low in the environment criterion). But a new factory in that community would become a major employer of local labor, substantially cut down on existing commuting times, and facilitate residents' upward economic mobility (making it score high in the employment criterion). Community y is farther from the reservoir (posing less of an environmental risk and scoring it higher in the environment criterion), but local labor there does not suffer from the same kind of spatial mismatch with existing employers (making it score lower in the employment criterion).

Both the CEO and VP assign weights of importance to each of the two criteria. These weights of importance originate from their personal cultures, as described by Gorton & Zentefis (2019, 2020), and are normalized to sum to one. So that the decision problem is interesting, suppose the CEO places more weight on the first criterion, whereas the VP places more weight on the second. Hence, $w_c(1) > w_v(1)$, but $w_c(2) < w_v(2)$. Having the set of alternatives, the performance scores of the alternatives in each criterion, and the weights of importance for each relevant party, all the ingredients for a multi-criteria decision problem are established.

The multi-criteria decision-making literature has offered several methods to rank competing alternatives when all decision criteria are considered simultaneously (Triantaphyllou et al. 1998). We assume here the simplest one, the weighted sum model first articulated by Fishburn (1967).

The CEO's and VP's most preferred investment alternative is the one that maximizes their individual $a \cdot w$, which is the weighted average performance score across criteria using the person's cultural weights of importance.

The method produces interesting implications for the ranking of alternatives. A large, but not large enough, weight on the environment could be associated with investment in community x being a top choice, even if that option performed worse than investment in community y along that criterion. In another case, investment x's high performance score on employment equity, if high enough, could drive a top ranking, even if a person put low weight on that criterion. To create some interesting disagreement between the CEO and VP in advance of the final investment decision, suppose the CEO ranks investment x first ($x \succ_c y$), whereas the VP ranks investment y first ($y \succ_v x$).[3]

Knowing the conflicting pair of rankings, the CEO balances her own interests with those of the VP in making her decision. Suppose the CEO's utility from selecting her preferred investment x over the VP's is $c_x - \gamma v_x$, where c_x is the CEO's personal benefit from investment x and v_x is the CEO's loss from overruling the VP's preferred alternative. Having not gotten his way, the VP might commit less time in searching for future investment opportunities or shirk on vetting them before subsequent committee meetings, both of which are costly to the CEO. The parameter γ stands for the extent to which the VP's preferences influence the CEO's decision. Higher values of γ imply greater VP power in the decision-making process.

Suppose next that the CEO's utility from selecting her least preferred alternative (investment y) is $c_y + \gamma v_y$, where c_y is the CEO's personal benefit from investment y and v_y is the CEO's gain from proceeding with the VP's preferred choice (e.g., the VP's enhanced search intensity for future investments or higher quality analysis because his preferred option was chosen). Assume $c_x > c_y$, so that the CEO's top-ranked choice also yields her the highest personal gain.

Facing this trade-off, the CEO overrides her own preferred investment if the condition $\gamma(v_x - v_y) > c_x - c_y$ is met. This outcome is more likely if the gain c_y from opting for her least preferred choice is not too low, or if the loss v_x from passing over the VP's choice is large. Alternatively, if the condition is not met, the CEO picks her preferred alternative x. Overall, the example illustrates both how cultural factors influence corporate decision-making and how the preferences of multiple stakeholders in practice can sway one choice over another.

This simple model can easily be enriched in a variety of ways—for instance, the CEO might lack ultimate decision power and the choice can be made use a voting rule; perhaps distinct employees with differing views can take part in the decision; employees can misrepresent their views to achieve a desired outcome; or the CEO might be uncertain of the views of others or the performance score of each alternative in every criterion or even be unsure of exactly how to quantify her weights of importance based on her culture. Evaluating more than two alternatives would introduce many of the complications that inhabit social choice theory. If the decision involved risky undertakings, the model can even capture the idea of corporate culture representing a form of risk management that can constrain the CEO's moral hazard.

Clearly, theoretical work needs to be done in both corporate theory and corporate culture. What is clear, to us at least, is that to be successful, new theory will require deviating from

[3] A shortcoming of the weighted sum model is that the performance scores across criteria might have different units, and when combined linearly, "apples are added with oranges." Many other methods overcome this issue, and several others are quite sophisticated—for example, the weighted product model (Miller & Starr 1960), the ELECTRE family of methods (Benayoun, Roy & Sussman 1966; Figueira, Mousseau & Roy 2016), the Arrow–Raynaud method (Arrow & Raynaud 1986), and the TOPSIS method (Cheng & Hwang 1992).

neoclassical economics, preferences that rely exclusively on the expected utility hypothesis, and agency theory. The social nature of firms cannot be avoided, and this aspect of human interaction must be represented somehow.

3. MEASUREMENT

A variety of empirical approaches for measuring corporate culture has emerged over the years. We broadly categorize the various measures of culture as: (*a*) field-based surveys and interviews, (*b*) experimental approaches, (*c*) time-invariant approaches, (*d*) time-varying approaches, (*e*) societal and biological approaches, and (*f*) network-based approaches.

