Entrepreneurs As Theorists

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The Theory-Based View: Economic Actors as Theorists

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Abstract. This paper outlines the theory-based view of strategy and markets. We argue that novel or "great" strategies come from theories. Entrepreneurs and managers originate theories and hypotheses about which activities they should engage in, which assets they might buy, and how they will create value. A firm's strategy, then, represents a set of contrarian beliefs and a theory—a unique, firm-specific point of view—about what problems to solve, and how to organize and govern the overall process of value creation. We outline the cognitive and perceptual, organizational, and economic foundations of the theory-based view of strategy. We also discuss the essential attributes needed for a firm-level theory of strategy. Throughout the paper we offer informal examples of our argument, by briefly discussing the strategies of companies like Apple, Uber, Disney, Wal-Mart, and Airbnb. The theory-based view of strategy and markets also offers important insights for how firms govern themselves (including ownership, boards, and organization design) and how firms interact with capital markets and external evaluators and stakeholders. We conclude with a discussion of the practical and managerial applications of the theory-based view.

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1. Introduction

Among economists, and organizational and strategy scholars, there has long been an odd disconnect between what we assume about ourselves and what we assume about the economic actors we study. We assume that managers are plagued by biases and cognitive deficiencies, but we grant ourselves a capacity to compose theories and to conduct careful, unbiased observations and experiments. In this we agree with Edith Penrose's strong sentiment—expressed in 1952 in *American Economic Review*: "For the life of me I can't see why it is reasonable (on grounds other than professional pride) to endow the economist with this 'unreasonable degree of omniscience and prescience' *and not entrepreneurs*" (p. 813). Now, entrepreneurs and other economic actors are of course not omniscient or prescient; and neither are scientists. However, we claim that cognitive deficiency or even bounded rationality—central constructs in behavioral economics and many behavioral theories of strategy—should *not* be the most salient cognitive attribute of entrepreneurs and economic actors. In this paper we focus instead on economic actors' capacity to theorize, just like scientists, and argue that the *theories* actors generate animate markets and reveal paths to value creation. This focus on economic actors as theorists links to a form of theorizing called for by Adam Smith who argued that what we need—as summarized by Emma Rothschild—is "a theory of people with theories" (2013, p. 157).[1]

The fact that strategy scholars focus on strategists' limited, bounded, or biased processing and capacities is perhaps not altogether surprising. We commonly cast strategy as a massive search problem, with economic actors assessing or processing the vast stimuli, cues and environments that surround them, in search of valuable opportunities, positions, or underpriced assets (Kirzner 1997, Porter 1996, Simon 1955). Accordingly, many have highlighted the limitations and boundedness of economic agents in this search effort, comparing real human decision making against omniscient or rational benchmarks. To solve the search problem, others have focused on how economic actors compose simplified representations of their environment to guide their search efforts. Such logic and assumptions—derived from behavioral psychology and economics

(Kahneman 2003, Gigerenzer and Gaissmaier 2011)—have had a large impact on the field of strategy, providing insights into how decision-making might be productively de-biased, and how heuristics and simple rules or cognitive association may shape strategy making in uncertain environments (e.g., Artinger et al. 2015, Bingham and Eisenhardt 2011, Gavetti and Levinthal 2000, Powell et al. 2011, Rosenkopf and Nerkar 2001). But overall, a focus on human limitations and rampant bias leaves us hard-pressed to explain much of the economic novelty and heterogeneity that we readily observe all around us.

In this paper we build on an alternative view of cognition and perception (e.g., Chater et al. 2017, Felin and Zenger 2016, Spelke et al. 1992)—one that highlights the theoretical and generative capacities that economic actors and humans clearly possess. These arguments provide the foundations of our theory-based view of strategy and markets. We argue that just as scientific theories advance scientific knowledge, theories composed by economic actors provide the origins of economic novelty, performance heterogeneity, and great strategy. Thus, rather than build on the observation that man's rationality "fall[s] short of omniscience" (Simon 1979, p. 502), we highlight economic actors' capacity as theorists to pose questions, formulate problems, and craft theories that allow them to see and create novel economic possibilities. Importantly, we also suggest that in their search for paths to value creation, economic actors are not constrained by their arsenal of existing resources (cf. Barney 1986). Rather, novel questions, novel problem frames, and novel economic theories reveal previously unseen paths to solutions and value in assets. Resources—whether owned by the firm or available for purchase in factor markets—are themselves inert; an epiphenomenon of the theories that animate them. Value in resources is defined through the lens of unique theories, questions, and problems that reveal novel uses and functions. If economic actors hold common understandings of resource value and use, then resources themselves hold little promise for explaining heterogeneous performance outcomes, beyond randomly assigned initial endowments or random variation in initial prices paid (cf. Leiblein 2011). However, the emergence of novel theories animate the sources and uses (or "affordances") of resources and thereby provide the origin of great strategy and performance heterogeneity.

We systematically outline this theory-based view of strategy and markets. Though some aspects of this view of strategy and markets have been discussed before (e.g., Felin and Zenger 2009, 2014; King et al. 2010; Nickerson and Zenger 2004; Zenger 2013), this paper significantly extends these arguments—into cognitive and organizational domains—and also provides illustrations and examples and more systematically outlines the theory-based view of strategy and markets.[2]

2. Seeing Value in Markets

A central question for strategy is, how do entrepreneurs and firms somehow see, find, and secure value-generating assets and factors in competitive markets? A strong assumption of market efficiency and equilibrium provides a useful starting point for thinking about where value originates, and whether arbitrage opportunities even exist. At the extreme, markets are deemed to be efficient—a place where "there are no $500 bills on the sidewalk" (Akerlof and Yellen 1985, pp. 708–709; also see Ball et al. 1988; Frank and Bernanke 2006; Winter 2017). Any obvious bargains are quickly seen by (some or all) market actors and snapped up. Economic actors—or the system as a whole—are viewed as all-seeing, rational, perhaps even omniscient, thus creating a condition of "exhaustive entrepreneurship" (Denrell et al. 2003, p. 982) where value-maximizing agents deploy cognitive or physical search to exhaust any opportunities to create above-normal, economic value.

