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The theory-based view: Entrepreneurial microfoundations, resources, and choices

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Abstract

Research Summary: We build on the theory-based view and highlight how an entrepreneur's theory can enable the creation of value. We point to three types of theories: theories of resource arbitrage, resource recombination, or resource investment that specialize resources to particular uses. However, possessing a unique theory is not enough. The realization of an entrepreneur's theory is contingent on matching it with the right organizational and governance-related choices. Entrepreneurs must make consequential decisions about protecting intellectual property, running experiments, acquiring resources, composing teams, and securing financing. We develop a contingent approach that enables entrepreneurs to match their theory of value with the appropriate forms of action, thereby providing entrepreneurs with a level of guidance to downstream choices that the current literature fails to provide.

Managerial Summary: To create economic value, entrepreneurs need to develop their own, unique theory of value. In this article, we highlight three distinct types of entrepreneurial theory and link these to value creation. We further point out how the realization of each theory of value depends on making the right downstream choices related to the protection of intellectual property, experimentation, resource acquisition, the composition of a team, and financing. Existing advice to entrepreneurs tends to offer one-size-fits-all solutions (e.g., related to experimentation), while we argue that choices about how

to pursue value creation should depend on the type of theory of value that an entrepreneur pursues.

KEYWORDS

entrepreneur as scientist, entrepreneurial finance, entrepreneurship, experiments, new venture teams, resource origins, theory of the firm, theory-based view

1 | INTRODUCTION

The principle of strategy is having one thing, to know ten thousand things.
—Musashi

The theory-based view argues that the *theories* of entrepreneurs and managers are central for understanding the origins of heterogeneity and the creation of value (Felin & Zenger, 2009). The theory-based view can be seen as metatheory of sorts—a descriptive *and* normative metatheory that emphasizes the need for entrepreneurs and managers themselves to develop and realize their own theories of value. A growing literature has built on this logic by viewing strategy and entrepreneurship as a quasi-scientific process involving theory building, theory testing, and theory-driven experimentation. Various aspects of the theory-based view—and the idea of entrepreneur as "value scientist"—have been extended or empirically tested through randomized control trials, surveys, formal models, as well as ongoing theoretical work (Agarwal et al., 2023; Camuffo et al., 2020; Ehrig & Schmidt, 2022; Felin & Zenger, 2017; Leatherbee & Katila, 2020; Zellweger & Zenger, 2021).

The theory-based view provides a unique lens through which to consider fundamental puzzles and questions of strategy, including the origins of heterogeneity. For example, because external resources cannot be easily purchased or secured due to competitive factor markets (Barney, 1986; Denrell et al., 2003) the resource-based view highlights how resource endowments—*internal* resources already possessed by a firm—are central for competitive advantage.[1] But the theory-based view offers a mechanism through which firms with unique theories of value consistently "hack" what are seemingly efficient factor markets. Thus, the theory-based view is particularly useful for understanding entrepreneurial firms that typically lack existing resource endowments.

In this article, we offer some critical extensions to the theory-based view, particularly as it relates to entrepreneurship, the entrepreneurial process and creation of value through

[1]As noted by Barney (1986), firms that are "consistently better informed about the value of strategies" can secure resources at prices below their use value and thereby generate entrepreneurial or strategic rents. But original conceptions of the resource-based view focused largely on *internal* resources (resource endowments a firm already possesses), rather than discussing *how* firms might develop better information and expectations about *external* resources that they might purchase or acquire in some fashion (Denrell et al., 2003). Subsequent work has explored how firms might engage in "strategic information acquisition"—the ability of firms to "research the value of a new resource" (e.g., Makadok & Barney, 2001). This work focuses on a new-to-the-world resource and how firms might be able to assess the value of that new resource. We focus here on how firms identify non-obvious (or "new") resources in the first place, as driven by firm-specific theories and hypotheses (Felin et al., 2023), particularly in an entrepreneurial context. Theories enable entrepreneurs to perceive value where others do not see it. This article explores the implications of theories to the entrepreneurial process more broadly, and illuminates the downstream choices associated with creating and capturing value from a theory-based perspective.