3.1. Field-Based Surveys and Interviews

The original approach to studying corporate culture involved field-based studies and methods copied from anthropology to evaluate societal culture (Guiso, Sapienza & Zingales 2006). Then, beginning in the 1970s, researchers began conducting small-scale surveys of nonexecutive employees to measure culture (Denison 1984; Cooke & Rousseau 1988; O'Reilly, Chatman & Caldwell 1991; Cameron et al. 2006). The survey questions, however, often did not draw on theory or clearly differentiate between potential mechanisms through which culture may work (Chatman & O'Reilly 2016). For example, some of the surveys include questions that are better categorized as an outcome such as employee productivity or as a contractual incentive such as employee compensation and on-the-job training.

Kotter & Heskett (1992) sought to overcome the limitation of these early small-scale surveys by conducting a study of culture at dozens of companies over a 10-year period. To gather information about culture without confining responses to preconceived notions defined by the researcher, Kotter & Heskett (1992) started their surveys with the simple open-ended question such as, "Briefly, what words or phrases best describe the current corporate culture at your firm?" A key result from their study was that the prevailing notion of a strong culture was limited and that a strong culture did not necessarily equate to better performance in the long run. This finding implied that survey-based approaches to measuring culture needed to be broad and collect information on strategy, competition, and other economic forces to more fully explain how culture relates to performance.

More recently, Graham et al. (2021a) surveyed 1,348 CEOs and CFOs of North American companies using a mix of open-ended, multiple choice, and hypothetical questions to elicit top management's views on culture. An important contribution of this survey is both its scale and its detail. The study considers many cultural values and norms, highlighting the importance of distinguishing between them for understanding the efficacy of culture. The authors also examine the interactions between cultural values, norms, leadership, and formal institutions (e.g., governance, compensation, and finance function) and find that the connection to business outcomes depends on all of these linkages. Finally, Graham et al. (2021a) connect the survey responses to external, observational data to build a bridge between data sources. The survey-based measures of culture are associated with external measures of culture, numerous business outcomes, and the reported accounting numbers shared with capital markets.

Another recent contribution that survey-based measures of culture are making is to explain how exactly culture originates. Licht & Adams (2019) survey corporate leaders and directors in more than 50 countries and find that they hold principled, ideology-like stances on corporate policies associated with their personal values. Practitioners' anecdotes often suggest current leadership is the most influential factor in setting the culture, and recent survey evidence confirms

this (Graham et al. 2021a). Thus, what is striking from the Licht & Adams (2019) survey is that personal values can complement optimal design principles in influencing leadership's choices. Interview work remains more rare, but it can be useful for advancing knowledge of the antecedents and consequences of culture. For example, Graham et al. (2021b) use interviews to delineate the directional relation between culture and strategy and better understand how the two become misaligned. Importantly, recent advances in artificial intelligence (AI) and natural language processing (NLP) suggest many anecdotes about culture (e.g., from interviews of executives on podcasts) can be quantitatively analyzed. This technological progress suggests a potentially fruitful bridge between interview and computation work in the future.

While field-based approaches have benefits, they also have limitations. Without careful design, surveys and interviews can impression executives and employees through framing. For example, a survey about culture means those under scrutiny might create a favorable perception of their culture that is at odds with reality. Measurement error can also interfere in other ways, making it important to scramble the order of survey choices. Selection issues are also possible, whereby those that choose to respond are not representative of the company as a whole (e.g., a few disgruntled employees respond rather than the typical, happy employee). Finally, causal inference is typically not possible with a single cross-sectional survey instrument. Given these challenges, researchers have started using less obtrusive methods to gauge culture.

3.2. Experimental Approaches

Laboratory experiments are potentially very useful for isolating particular mechanisms that link culture to firm performance. Weber & Camerer (2003) use a laboratory experiment to study the tacit knowledge developed in group work. In their setting, culture allows workers to coordinate activity tacitly without having to repeatedly reach agreement. The experiment involves a manager and employee forming a "firm" and then independently developing a culture using conversational norms for quickly describing a prespecified set of pictures. Firms then merge, and one manager must work with the original and acquired employees. Subjects then estimate how quickly the task can be completed postmerger, the difficulty of their job, and the quality of their coworkers. Using these estimates, Weber & Camerer (2003) find that managers tend to be overly optimistic about postmerger performance, implying an underestimation of cultural conflict. Further, the managers' ratings meaningfully drop despite recognition of the task being more difficult postmerger. This finding is consistent with blame being excessively assigned to personal traits instead of culture or other contextual variables.