However, such assumptions of omniscience, rationality and market efficiency present an existential crisis for the field of strategy (cf. Alchian 1950). If value-generating assets and factors cannot be seen, found, and purchased in markets (Barney 1986), then what are the origins of performance heterogeneity? Mere luck? Is there any role for strategy? Or is there some form of unique vision or perception in markets that might yield new sources of value?

To address the limitations of an omniscient and efficient view of markets, strategy scholars have postulated several alternative value-generating paths to heterogeneity. Two seem particularly salient for our purposes. First, heterogeneity may reflect a firm's initial resource endowment that results from luck or the firm's unique history. These initial endowments provide a source of difference and latent possibility and a vehicle for building capabilities over time (Barney 1986; cf. Dierickx and Cool 1989). Second, heterogeneity may result from cognitive limitations and behavioral failures (e.g., Gavetti 2012; cf. Akerlof and Yellen 1985). The fact that the rationality of some market actors "falls short of omniscience" (Simon 1979, p. 502) creates heterogeneity and opportunities. Economic actors neither act rationally nor omnisciently when purchasing assets and making economic decisions—because of cognitive bounds and the limits of human information processing (Simon 1956)—which in turn leads to heterogeneity. In short, the suboptimal decisions of some economic actors open up the possibility for creating and finding value. Such thinking has led to behavioral approaches to markets that question the foundational information and rationality-related assumptions of neoclassical economics (Kahneman 2003; for a review, see Thaler 2016). These behavioral approaches have also yielded neo-behavioral theories of the firm

and strategy (e.g., Bromiley 2005, Gavetti et al. 2007, Levinthal 2011, Powell et al. 2011, Sibony et al. 2017) that emphasize decision biases or highlight simple heuristics, distant search or association as vehicles to target value creation and generate strategic heterogeneity (Artinger et al. 2015, Bingham and Eisenhardt 2011, Gavetti 2012).

While the two above sources of heterogeneity provide useful explanations, we suggest an alternative path, one that emphasizes the human capacity to ask novel questions, frame novel problems, and compose novel theories. We argue that this "theory-based view" of strategy and markets provides an alternative explanation of the origins of heterogeneous strategies, and particularly novel and potentially "great" ones. We develop and discuss the cognitive, organizational, and economic foundations and implications of this theory-based view, and we highlight the origins and attributes of particularly effective theories.

2.1. Cognitive and Perceptual Foundations

Whether in the realm of scientific discovery or economic value creation, theories guide perception and observation—they shape what we see. As simply put by Einstein, "whether you can observe a thing or not depends on the theory which you use" (Polanyi 1974, p. 604). In other words, without questions and theories, things in our environment—even obvious ones—often remain hidden and outside our awareness (as famously shown by Simons and Chabris 1999). Our physical reality and environment has a large if not infinite variety of features, characteristics, and possibilities that remain latent or dormant (Chater et al. 2017). However, theories provide a mechanism that allows for salience and unique observation. Novel theories, sparked by novel questions and novel problem frames, allow us to see, look for, and express that which may previously have escaped awareness. And importantly, the reinterpretation of even mundane objects, events, occurrences, or readily visible factors may take on completely new meaning and insight in light of the novel theories we possess. To illustrate this: while falling objects are a routine, frequent, and mundane occurrence, such observation took on completely new meaning for Newton through the lens of his then novel theory.

Economic theories of value, as held by entrepreneurs and managers, are no different in shaping what is observed. These theories, as animated by questions and problems, provide the underlying instruments and vehicles for identifying previously unseen sources of value. They reveal new possible uses and functions—called "affordances" (cf. Gibson 2015)—for common objects and new combinations. While traditional approaches to markets focus on prices and the informational content that price might provide, economic actors with theories and opinions—as we will discuss and illustrate—can identify sources of value in unpriced factors or identify unpriced value by identifying *new* uses and affordances for assets. After all, assets simply cannot be priced for *all* uses and affordances, as the set of possible uses is continually emerging and growing (Felin et al. 2016).

An essential psychological foundation of this argument—and our theory-based view—rests on research within the domain of cognition, and specifically the area of perception. However, our approach differs sharply from the cognitive and perceptual assumptions that underlie much of the literature in management and economics (Kahneman 2003, Simon 1955). We briefly revisit this scholarship with an eye toward linking our theory-based view of strategy and markets to a very particular strand of the perception literature—one that focuses on the organism-directed nature of perception. These insights also have radical consequences for entrepreneur and firm-specific perception and theories as well, particularly in terms of understanding the origins of great strategies.

Perception scholars have persuasively shown that there is no way to *exhaustively* capture or represent a visual scene or environment (Felin et al. 2017). Any visual scene has a massive number of features and characteristics that could be attended to, and thus we necessarily attend to the world in more directed and focused fashion. Organisms—humans included—attend to their surroundings not in a computational or camera-like sense (cf. Geisler 2011, Tabachneck-Schijf et al. 1997) but rather through the questions, problems, hypotheses, and theories that they have in mind and impose on the world (Koenderink 2012). Thus salience and observation, in terms of what we are aware of, are driven by theories and questions and *not* by the inherent characteristics (called "natural assessments" in the literature), presence or even nature of objects (cf. Kahneman 2003). This intuition, intriguingly, was featured in some of Simon's early work, when he argued that "a subject perceives what he is 'ready' to perceive in it; the more complex and ambiguous the stimulus, the more the perception is determined by *what is already 'in' the subject* and less by what is in the stimulus" (Dearborn and Simon 1958, p. 140, emphasis added). But this characterization of human observation is vastly different from the way that bounded rationality has been operationalized in most of the literature (Conlisk 1996), where the focus has largely been on failures and the computational limits of information processing (Kahneman 2003, Simon 1979; cf. Gigerenzer and Gaissmaier 2011).

Essential to our theory-based view, then, is the recognition that we attend to our surroundings and environment looking *for* something, rather than neutrally recording or scanning its contents. This "looking

for" is different from comparison or calculation. Here salience and awareness are driven by the questions that we impose on the world, and the search for specific answers (Chater et al. 2017, pp. 24–26). What animates our vision are the questions that prompt observation and perception. Therefore, the environment a strategist perceives—the potential resources recognized and the value-tags affixed to assets and resources—is always a reflection of a question asked or a problem framed.