Experiments are also being conducted within firms. As firms increase their use of technology to track employee activity, researchers have started gaining access to these data and using them to test richer theories of corporate culture than was previously possible. The basic approach is to use microlevel data on workers inside firms along with rigorous econometric techniques to allow for causal inferences. As an example, the Banking Standards Board (BSB) in the United Kingdom began collecting such microlevel data on 26 banks and more than 70,000 employees. The regulators then treated specific banks by promoting a "speak up" culture in the hopes of enabling employees to report wrongdoing. Surprisingly, the bankers found little improvement from the "speak up" treatment. Next, researchers explored why this treatment had little impact and found that the presence of other factors like trust, responsiveness, and the target of the fraud (consumer versus employee) could meaningfully change the estimate. Taken together, the findings suggest that there are likely important complementarities among formal training, existing cultural norms, and the norms that leaders hope to establish. Much like Maslow's hierarchy of needs taught in psychology, there may be a hierarchy of cultural norms. For example, some necessary cultural

norms (e.g., trust) may need to be present before a higher-order norm (e.g., reporting unethical behavior) can be developed.[4]

Additional examples of experimental approaches include those by Sandvik et al. (2020), who show that a relatively simple experimental intervention—encouraging sales agents to share their best practices with each other for a free lunch—substantially improved agent productivity. That a structured managerial practice can help increase the cultural values of collaboration or norms of peer-to-peer knowledge exchange is an important finding. Building on this notion, Grennan, Makridis & Zator (2021) use a company-based data set to understand the complementarities between developing better individual versus team-based cultural norms. The researchers use the introduction of a novel productivity tracking app for workers and leaders and randomize the automated suggestions received by teams to better understand why and how culture relates to employee performance. Thus, while there are many challenges to conducting experiments and obtaining within-firm data, these approaches can illuminate nuanced aspects of culture and have a promising future.

3.3. Time-Invariant Approaches

Fixed effects are the primary time-invariant measures of culture. The advantage of a time-invariant measure of culture is that it can be used to test theories that relate culture to time-varying economic factors, such as the business cycle. For example, if a persistent aspect of culture is linked to performance through its ability to guide employees during periods of great uncertainty, the time-invariant component should predict out-of-sample variation. This is the approach followed by Fahlenbrach, Prilmeier & Stulz (2012), who document that banks' buy-and-hold returns from the US Savings and Loans Crisis, 1986–1995, are positively correlated with their buy-and-hold returns during the global financial crisis of 2008. A disadvantage of using this approach is that time-invariant aspects of culture are difficult to deconstruct into their components and separate from other firm traits, such as corporate strategy.

Helping understand how culture originates and transmits over time is another advantage of time-invariant approaches. Cronqvist, Low & Nilsson (2009) examine commonalities in firm fixed effects by studying parent and spin-off firms within two-digit SIC industries. They find that parent firms have more similar investment and financing policies compared with their spin-off firms than compared with their peer firms. Five years after the spin-off transaction, the fixed effects remain significantly correlated. Moreover, the firms that initially deviated from their parents' corporate policies drift back to the parents over time. Using a battery of tests, the authors then show the commonality cannot be explained by inertia, customer–supplier relations, technological know-how, or ties through the board of directors. They conclude that a key component of firm fixed effects is a persistent component of culture.

3.4. Time-Varying Approaches

Although a persistent component of culture can make it stable over time, culture is never static. As the speed of technological change increases, so too does the speed of change in corporations, potentially bringing rapid cultural change. Big cultural changes can stem from crises that force executives to reevaluate the culture or from employee churn attributable to acquisition, restructuring, and downsizing. More gradual changes are also possible. For example, simply overcoming challenges can lead to the creation of new day-to-day practices and shared cultural beliefs among

[4]For an analysis of the BSB's program, see Coombs (2019).

employees. We next examine the time-varying approaches to measuring culture, keeping in mind that culture can undergo sharp or gradual change.

The first time-varying measure of culture was *Fortune* magazine's "100 Best Places to Work for in America" (BPTW) list. Edmans (2011) shows that BPTW firms have greater employee satisfaction than other firms and have experienced significantly more positive earnings surprises and announcement returns. The BPTW data have the major advantage of being one of the longest-running time series for culture. However, it is disadvantaged by a limited ability to explain theoretical nuance in culture and a susceptibility to selection problems. Firms must participate in the study, and they view it as a marketing tool, which could lead current employees feeling pressured not to respond authentically to the survey for fear of reprisal.

Guiso, Sapienza & Zingales (2015) extend the scope of the BPTW data by obtaining the detailed survey questions underlying the rankings and matching companies to their cultural values advertised online. Doing so allowed the authors to determine which cultural values are important and whether a difference occurs between advertised and actual culture. Guiso, Sapienza & Zingales (2015) find that advertised values are not important for firm performance but that the actual values perceived by employees are important. Interestingly, not all values are important or constant over time. Integrity—as measured from questions about employees' perception of managers as trustworthy and ethical—have the strongest association with Tobin's Q. Firms that transition from private to public ownership experience a meaningful drop in employees' perception of integrity. This finding suggests that external forces such as ownership, governance, and regulation can influence and change culture.