Our insights here build on a particular strand of cognitive science and biology that focuses on the specificity and directedness of perception rather than its generality. This distinction is quite important, as it distinguishes us from cognitive models that focus on, say, heuristics and cues or stimuli (Chater et al. 2017, Gigerenzer and Gaissmaier 2011) and related work in strategy (e.g., Artinger et al. 2015, Bingham and Eisenhardt 2011). The idea of the specificity and directness of perception can be traced to biologists like Uexkull (2010)—and the subsequent research of Lorenz and Tinbergen (Burkhardt 2005)—who emphasized how organisms attend to their unique environments with a so-called "Suchbild," a search or seek image (Chater et al. 2017). An organism's Suchbild represents a question and potential answer that guides what an organism searches for and thus delineates what can and cannot be seen in an environment. For example: a frog may have a source of food right in front of it (a cricket or locust), but it will not recognize it, that is, unless it moves (its Suchbild is specific to movement of certain-size objects). And stickleback fish focus on and look for highly specific stimuli related to the color red at the expense of any number of other things that objectively might be present or that might be attended to (Tinbergen 1963). Thus, these Suchbilds or search images are species-specific. Awareness is conditioned not by what is there, per se, but by what the species is looking for.

The powerful human corollary of this Suchbild—the directed and species-specific nature of perception and observation—is captured by the questions, hypotheses, and theories that shape human awareness and observation (cf. Gregory 1980, 2005). Human perception essentially has more degrees of freedom and scope for possibility (compared to other organisms), in terms of how it might become aware of new possibilities in the environment. Humans have a built-in generative mechanism, the mind, which allows us to bootstrap novelty and unique perception through the questions, problems, and theories that we impose on the environment and world (Chomsky 1966, Peirce 1957; for a review, see Felin and Zenger 2009). This insight was captured by Popper (1967, p. 346) who argued that observation is always "theory-laden"—that is, "we learn only from our hypotheses what kind of observations we ought to make: whereto we ought to direct our attention: wherein to take interest."[3] Perception and observation are never neutral, or some kind of pure, mind- or organism-independent recording or capturing of what is objectively there, but rather "observation comes after expectation and hypothesis" (Popper 1967, p. 71). Popper's version of the idea of a Suchbild or search image is captured by his useful example of a "searchlight" or flashlight that guides our observations, contrasting this with a Lockean and empiricist conception of the human mind as a "bucket" that passively and automatically (somehow) absorbs stimuli from its environment. Thus, the mapping is from mind-to-world rather than world-to-mind.

In sum, we argue that perception and observation do not happen based on the actual nature or characteristics of stimuli or objects themselves—as argued by some (Kahneman 2003; also see Geisler 2011, Gershman et al. 2015)—but rather it happens on the basis of the questions and theories that economic actors impose on situations and environments. This leaves the world poised for constant reinterpretation and possibility (cf. Kauffman 2016), as perception is not passive or automatic, but generative, though requiring a theory and "readiness to perceive" (Polanyi 1957, p. 89).[4] These arguments, about the theory-laden and question-driven nature of perception and observation, then, provide an underlying foundation of our theory-based approach to strategy and markets.

We specifically see the mind—the mind of the entrepreneur and manager—as a generative organ, capable of generating novelty, rather than a camera that simply collects and captures experiences and stimuli. Note that this also provides a different meaning to the idea of representation. While representations in their most simplistic form can be seen as mirrors that aspire to create a correspondence or "match" with reality (Drucker 1994), we instead see representations as featuring expressive and multifocal facets that make unique, heretofore unattended features or characteristics of reality or the environment salient (Felin and Zenger 2016). Representations of course are always, of necessity, directed and focused, as any notion of full, exhaustive fidelity to reality simply is not scientifically possible. The recognition that representation is always partial and multifarious is also readily apparent from the idea that abstract concepts such as space can be represented in a very large variety of ways.

Thus, we see theories within the context of economics and strategy as serving the same function as they do in human and scientific contexts as well. They are the human "Suchbild"—search or seek images—that direct our attention and awareness. Theories represent instruments for making previously unobserved facets in and of the environment more salient. And theories of economic value guide our awareness toward specific observations and factors that may readily have

been missed by others and reveal potentially valuable assets and opportunities others overlook.

2.2. Attributes and Origins of Economic Theories

If problems and theories provide an essential path for value creation, what then are the attributes and characteristics of a valuable theory in an economic context? How do such theories arise? Next we answer these questions and provide illustrative examples.

As with scientific theories, an economic theory commonly originates with a question or problem, either one widely recognized or one entirely unseen by others. Such problems or questions may prompt a novel hypothesis or conjecture about paths to a solution, and lead to experimentation. Through further refinements, partly informed by experimental actions, the problem becomes more fully framed, and a more well-formulated theory may emerge. As described by Simon, there is a "continuing two-way interaction between the gradual construction of [a problem] representation and the construction of the theory that [uses] it" (Simon 1996, p. 379). We provide the following brief illustration: Sam Walton famously recognized the problem of efficiently merchandising and supplying small town discount stores—a problem largely neglected by other discount retailers, including those already targeting small towns. Armed with some initial conjectures and many years of experimentation with Ben Franklin stores, the underlying problem became increasingly well framed, and eventually a theory emerged about how to solve it—a theory that involved the efficiency of a network of stores fueled by their dense placement within a region, and most importantly a theory that revealed value in assets and asset placements (i.e., large stores in small towns, placed with high density within a region) that were previously unrecognized.

Valuable theories—whether scientific ones or economic theories of value—perform several key sight-giving functions. By effectively framing a problem or a set of problems, a theory provides a coherent, abstract, causal representation of the world. It serves not as a (or *the*) representation of the world, per se, but rather as a *map* of what might be observed: a way of seeing things that may not be evident or obvious to others. A theory provides predictions about observations, future states, and the emergence or dynamics of the problem. A theory permits counterfactual inference, allowing an economic actor to infer what might happen in response to a given action, and it allows the interpretation of evidence obtained from that action. More formally, we suggest that valuable theories have four key attributes. While any number of attributes of theory might be listed and discussed, we think the following four are most significant for the economic and strategy context.

Valuable Theories Are Novel. They reveal paths to solving problems and paths to value that others cannot see. In the realm of science, unless a theory provides a unique perspective—novel understanding, observations, or hypotheses—then the theory provides no real advancement to scientific understanding. The same principle applies to economic theories. To be unique, economic theories have to be founded on beliefs not held by others. Such intuition is reflected in entrepreneur and venture capitalist Thiel's (2014) purported question to aspiring entrepreneurs (as paraphrased by us): "what do you believe that no one else believes?" The question provides an intriguing litmus test of uniqueness.

Valuable theories require a contrarian belief. Such logic echoes Darwin's notion that "all observation must be for or against some view" (Darwin 1861, p. 195). However, in the economic context, if a view or theory is commonly held by others, then it is logically unable to yield new insights about novel uses of resources, novel observations, and sources of opportunity. Thus, valuable economic theories must "go against the tide" of common opinion, facts, and wisdom, and thereby permit vision that others lack. Novel theories are essentially bets against "the market" or bets against common understandings about what might be valuable.

Note that this focus on an idiosyncratic perspective diverges sharply from approaches to composing strategy that emphasize the need to maximize environmental fit. For instance, Drucker (1994) also calls for firms to have a "theory of business," but he specifically focuses on the need for a firm to fit "its environment"—to "fit reality." Our approach, on the other hand, is fundamentally about identifying possible *discrepancies* with widely agreed current or future realities, or creating what we might casually reference as a "reality distortion." That is, if realities—as discussed in the preceding section (also see Chater et al. 2017)—are multifarious and multistable, then the "distortion" of reality is simply a way of pointing out and making alternative realities, through questions and theories, more salient and possible (cf. Attneave 1954). Here our intent is not to refer to reality distortion in any kind of postmodern sense, but rather in the sense that theories readily open up new observations, possibilities, and alternative interpretations that are contrary to current understandings of even well-established facts and commonly held beliefs. For instance, it might factually be true that few of us saw the need for a personal computer in the 1970s, and this "fact" could indeed be empirically corroborated with large-scale survey data and evidence from potential customers, or based on some kind of consensus by experts. However, some in the early computer industry nonetheless had a radically different vision of the future—and simply ignored these facts. A contrarian belief in the future ubiquity of personal

computers—and importantly, an understanding of the problems that impeded that future—led certain entrepreneurs to look for solutions and technologies that might make the reality possible. In fact, differences of opinion—and discrepant views of the future—between entrepreneurial firms and funders provide a particularly useful window into the role of theories in creating value.

The case of Airbnb provides an apt example of this. The company struggled to gain any venture funding, as the idea that individuals would readily rent their homes to complete strangers, or that travelers would stay in the homes of strangers (rather than hotels), seemed farfetched and unlikely. The seasoned venture capitalist Fred Wilson—an early investor in Twitter, Tumblr, and Kickstarter—commented at the time that he was "very suspect of this idea."[5] Even after hearing the founders' pitch, he remained skeptical, unsure "they [could] take on the hotel market" and unconvinced they could scale the concept. Accordingly, Wilson and many others failed to invest in Airbnb. Of course, the rest is history. As of June 2017, Airbnb features three million listings in 65,000 cities in 191 countries—making it, in effect, by a very significant margin, the largest hotel in the world with the latest valuable pegged at $31 billion.

What the Airbnb example illustrates is that there are wildly discrepant and different beliefs and views of the future, of what is possible and what might create value. Any number of objective facts can be amassed to empirically support each view. For example, if a representative set of consumers had been surveyed, they would likely have verified the folly of Airbnb, consistent with the VC skeptics. The interpretation of facts, and importantly, the search for the relevant facts and evidence, is always a contested process, where theories underlie what we look for and find.

A valuable economic theory, then, frames a problem and encapsulates a novel belief about a possible future in which that problem is solved. It prompts a theory-guided search *for* resources and solutions to then solve it and create that future. A firm with a theory, therefore, attends to its environment with a specific lens—with the aforementioned Suchbild in mind (a set of questions and problems)—for which it seeks solutions. Moreover, there is an inherent back-and-forth or toggling between beliefs or theories and questions or problems. Beliefs reveal problems, which, as they become better framed, emerge as theories and hypotheses. Alternatively, initial problems may generate conjectures, which generate new problems and questions that ultimately lead to a well-composed theory.

Valuable Theories Are Simple and Elegant. Better theories explain and predict more with less. For the same reason that one-to-one maps of reality are useless, valuable theories must be parsimonious and simple. As Aristotle suggests in *Posterior Analytics*, better scientific theories demonstrate and derive more "from fewer postulates or hypotheses" (McKeon 1941, p. 150). In a similar manner, better economic theories of value demand fewer variables, central choices, or conceptual levers to unveil far-reaching consequences for value creation. Simpler theories provide greater clarity to the choice of strategic actions.

To illustrate, while Jobs' theory at Apple was, of course, notable in its novelty as a contrarian belief that computers need not remain the instrument of specialized experts, and that simple, elegant, approachable design could make them personal, the theory was also remarkable in its simplicity, and it provided (and continues to provide) a very clear direction and lens through which Apple could evaluate assets and opportunities. For Jobs, the theory changed the way he viewed his environment and the set of observations and facts that he saw as relevant. It specifically colored his search for possible assets, combinations, and solutions. This is nicely illustrated by Jobs' well-documented 1979 visit to Xerox PARC, where he encountered technologies such as the mouse, the graphical user interface, and bitmapping (Isaacson 2011, Rolling 1998, Sito 2013). Given his problem frame and theory, he recognized in these technologies a vehicle to generate seamless, intuitive interaction between users and the computer. Based on first-hand accounts, as soon as he entered Xerox, he saw the value. Jobs reported: "I was so blinded by the first thing they showed me which was the graphical user interface. I thought it was the best thing I'd ever seen in my life" (Rolling 1998, p. 162; cf. Sito 2013).