Building on the idea that employees' perceptions can be used to quantify culture, researchers began examining employee-generated reviews and ratings from career intelligence websites (Popadak 2016). Green et al. (2019) show that firms with ratings increases outperform those with declines. These increases are associated with higher sales growth, which the authors attribute to employees revealing insider information. Grennan (2019) uses NLP methods to translate the text of employee reviews into well-known cultural values and norms specified in the organizational culture profile (OCP) survey (O'Reilly, Chatman & Caldwell 1991; Chatman et al. 2014). The norms are then aggregated into cultural values. Grennan (2019) uses WordNet, a database of word senses based on cognitive science and often used by search engines, to determine the closest synonyms, antonyms, and phrases for each cultural norm. Next, she calculates the cosine similarity between the idealized vector of each cultural value and the vector of actual employee text to map the text to a single number. She then uses her measurements to show that culture is an important channel through which changes in governance alter firm performance.

There are many variants to the NLP approach, including selection of the cultural elements, the text analyzed, and the method for specifying an idealized culture. Li et al. (2020) use analyst call transcripts and employ a similar procedure as Grennan (2019). Except, instead of using WordNet's synonyms, they use word2vec, a machine-learning algorithm that uses a neural network model to learn word associations. The corpus of text that the algorithm is trained on is only earnings transcripts, a practice that helps separate, for example, financial liabilities from lack of integrity. Other approaches that have been used include those by Fiordelisi et al. (2018), who use 10-K reports to quantify the competing values framework of Cameron et al. (2006), and by Bellstam, Bhagat & Cookson (2021), who use analyst reports to quantify innovativeness via a latent Dirchlet allocation (LDA) method. Additional research using NLP techniques to quantify culture focus on a single element, such as trust (Loughran & McDonald 2016), flexibility (Au, Dong & Tremblay 2021a), gender (Adams, Akyolc & Grosjeand 2021), sexual harassment (Au, Dong & Tremblay 2021b), risk-taking (Garcia, Harithsa & Owusu 2021), and workers' access to interesting projects (Tambe, Ye & Cappelli 2020).

Additional aspects of culture are also being quantified by looking at company websites. Grennan (2021a) finds that the cultural values described on websites differ depending on the target audience (e.g., employees, investors, or customers). She then shows that this code-switching (e.g., advertising to investors that employees value integrity but excluding such ideals from the career page) predicts poor performance during business cycle downturns. Graham et al. (2021a) connect their survey responses from corporate executives with the company websites to quantify the degree of misalignment between website values and survey responses. As the two measures become more misaligned, surveyed executives are significantly more likely to indicate that their culture does not track aspirations and is not where it should be.

More recently, researchers have focused on quantifying the mechanisms that link culture to performance. To do so, researchers have combined data sets or explored text in new ways. For example, Corritore, Goldberg & Srivastava (2020) use employee reviews to quantify two types of cultural diversity. The first type of cultural diversity is the more traditional conceptualization from the literature, in which diversity is characterized by differences between what individuals identify as the dominant cultural value. Within-firm diversity then stems from distinct groups of employees having homogeneous beliefs but heterogeneity across the different groups. They relate greater within-firm diversity to innovation. They also introduce a new measure, within-person cultural diversity, where heterogeneity stems not from divergent beliefs across individuals but instead from individuals having a multiplicity of cultural beliefs about the organization. They find that this second type of diversity is associated with poor firm performance based on a matching design. A promising channel for future research may be to better understand the forces causing a person to have discordant beliefs about the culture. For example, if a good boss teaches employees to believe one thing, but employees are then rotated to a new boss who teaches employees to believe another thing, this change may result in discordant beliefs. It would also serve as a potential explanation not only for the value of bosses (Lazear, Shaw & Stanton 2015) but also the quick reversal in performance once good bosses move on.

Another interesting insight from the work on cultural diversity is the suggestion that firm-wide goal agreement by itself may not characterize an effective culture in every situation. Grennan (2021b) compares gaps between what executives, employees, and analysts say about culture to determine both the emotional intensity with which employees' beliefs are held and the agreement on such beliefs. She then categorizes cultures into different types (e.g., effective, lip service, contested battle, and design-free cultures) based on the alignment across sources. For a culture to be effective, both agreement about what the cultural values are and a high level of intensity about the cultural values must be evident across the sources. Such a definition parallels the literature in management on strong culture (Chatman & Cha 2003). If, however, there appears to be agreement about what cultural values are important but employees lack emotional intensity and, as such, are unwilling to exert effort to live out the values or to sanction others for a failure to uphold the values, this culture is classified as a lip service culture. A culture characterized as a contested battle culture exhibits disagreement but emotional intensity about the disagreement. Employees or leaders are actively trying to convince those in disagreement to follow their beliefs. Finally, a design-free culture is one without agreement about the content of the cultural values or emotional intensity about such content. This classification of an effective culture does not prescribe certain cultural attributes to an optimal cultural recipe—rather, it focuses on characteristics of the behavioral patterns needed to successfully execute the firm's strategies, achieve its goals, and ultimately be value-enhancing to the firm. The behavioral patterns could certainly be expanded beyond agreement and emotional intensity in future research—for example, by considering observable behavioral patterns like sparse versus verbose communication.