Note that at this point in history there was no "market" for the mouse or for the graphical user interface. There were no queues of buyers waiting to use the technology, no marketing or selling, no auction or licensing of the technology, and no formal price. In short, there was no general recognition of value for these technologies. Value appeared only in light of a theory. Thus, acquiring strategy-relevant resources is not simply based on bidding and buying products and assets in prototypical markets (where value might only emerge through luck or short run arbitrage opportunities), but rather on the basis of heretofore unidentified but valuable assets that lay dormant and latently ready for possible use and application. It is this process, we argue, that is guided by an overall theory.

What is intriguing is that *some* of the Xerox PARC engineers, in fact, did see the value. For example, Adele Goldberg, one of the developers of key technologies at Xerox, had to be ordered by her superiors to allow Steve Jobs to see the technologies at PARC. She felt that the company "[gave] away the kitchen sink" by allowing Jobs to see the inner technology sanctum of PARC (Rolling 1998, p. 163). Indeed, some engineers within Xerox PARC had a sense that they were onto something

very significant with these technologies. Xerox had even, arguably, developed the world's first personal computer, the Xerox Alto, in 1973. However, beyond the excitement of a few engineers about the technology, there was nothing more, and certainly no corporate level recognition of what the company possessed. The "vision" or theory about what might be possible, and about what customers might demand and need, was not held by those in power at Xerox.[6] Instead, Xerox executives held an alternative theory, perhaps even one that was simple and clear, but not one that recognized the value that Jobs saw.[7] As John Warnock (subsequent founder of Adobe) quipped, "the real frustrating part was you were talking to people who didn't understand the vision" (Rolling 1998, p. 162)—and thus these specific technologies lay dormant, given the lack of a theory to animate their possible use. From the perspective of cognition and perception, we know that humans similarly miss all manner of "obvious" things in their environments—including sources of value—in our immediate visual scenes (Chater et al. 2017), *unless* they are asking the right questions, or are armed with the right problem, or are operating with the right theories.

Valuable Theories Are Falsifiable and Thereby Provide Clarity of Direction. Popper (1969, p. 39) suggests that the distinguishing mark of a valuable scientific theory is its capacity to be refuted—its capacity to be falsified. As Popper notes: "Every 'good' theory is a prohibition: it forbids certain things to happen. The more a theory forbids, the better it is." Of course, scientists are interested in verifying and falsifying theories for the sake of advancing knowledge, but economic theorists are interested in creating value by pursuing strategic actions consistent with their theories, while avoiding those that don't. The virtue of a falsifiable economic theory is that it provides clear prescriptions about what strategic experiments or actions are consistent with the theory and thus worth taking up and which are not.

Before providing an example, it is useful to contrast this idea with alternative mechanisms for identifying value. Existing strategy research focuses on the power of mechanisms such as trial-and-error, recombination, analogies, and association (e.g., Ahuja and Lampert 2001, Carnabuci and Operti 2013, Gary and Wood 2011, Rosenkopf and Nerkar 2001). The problem is that the combinatorial possibilities (Rivkin 2000) of all of these mechanisms are far too vast. Thus, trials cannot simply be random (cf. Camuffo et al. 2017), nor can the sampling of possible combinations, of the use of analogies and associations. Trial must inherently be seeded by some form of belief and theory that provides direction and focus.

In terms of how theories provide direction, Walt Disney provides an apt, informal example. The company composed a theory, remarkably early in its history (Zenger 2013, Felin and Zenger 2017), about how it would create value in the entertainment space. The theory revolved around composing wholesome fantasy worlds and fantasy characters and then replicating and leveraging these fantasy worlds and characters in and through other entertainment-related businesses and assets. As powerful as this theory has been in revealing what strategic actions Disney should take, it has been equally powerful in creating obvious prohibitions for Disney. It suggested that Disney ought to avoid edge live action films. In other words, Disney should avoid using characters in one business that destroy their value in another. This further suggested that there should be no Disney characters in casinos, however profitable this might be for the hotel business. Furthermore, their theory suggested that Disney should avoid creating characters and fantasy worlds that are time bound. In short, the Disney theory offered direction and clarity about actions inconsistent with its tenets.

Economic theories—held by entrepreneurs, managers, and firms—provide direction and thus are an instantiation of the aforementioned cognitive Suchbild that guides the attention and awareness of economic actors as they seek to create value.[8] This approach suggests that economic actors are scarcely engaged in some form of calculation or comparison of possibilities, nor are they trying to process masses of stimuli or cues in dynamic and uncertain environments. Instead the economic theories of actors help them cut through these matters and to simply focus on the problems and questions that are relevant to their own envisioned path to creating value. Thus, the problem is not one of cognitive deficiency or overwhelming information, but of ensuring that the theory motivating the actor has the attributes and features suggested above.

Valuable Theories, While Novel, Are Also Generalizable and Generative. The philosopher of science Kitcher (1982, p. 47) suggests, "good theories consist of just one problem-solving strategy . . . that can be applied to a wide range of problems." This breadth of problem solving that a valuable theory affords can take one of several forms. A valuable theory may illuminate the causal connections between interrelated problems and reveal a common path to a solution. For instance, the theory for the ride-sharing firm Uber seems to have emerged from initial frustrations and problems with hailing cabs. This led to a conjecture about ride sharing, which pointed to a constellation of problems that needed to be overcome to implement an effective ride-sharing service. These problems included concerns about riding with strangers, the facilitation of skillful navigation for less experienced drivers, managing efficient payment, and effective driver onboarding. From this conjecture emerged a theory or model with a hypothesis about how the full array of problems could be solved.

Thus, a valuable economic theory may also reveal an unfolding class of problems and in this sense be both generalizable and generative. For example, Disney's central animation capability and its focus on wholesome entertainment provide underlying resources that allows the firm to tackle a whole host of markets, including Broadway shows, cruise ships, vacations, hotels, and so forth. In short, Disney's theory is generalizable and generative—continually opening up new possibilities and markets. Similarly, Apple's theory of simple, elegant design is the central problem-solving path to many problems and opportunities in consumer electronics. The power of generative theories, then, is that they continue to reveal valuable problems to solve and experiments to run. In reference to scientific theories, Kitcher writes: "A great scientific theory . . . raises more questions than it can currently answer" while noting that such "incompleteness is no vice" if the theory reveals new questions that "can be answered without giving ups its problem-solving strategies" (1982, p. 42). Indeed, the most powerful economic theories—as illustrated by the informal examples of Disney and Apple—have a long shelf life and provide ongoing direction to a continued stream of "problems."

In all, as with academic and scientific theories, there is wide variety in the quality of theories possessed by economic actors, whether firms, entrepreneurs, or employees. There is also wide variation in the capacity of these actors to craft valuable theories. Our contention, however, is that the best economic theories, like the best scientific ones, will demonstrate these properties of novelty, simplicity and elegance, falsifiability, and generalizability and generativity.

3. Organizational Implications

The theory-based view has important implications for understanding the role of organization in the economy. Much of the literature on the design and governance of organizations implicitly assumes that a theory of value already exists (Zenger et al. 2011, Argyres and Zenger 2012), and then explicitly takes up the task of providing guidance on how to efficiently organize transactions and activities in ways that compose and capture the value that the theory foresees. While the theory-based view emphasizes the obvious point that a theory of economic value necessarily precedes these design tasks, the theory-based view also illuminates three central roles that organizations play in both shaping and selecting theories of economic value. First, organizations are vehicles through which some economic actors with theories of value are granted power to explore them, and others are not. Second, organization often plays a critical role in composing theories of value. Furthermore, the optimal design of organizations—specifically the design required to facilitate the process of composing theories—reflects the nature of the problems seeking to be solved or the questions being asked. Third, theories have implications for how the firm interacts with potential employees, as well as the set of relationships it might have with potential partners. We briefly discuss each below.

First, organizations represent a point of view (cf. King et al. 2010), and organizations prefer their own theory over others. The theory-based view envisions an economy filled with organizational actors with divergent theories of value, and therefore fundamental disagreement about what these theories are, which ones are valuable, and how to compose them. For any given set of available assets and resources, the economic actors who own them will likely have widely divergent beliefs and theories about how best to deploy and recompose them to generate value. A key outcome of hierarchy is systematically advantaging one actor's theory of value over another. Rather than having to rely on persuasion or education to orchestrate activities or secure assets, hierarchy provides a simple capacity to direct (Demsetz 1988), a logic echoed in Simon's claim that "when . . . disagreement is not resolved by discussion, persuasion, or other means of conviction, then it must be decided by authority of one or the other participant" (Simon 1947, p. 182). Key features of hierarchy serve to advantage the central actor in wielding authority about what to do (Van den Steen 2010). As Van den Steen has argued, the low-powered incentives that operate within firms ". . . minimize the employees' temptation to disobey when they disagree with their boss . . ." and centralized asset ownership "affect[s] the *level* of the outside options in a way that makes the employee obey the manager . . . ." (Van den Steen 2010, p. 467). In other words, if these assets are externally controlled, the owners of assets are constantly searching for more valuable uses of their time and assets, following their own different theories or the theories of others. But, ownership of the assets by the firm restricts these prior asset owners to simply searching for better uses of their time, absent the assets.

A clear implication of this logic is that the boundaries of the firm will be expanded to encompass those assets where the firm's theory about what to do with them sharply diverges from the theories held by current asset owners. Here the focus is not on control to capture value—an important consideration but one dealt with effectively in prior literature—but rather control to enable the formation of value that would otherwise not occur. Thus, the hierarchical control, low powered incentives, and asset ownership that exist within firms support a central actor's capacity to pursue their theory of value without incurring substantial costs of persuasion and contracting that would otherwise be required.

Second, organizations aid in the composition of theories. Organizations may often exist to efficiently form theories of value, specifically enabling the efficient aggregation and recombination of knowledge (Kogut and Zander 1996) that is particularly critical to framing and solving complex problems (Nickerson and Zenger 2004, Felin and Zenger 2014). In other words, the purpose in organizing is to facilitate the necessary transfer, discovery, and integration of knowledge scattered across multiple actors (Hayek 1945; also see Arrow 1974), often through the formation of shared language and identity (Kogut and Zander 1996). In addition, low-powered incentives and central ownership of assets may weaken incentives to hoard knowledge and instead support the broad knowledge sharing necessary to form valuable theories. Thus, rather than merely ensuring value capture, a central purpose in forming firms is to enable the composition of an effective problem frame or theory to guide solution search.

Third, organizations with a clear theory or point of view prompt a process of self-selection that attracts those who share a belief in the theory. As discussed above, hierarchy may ensure that employees nominally buy into (or are willing to work toward the realization of) the theory of the firm. Though, if employees disagree with the overall direction of the firm, they may choose to exit (Hirschman 1970). The mobility of employees, particularly those who disagree with the strategy of their company, provides an intriguing window into the theory-based view (Felin 2016). For example, Finis Conner left Seagate in 1985 over a disagreement about the direction of the company and founded Conner Peripherals, which became an instant success (the fastest company, at that point, to organically grow to $1 billion in revenues). Seagate later had to engage in a costly acquisition of Conner Peripherals.

But valuable employees may also self-select into firms that match their vision and theory for how to create value. The story of Tony Fadell might be interpreted as precisely this type of matching of employee and firm-level theory. In the late 1990s, well before Fadell joined Apple (in 2001), Fadell had the idea for an iTunes-type software platform and ecosystem, coupled with a hardware device (Coff 2010, pp. 715–716). Fadell first tried to start a company on his own (Fuse Systems), but quickly realized he could not access the relevant assets and resources to carry out his theory. He then separately approached both RealNetworks and Philips Electronics to see if they might be interested in working with him. Both companies were uninterested. Fadell met with Steve Jobs and found alignment in his vision with what he hoped to accomplish, and he was eventually hired to run the iPod and Special Projects group at Apple. Thus, alignment in vision and theory can lead valuable employees to self-select into firms.

The theory-based view of strategy, then, offers insights for understanding firm boundaries and the design and structure of organizations. If we see the firm as some form of contrarian belief and theory about the future, then this naturally leads to structural features and incentives that will enable the generation and realization of these theories. Furthermore, employee mobility—both into and out of organizations—might be seen as playing an important role in signaling the value and latent potential of these theories, particularly in the absence of immediate market signals about the value of theories.