3.5. Societal and Biological Approaches

The discussion thus far has focused on looking at specific cultural values and norms, distinguishing between aspirational and actual culture and identifying cultural archetypes such as an effective culture. An implicit assumption underlying this approach is that corporate culture is purposefully designed. An alternative viewpoint is that culture can be shaped by such design principals but the actual culture reflects an individual's contribution to the culture that comes from the shared meaning that they perceive. This interpretation suggests that both biological and developmental traits of employees and leaders influence the culture. These biological and developmental traits are likely to reflect elements of societal culture and more general knowledge than firm-specific human capital.

While this view can also lead to a time-varying measure of culture, it requires greater knowledge of the societal context of the corporation and by construction will likely reflect slow-moving aspects of corporate culture. Societal culture typically transmits fairly unchanged from generation to generation, as it reflects customary beliefs and values of the group (Guiso, Sapienza & Zingales 2006). Thus, a natural conjecture is that the so-called rose-colored glasses that shade an individual's interpretation of the implicit norms and required knowledge to succeed in the firm are limited to individual principles of philosophical existence, such as a propensity for individualism versus collectivism or regressive versus progressive social policies. A growing literature tests these individual perceptions and builds off of the literature on societal culture affecting economic exchange (Guiso, Sapienza & Zingales 2009; Lins, Servaes & Tamayo 2017). This literature can be divided into works testing genetic traits and those testing learned traits.

The typical measurement approach is the application of an algorithm to an employee name to predict the person's race and ethnicity. Often, especially for small samples, this approach is supplemented with hand-coding from archival records (e.g., ancestry.com). Individual traits are then linked to a preestablished measure of societal culture (e.g., Hofstede 1991, Schwartz 1994, Gelfand 2018). Grinblatt & Keloharju (2001) were pioneers in this method. They focused on Finnish firms that, for cultural reasons, do not share the same native language. Pan, Siegel & Wang (2017, 2020) evaluate risk culture of CEOs in multiple contexts, looking for consistency and persistence with respect to corporate policies. Nguyen, Hagendorff & Eshraghi (2018) evaluate individualism and firm performance. Davidson, Dey & Smith (2015) consider the off-the-job behavior of executives (e.g., purchases of luxury goods and propensity to get speeding tickets) and link it to fraud and agency costs. Benmelech & Frydman (2015) consider executives' military experience and link it to more ethical decisions within the firm. This line of research on cultural transmission is reinforced by a rich literature in behavioral finance showing that early life experiences have long-lasting effects attributable to altered belief formation (e.g., Malmendier & Nagel 2011).

3.6. Network-Based Approaches

The final set of empirical approaches to measuring culture draws from network economics. These approaches require data with explicit network structure to calculate standard network measures like homophily, which categorizes employees by type. Indices are then created based on in-group and out-group links. Jeffers & Lee (2019) use LinkedIn graph data to create such measures and tie culture to hiring decisions. Tate & Yang (2015) use US Census establishment-level data and employee–boss relations to show the value of female-friendly cultures. Pacelli (2019) and Merkely, Michaely & Pacelli (2020) evaluate analysts' networks to determine how culture shapes analysts' forecasts. Finally, Cho et al. (2021) use data from a professional networking app and show that firms with more connected employees outperform.

3.7. Combining Measurement Approaches

As researchers continue to improve the methods for measuring culture, new questions arise about measurement as a whole. Do different ways of measuring corporate culture lead to consistent implications for firm decision-making and outcomes? What is the correlation between cultural elements and the potential for specific cultural styles to emerge? Is there an optimal culture that is firm-specific? Or, does a limited number of cultural prototypes emerge from a set of cultural elements? Researchers might discover that a new paradigm is necessary in measurement, whereby culture is not measured based on individual firms but rather in relation to other firms in an industry. Such an approach better aligns with the choice that job applicants make in practice. Finally, another challenge associated with the measurement of culture is that culture's many elements can be highly correlated. Studying whether a particular element of culture is related to firm performance might require a better understanding of how all the cultural elements relate, the cultural prototype from which a single element emerges, and the economic trade-offs that link different elements to performance.

4. EMPIRICAL APPLICATIONS

The previous section addressed measurement issues and organized the discussion around methods of measurement. In this section, we examine empirical work on corporate culture and organize the section around topics. Empirical research on culture is challenging. Well-identified laboratory experiments may not replicate outside the laboratory. Observational studies face the dual challenge of measurement and identification. Natural experiments work well when the outcome of interest exhibits quick changes or discontinuous jumps, which are unlikely since culture is more persistent and a slow-moving phenomenon. Empirical researchers have instead focused on catalysts for cultural change for which standard identification strategies may be more appropriate—for example, changes in governance, ownership (public versus private), or leadership.