4. Economic Foundations

The theory-based view has equally important implications for understanding the markets that surround organizations. While economics has traditionally focused on asymmetric information, idiosyncratic history, and bounded rationality to explain the heterogeneous outcomes that play out in markets, we anchor on divergent theories held by economic actors. As noted in the introduction, we see our approach as responsive to Adam Smith's early vision for economics as a discipline that delves "into the sentiments and minds of the actors" or as Rothschild summarizes this agenda, an effort to develop "a theory of people with theories" (2013, p. 157). Our assumption of an economy with a multitude of economic actors who possess potentially divergent theories of value has important implications for how we understand the economics and very nature of markets—both the markets through which theories are pursued and the markets through which theories are funded.

First, our theory implies that there can be no exhaustive delineation and accounting of the value of assets or objects, rendering markets only as efficient as the breadth of theories of value that observe them. The theory-based view recognizes that objects in the world have a very large array of possible functions and uses—or affordances (Gibson 2015)—and this array of uses, particularly in combination with other factors, becomes near infinite (cf. Rivkin 2000). Many of these uses and functions lay dormant, waiting to be brought to life by the right theory, question, or problem. There are, of course, common (and thus "priced") uses for assets and objects, such as using a screwdriver to screw screws or a shovel to dig a pit (cf. Kauffman 2010). However, there is nothing inherent to assets or objects that allows us to conclusively delineate all possible uses, though efficient markets hypotheses make precisely this assumption. Furthermore, any number of assets and objects in the world are scarcely even priced, thus simply waiting for the right theory to provide them with use, relevance, and meaning. From the perspective of the theory-based view, the idea of any form of efficiency or full rationality in

the use of resources or assets in an economy is a fiction, perhaps only applicable for some cases of pure competition.

The domain of strategy fundamentally is concerned with novel, unanticipated, and hidden sources of value, which we argue are unlocked through firm-specific theories. Naturally there might be hindrances in the emergence of novelty and heterogeneity. Humans naturally fixate on those functions and uses of objects that are common, which indeed creates discrepancies and opportunities in markets, which in turn readily allow savvy entrepreneurs with novel theories to find bargains and new uses. The fixation on common uses—or "functional fixedness"—was identified by the psychologist William James who argued that "many objects of daily use—as paper, ink, butter, overcoat—have properties of such constant unwavering importance, and have such stereotyped names, that we end up believing that to conceive them in those ways is to conceive them in the only true way" (James 1890, pp. 222–224; cf. Felin et al. 2017). Novel theories overcome such functional fixedness and create new markets. Thus, a robust labor market for people with privately owned cars and a bit of free time only emerged after a theory of their new use as an alternative form of transportation emerged and was tested.

Second, the theory-based view highlights that economic actors in markets compete for resources on the basis of the theories they possess. This competition is driven by different visions of the future, and has an important social component. That is, theories clearly define the value of assets to be purchased by those with theories. But those who own resources—including their own human capital—relevant to these theories must also assess the merits of these theories, especially if the theories demand specific investments. While contractual safeguards may offer those providing assets and services with legal remedies for breach of contract, any capacity to collect on these remedies will hinge on the merits of the theory in generating value that thereby enables the promised payments for specific investments. Moreover, a willingness to make specific investments may also hinge on beliefs about the theory's merits because highly specific investments connected to a highly successful theory may position those owning these assets to renegotiate for a larger share of the value created. Arguably, in many settings, a favorable assessment of the underlying theory guiding the request to exchange (or to accept employment) is more central to a decision to engage than the contractual provisions one offers. Confidence in an economic actor's theory simply generates a greater willingness to make highly specialized investments, including those that accompany employment, because the forecast's value grants an opportunity for extensive leverage in bargaining.

Third, the theory-based view highlights the central role that financial markets play in determining which theories are pursued. Unless those with theories have abundant wealth, they must seek financing in capital markets. The resulting separation of ownership from control generates two fundamental problems that define the corporate governance literature. The first problem—the one that consumes most of this literature—is that investors who fund theories cannot tell whether managerial behaviors target shareholder value or managerial value. Governance then focuses on ensuring that managers always attend to shareholder interests, including the pursuit of shareholder beliefs about what behaviors are value creating. The second problem—the adverse selection problem—is that theories of value are difficult to evaluate and bad theories can be disguised as good ones (Akerlof 1970). Accordingly, well intentioned managers with valuable theories may be unable to convince investors of their theories' merits. While some theories are rather explicitly stated and codified, others are implicit, discernable only from observing patterns of action. In all cases, assigning values to theories requires evaluating the forecasted outcome, based on competing views, imagination, and theories of the future.

Contrary to the preponderance of the governance literature, the theory-based view of strategy focuses on the significance of this second problem. Compounding the problem is the fact that the most valuable theories are also likely to be particularly difficult to evaluate. As we have noted, like theories in science and academia, valuable theories are likely to be novel and thus more difficult to assess and evaluate, particularly given the scant data or evidence. The problem is that the more evidence there is for a particular theory, the easier it is to evaluate, but also the less novel it is likely to be. Uniqueness is required to reveal new uses of assets and resources, new market positions, unmet customer needs, valuable new combinations of knowledge and resources, or valuable new investments. Consequently, in the same way that novel scientific theories are more likely to be initially ignored or discarded, the same is also true of novel theories of economic value (Litov et al. 2012, Benner and Zenger 2016). Novel theories may poorly fit existing categories used for comparison, evaluation, and classification (Zuckerman 1999), imposing higher costs on outsiders who might be tasked with evaluating these theories (Litov et al. 2012). Thus, more novel theories face the greatest challenge in being funded or supported by other key resources and stakeholders.