4.1. Mergers and Acquisitions

The decision of firm management to acquire or merge with another firm is one of the most important decisions management can make. That mergers and acquisitions (M&A) activity generally destroys value is a well-documented empirical observation in the corporate finance literature (Andrade, Mitchell & Stafford 2001; Campa & Hernando 2004; Moeller, Schlingemann & Stulz 2005; Alexandridis, Antypas & Travlos 2017). Why is this? No doubt there are many reasons, but merger failures are often anecdotally associated with the notion of corporate culture clashes (e.g., see Silverstein & Vrana 1998, Foroohar 2018). As Van den Steen (2010) writes: "Culture clash—the potentially destructive effects of combining two organizations with different cultures—is often considered a major cause for the failing of mergers and acquisitions" (p. 1718).[5] A culture clash (i.e., total incompatibility) may be part of the explanation, but researchers have focused on the narrower question of whether mere cultural differences matter.

Interestingly, it is not even clear that management considers corporate culture when making M&A decisions. While Graham et al. (2021b) report that executives claim that corporate culture is important generally and in some cases they would not even make an offer on a firm that

[5]For example, see the article by Oberoi (2020), which gives the following examples of failed mergers or acquisitions: SAP and Qualtrics, Amazon and Whole Foods, WordPerfect and Novell, AOL and Time Warner, Sprint and Nextel, Hewlett-Packard and Compaq, and Google and Nest.

is culturally misaligned, consultants say that managers fail to adequately account for corporate culture issues in M&A. In a study interviewing 123 organizations from around the globe, Aon Hewitt Consult. (2011) found that cultural integration problems are the second most cited factor for deal failures but less than half (44%) of respondents failed to track cultural alignment as part of their deal analysis, 58% said they did not have specific practices to assess and integrate cultures in a deal, and no respondent reported having effective ways to integrate another firm culturally.

To study the effects of cultural differences on M&A, several studies have examined cross-border deals. In doing so, researchers implicitly presume that national cultures embed a set of routines into the firm that distinguishes the culture. Morosini, Shane & Singh (1998) find a positive relation between national cultural distance and sales growth over the 2 years following the acquisition. Ahern, Daminelli & Fracassi (2015) examine a large sample of mergers from 52 countries between 1991 and 2008 and find that the volume of cross-border mergers is lower and announcement returns are lower when countries are more culturally distant on three key dimensions of culture (trust, hierarchy, and individualism). The authors instrument for cultural differences using genetic and somatic differences.

Looking at within-country M&A, Alexandridis et al. (2021) study the relationship between corporate cultural divergence in 22 countries and find that a one standard deviation increase in the measure of corporate cultural difference reduces acquirers' cumulative abnormal returns by 1.5%. This return difference converts into a value destruction of $528 million for an average-sized acquirer. These stock price effects persist. Over the initial postacquisition period, a cumulative return differential of −29% over 2 years was seen. The authors also find that cultural incompatibility reduces the probability of deal completion, and it increases the time required for deal completion.

Tremblay (2020) uses textual analysis of firms' 10-K reports to form measures of corporate culture and matching methods to show that the probability of being acquired decreases along with the cultural differences with a potential acquirer. For example, a one standard deviation increase in cultural difference is associated with a reduction of approximately 9.6% in the probability of being acquired. This result suggests that firm management takes cultural alignment into account when selecting a candidate firm to acquire. Acquisitions or mergers with firms that are very different do not take place. Notably, however, in the sample of deals that occurred, cultural distance is positively related to acquisition synergy. What explains the positive association? She explores the role a relatively more effective or dominant culture plays and finds that the 3-day cumulative abnormal return increases by approximately 10% for dominant acquirers.

Yoo (2020) analyzes CEO letters to shareholders and finds that the similarity of target and acquirer CEO letters is positively associated with the likelihood of being targeted. Also, buyers' announcement returns are positively associated with the similarity measure. Further, a one standard deviation change in the similarity measure increases the likelihood of being a target company by 9%, bringing it to 14%. The results provide evidence that cultural similarities have a substantial positive association with merger volume.

Overall, available evidence suggests that cultural differences are significantly related to the success or failure of mergers and acquisitions, but the relationship is nuanced. Both positive and negative effects are present, and more research in this area is needed to uncover the exact channels leading to the differences in performance. In particular, given the many empirical challenges to identification in the M&A context, especially in the cross-border context where other things like laws and institutions vary, we welcome the introduction of novel identification strategies that can isolate variation in culture.

4.2. Risk-Taking and Ethics

Risk-taking and ethics have received substantial attention, mostly because of the fascinating stories of behaviors so egregious that they destroyed firms. A common interpretation in the early literature was that toxic cultures were the by-product of a few bad apples and groupthink (Janis 1972). Enron is an example that epitomized ideas at the time. The company's rapid demise was triggered by the excessive risk-taking of its leaders and further enabled by yes-men who blindly followed orders. Yet only 6 years after the Sarbanes-Oxley Act went into effect to prevent another Enron, the global financial crisis of 2008 unfolded and changed the views of academics and practitioners about the nature of risk-taking and misconduct (Thakor 2016).