In emphasizing this adverse selection problem, the theory-based view also influences how we interpret what is optimal governance. If the central governance problem is granting those with valuable theories the latitude to pursue these absent the influence of

short-sighted, unenlightened investors, then governance choices—such as granting founders preferred shares and elevated voting rights, nonindependent boards, and granting CEOs the role of board chair—take on a very different meaning. Rather than inviting behavioral mischief that destroys shareholder value, choices that grant leeway and autonomy to those with valuable theories may avoid the costs of adverse selection by circumventing the meddling and control of investors who lack real theories of value. While private equity and its growth have largely been discussed as a solution to the moral hazard problem, by aligning the incentives of those in control with the interests of those who own, arguably private equity's real benefit may stem from solving the information asymmetry problem associated with a firm's theory of value (Benner and Zenger 2016). It ensures that those who choose to invest have the incentives to dig in and correctly evaluate the theories of value possessed by those granted control. Of course, both problems are in play. But, importantly, what looks like good governance when anchored on solving moral hazard may be bad governance when anchored on the problem of effectively financing and giving control to those with valuable theories. Moreover, trends toward IPOs with dual class shares and greater private equity financing highlight the importance of this information asymmetry problem.

5. The Theory-Based View: Some Practical Implications

For us there is nothing abstract or impractical about the notion of entrepreneurs, managers, or firms having theories. We view the theory-based view of strategy and markets as inherently practical and managerial. We concur with Lewin (1943, p. 118), who argued that "there is nothing so practical as a good theory."

Thus, when budding entrepreneurs or seasoned executives ask us about where "great" strategies come from—or whether their own firm's strategy is any good—we focus on theories. We offer no "rules for riches" but instead point toward a set of essential questions that originate from the theory-based view, and which focus on generating or assessing a unique firm-specific theory or point of view that provides novel insights and guidance for strategy. Thus, in our interactions with entrepreneurs, executives, and firms we ask the following questions:

- What do you believe that no one else believes? Why?
- What specifically is your firm's theory of value? How is that different from others? If your theory is so unique, then what specific assets would you say are underpriced (or even unpriced)?
- Is your theory of value novel, simple, and elegant? Is it falsifiable? Does it rule out some experiments and point toward others? Is it generalizable and generative?
- What problem is no one solving? Or put differently, what problems do you (or others) need to solve to realize your vision of the future? How will you solve these problems?
- Who do you need to convince (or incentivize) for your theory to be realized?
- What funding and governance mechanisms will best enable you to realize your theory?

These informal questions capture a few of the practical and managerial implications of the theory-based view of strategy and markets. Admittedly they don't provide a thorough, analytic framework. But we think the theory-based view provides a powerful and practical, alternative way of thinking about the origins of great strategies and heterogeneity in markets.

6. Conclusion

In this paper we have outlined the broad contours of a theory-based view of strategy and markets. We argue that heterogeneity and value originate from unique, firm-specific theories. This view offers an alternative perspective of the origins of value, though it also links with existing behavioral and heuristics-oriented approaches. The theory-based view of strategy is specifically founded on arguments in the cognitive sciences and the psychology of perception, which focus on the role that theories, questions, and problems play in directing observation toward potential sources of novelty in markets. As such, our theory diverges from more common explanations of the foundations or origins of strategy that focus on assessing and leveraging existing capabilities or surveying or searching the landscape to discover valuable positions. In this paper we have sought to provide both the cognitive and perceptual foundations of the theory-based view of strategy, along with delineating its wider macroeconomic implications. Entrepreneurs, managers, and firms have theories of value that animate factor markets and the organization of production in the economy. And these theories guide the acquisition of assets, the structure of production, and the heterogeneous decision and ownership rights that we observe within and across firms and markets.

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Endnotes

[1] As Adam Smith put it, "in the great chess-board of human society, every single piece has a principle of motion of its own, altogether

different from that which the legislature might choose to impress upon it" (Smith 1822, p. 207; for further discussion, see Rothschild 2013).

[2] This article is also related to a concurrent practitioner piece on the role of entrepreneurial and managerial theories in strategy (Felin and Zenger 2017).

[3] This intuition is aptly captured by William James who argues that "an idea must already be there before we attend to it" (James 1890, p. 450). More generally James marvels at how it is that we only are aware of a very delimited set of things in our environments: "one of the most extraordinary facts of our life is that, although we are besieged at every moment by impressions from our whole sensory surface, we notice so very small part of them. The sum total of our impressions never enteres into our experience, consciously so called, which runs through this sum total like a tiny rill through a broad flowery mead. Yet the physical impressions which do not count are there as much as those which do, and affect our sense organs just as energetically" (James 1890, p. 217). However, this argument, for James, was not the basis for saying that humans were biased or blind, but rather to highlight the directed and active nature of perception.

[4] Highly useful insights about the nature of perception have also emerged from the psychology of art (Arnheim 1966, Gombrich 1960, Panofsky 1955). This literature shows that we attend to the world with a "beholder's share." Thus representation scarcely is a camera-like activity, but rather a constantly evolving expressive activity that finds new ways to make novel—previously unseen or hidden—aspects of reality salient and visible (Felin et al. 2017, pp. 1051–1053). We argue that theories serve a similar function. Intriguingly, similar problems with representation and measurement also exist in physics and mathematics (Bell 1990). However, just as in the arts, theories and questions can solve these problems and provide the underlying mechanism behind awareness, perception, and novelty.

[5] The email exchange between VC Paul Graham and VC Fred Wilson, about investing in Airbnb, is published at http://www.paulgraham.com/airbnb.html.

[6] Many of the same features (user interface, icons, relatively easy usability) were also built into Xerox's successor to the Alto, the Star (launched in 1981). But this computer was not seen or sold by Xerox as a stand-alone device, but initially had to be purchased as a "personal office system" or workstation which meant an investment of some $50,000 to $100,000, compared to the launch price of $2,500 for the Macintosh.

[7] Of course, that said, there is no need to castigate Xerox in hindsight, a company that had revolutionized and was focused on the copier market (they introduced the color copier in 1971, and in fact had record revenues and growth through the mid-1970s). The notion of personal computers simply was not a focus of the firm's overall corporate theory.

[8] The notion of "attention structure" (Joseph and Wilson 2017) or "a pattern of organizational attention" (Ocasio and Joseph 2017) appear to have linkages to the theory-based view and the idea that firm-level theories shape awareness, salience, and observation.

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