Shortly after the crisis, empirical evidence emerged confirming that failures in risk management were widespread and not the by-product of a few bad apples or even misaligned compensation schemes (Fahlenbrach, Prilmeier & Stulz 2012; Ellul & Yerramilli 2013; Cheng, Hong & Scheinkman 2015). First, Fahlenbrach, Prilmeier & Stulz (2012) established that a persistent element such as culture could explain bank performance. Then, Ellul & Yerramilli (2013) showed that theories of hedging could not explain a bank's risk exposures—rather, the best explanation was a combination of risk culture and business model. For example, conservative banks take less risk and put in place stronger risk management systems. Finally, Cheng, Hong & Scheinkman (2015) showed that misaligned compensation schemes could not explain the high risk-taking of certain financial firms.

Next, researchers began exploring if changes in supervisory and regulatory requirements stemming from stress-testing and the Dodd-Frank Wall Street Reform and Consumer Protection Act had an impact on bank culture. Hirtle, Kovner & Plosser (2020) study detailed data on the bank supervisor's use of time, and they find that increased supervisory time reduces risks. They argue that a change in culture is a likely channel through which the drop in risk-taking occurs. Garcia, Harithsa & Owusu (2021) evaluate the mandatory forward-looking disclosure requirements that came about as part of the regulatory stress tests. For banks near the asset threshold for mandatory disclosure, the authors find supportive evidence that risk culture improves as a result of the regulation. The improvement is driven by leadership strengthening the cultural values of integrity, respect, and quality, which the authors measure using textual analyses.

The relationship between risk, ethics, and misconduct has also been studied outside of financial services. Survey evidence from Graham et al. (2021a) shows that 55% of executives say culture plays an important role in their risk decisions, and 40% say that their firms do not take on the right amount of risk, with more executives admitting taking on too little risk rather than too much risk. Graham et al. (2021a) find that strength and weakness of cultural values and norms such as integrity, trust, and goal agreement help explain this suboptimal risk-taking.

Pan, Siegel & Wang (2017) examine the development of leaders' risk preferences in relation to corporate risk cultures. They show that selection plays an important role. Candidates with risk preferences more similar to the founder candidates are more likely to be selected for top-level executive positions. This selection leads to the study's key finding about cross-sectional versus within-firm differences in risk culture over time. Namely, within-firm changes in risk culture are associated with changes in investment, whereas cross-sectional differences in risk culture are associated with more persistent policies. In a follow-up paper, Pan, Siegel & Wang (2020) examine M&A investments, showing that executives forgo M&A investment when they have uncertainty avoidance preferences. If they do engage in M&A activity, executives are more likely to pick an easy target, such as a smaller firm in the same industry, that can more easily integrate.

Finally, several papers show how unethical behavior or indiscretions by a CEO hurt the firm (Biggerstaff, Cicero & Puckett 2015; Davidson, Dey & Smith 2015; DeBacker, Heim & Tran

2015). Moreover, it also appears that investors, suppliers, and customers view such behaviors as reflecting the culture in the firm generally. For example, Biggerstaff, Cicero & Puckett (2015) find that CEOs who engage in malfeasance, apparently perceived as representative of an unethical corporate culture, come from firms that are more likely to commit financial fraud, and these CEOs acquire more companies (but with lower market responses). Cline, Walkling & Yore (2018) find that personal managerial indiscretions separate from the firm's business activities not only result in significant wealth loss for the CEO but also reduce operating margins and lead to both forced turnover of employees and pay cuts. Finally, a number of studies link discrimination risk with leadership choices (Au, Dong & Tremblay 2021b; Lins et al. 2021).

Compensation is an important tool that managers can use to reinforce or work against the risk culture. Graham et al. (2021a) show that 85% of executives believe that having a poorly implemented or ineffective culture at a company increases the chances that an employee would do something unethical (or even illegal). Yet, despite acknowledgements that an unethical culture exists, the probability of whistle-blowers coming forward to reveal misconduct is small and may relate to compensation. Call, Kedia & Rajgopal (2016) investigated thousands of class actions lawsuits and found that management grants more stock compensation to rank-and-file employees exactly when reporting violations are committed.[6]

5. FUTURE DIRECTIONS

This is an exciting time for corporate culture research, as many recent advances in both theory and measurement will allow researchers to address several unanswered questions. For example, much of the literature has focused on showing that culture is important for firm value, but less is known about how culture relates to traditional corporate financing decisions that can ultimately drive value. For example, investment spikes, M&A decisions, capital structures at IPOs, and dividend initiations are all decisions that firms rarely reverse but that have long-term, persistent implications for firm value.

Can the mystery of zero-leverage firms be explained by corporate culture and a shared belief that avoiding bankruptcy entirely is optimal? If so, is the decision to avoid debt rooted in the shared experiences of a start-up overcoming challenges or the idiosyncratic tendencies of leadership? Lintner (1956) notes that an important factor for payout is "management's confidence in the soundness of earnings figures as reported by its accounting department and its confidence in its budgets and projections of future sales, profits, and so on." Subcultures and silos exist within firms, and if an absence of interaction between departments leads to different interpretations of the same numbers, how does this influence payout or investment decisions? Do silos prevent firms from taking on the right amount of risk or do they actually help firms because the separation allows the financing arm of the firm to act as a steward of integrity?

Management practices—which include performance feedback, target setting, meeting patterns, reward schemes, quality and inventory control methods, and human resource management systems—were linked to firm productivity nearly 60 years ago (Mundlak 1961), but only within the past 20 years were such practices formally identified as influencing firm productivity (Ichniowski, Shaw & Prennushi 1995; Ichniowski & Shaw 1999). In the past 10 years, differences in these practices have become a leading explanation for the vast heterogeneity in productivity observed in the United States and around the globe (Bloom & Van Reenen 2007; Bloom et al. 2013; Gosnell,

[6]In recent theoretical work, Thanassoulis (2021) presents a model on how industry competition influences firm misconduct.

List & Metcalfe 2020). But what is the relationship between management practices and culture? A manager might establish a practice, but an entire organization of employees ultimately must believe in it and execute it successfully. Better understanding which elements of corporate culture drive productivity and the extent to which management practices and leadership influence, constrain, or contribute to the culture–productivity channel is a clear direction for future work.

The hybrid workforce is predicted to last long after the coronavirus disease 2019 (COVID-19) pandemic ends (Barrero, Bloom & Davis 2021; Makridis & Schloetzer 2022), but the optimal work-from-home (WFH) design for maximizing long-term value is unknown. Is working in an office critical to building a corporate culture? What direct and indirect effects might WFH have on culture and firm value? For example, the U.S. Securities and Exchange Commission saw a 31% year-over-year increase as of September 2021 of employee whistleblowers alleging employer fraud (Robinson & Bain 2021). The absence of routine contact with coworkers might reduce fears of retaliation against speaking out and break the habits of thought that perpetuate fraud. Does this imply that workers should be given periodic WFH sabbaticals to reduce corporate fraud? It would be useful to understand if specific cultural values and norms should be adopted to maximize the benefits of WFH. On one hand, WFH has the potential to enhance accessibility and allow for a broader talent pool and enhanced diversity. On the other hand, WFH has the potential to exacerbate inequity. For example, it is possible that employee biases may create a two-tiered system in which employees seeking status regularly attend the office to be part of the in-crowd and cultivate the fondness of leaders. Such a system could be detrimental to firm value, as it might increase attrition and job dissatisfaction and reduce productivity. To a large extent, the mediating force between these two extremes is the cultural values that leaders use to inspire and focus their employees. Thus, would cultural values that are focused on adaptability and fairness better serve leaders than a focus on end results and entrepreneurialism in such an environment?

In a similar vein, emerging technologies, such as advanced communication systems, virtual reality, industrial robots, and AI-based decision-making, are going to alter the way workers and managers interact, their productivity, and how they contribute to firm value. As of now, machines cannot obtain the same types of mental models, linguistic paradigms, or shared habits of thinking that workers, managers, and outside stakeholders can. Given that communication is key to many theories of corporate culture and firm efficiency, how can these technologies be deployed in a way that does not impede effective work environments? Will these technologies displace or substitute for some elements of corporate culture? Will their systems have the same effect as formal systems like governance and compensation, or can their systems be designed to complement culture? What leadership interventions might redress the disruptive effects of emerging technologies (e.g., preemptive investment in culture rather than passive adaptation)?

Finally, the role of corporate culture within industries is potentially important but not well understood. Graham et al. (2021b) document meaningful differences in the strength of the cultural values and norms between firms with leading or near-leading competitive positions and firms positioned in the middle of the pack. What drives this relation between culture, competition, and performance? If firms in the same industry compete with contrasting corporate cultures, what are the economic outcomes? Does culture matter most to performance when firms are in noncompetitive industries? What is the role of industry-level regulation in cultural formation? How many of the cultural failures in the banking and tech industry stem from regulation?

6. CONCLUSION

Research in corporate culture is at an energizing stage. New methods and new, big data have encouraged novel and creative measures of corporate culture's many elements. In turn, these new

measures have explained several observed behaviors in firms. The right way to research culture empirically is to unpack it, articulate which component of culture is being studied, and explain how that component is measured. More theoretical work on corporate culture is needed, and sound theories of corporate culture have the potential to build a new framework for how economics and finance situates the firm within a market economy. Corporate culture can lay at the foundation of all corporate finance research. Much remains to be studied and developed on corporate culture, and we urge economists young and old to direct their energies to this area.

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