resources. We highlight three different *types* of entrepreneurial theories of value: theories related to resource arbitrage, theories related to resource recombination, and theories related to resource investment that specialize resources to particular uses. We then link these entrepreneurial theories of value with resource-related rents and value creation and show how the realization of these theory types is contingent on matching them with the correct entrepreneurial choices related to organization and governance. Our central thesis is that entrepreneurs that effectively compose theories of value and then match their theory type to downstream actions are more likely to discover and generate entrepreneurial rents. We thus argue for a discriminating alignment between an entrepreneur's type of theory of value and downstream choices.

Though prior work separately discusses the three distinct forms of resource rents that we describe, their full, comparative downstream implications remain largely unexplored. In particular, little attention has been paid to precisely how distinct entrepreneurial theory types differentially shape the critical downstream choices through which the hypothesized value is explored, created and appropriated. That is, the existing literature focuses on the *cognitive* aspects of an actor's hypotheses and theories—the perception of opportunities, the framing of problems, and the approach to solution search (Camuffo et al., 2022; Felin & Zenger, 2017; Hsieh et al., 2007)—but has paid far less attention to how entrepreneurs subsequently and uniquely decide to test, protect, and organize to ultimately realize the value they hypothesize. And while there is growing interest in entrepreneurial choice processes—what entrepreneurs actually do and how they make critical choices (Agrawal et al., 2021; Bennett & Chatterji, 2019; Gans et al., 2019; Klein, 2008)—the sequential and contingent alignment between these choices and the entrepreneur's cognitive theories remains underexplored.

The remainder of our paper proceeds as follows. We first offer a brief review of the theory-based view, particularly as it relates to entrepreneurship. Our goal here is not to exhaustively cover the theory-based view, but merely highlight extant work and briefly discuss how an entrepreneur's theory of value links to some existing approaches to cognition. We then move to the primary focus of our paper: what happens *after* an entrepreneur possesses a theory. We point to three distinct types of entrepreneurial theory types and highlight the set of downstream choices and implications that flow from each, in terms of how to optimally organize to validate the theory, pursue its realization, and capture its hypothesized value. We make no claim that our taxonomy of theories addresses every downstream choice an actor might make, as many critical choices may be highly specific to the details of a theory—for example, what customer segment to focus on or the nature of human capital that needs to be accessed (e.g., Gans et al., 2000; Lazar et al., 2020). Rather, we focus on choices where simply knowing the theory *type* generates sufficient clarity for critical downstream choices related to organization and governance. These choices include decisions about intellectual property protection, financing, ownership and governance, team composition, and the nature of entrepreneurial experimentation. We conclude by discussing the implications of our arguments for questions of entrepreneurial process and design (and "fit"), as well as the empirical opportunities and practical implications suggested by our arguments.

2 | THE THEORY OF VALUE APPROACH IN ENTREPRENEURSHIP

A central premise of the theory-based view is that a theory of value enables economic actors—entrepreneurs and firms—to perceive the world differently, in some unique kind of way. Theories are especially critical in highly competitive markets where competition is assumed to have

"exhausted" opportunities to find unique value in available resources (Barney, 1986; Denrell et al., 2003). Theories allow entrepreneurs to tap into a "vast reservoir" (Lippman & Rumelt, 2003, p. 1085) of latent resources and value, enabling them, in effect, to "hack" strategic factor markets to find (or compose or build) resources and value not evident to others.[2] In an important sense, entrepreneurial activity is similar to scientific activity, in that entrepreneurs—or at least more effective entrepreneurs—develop causal theories about how to create value and then take up an effort to test their theories, ultimately exploring their effectiveness in generating value (Agarwal et al., 2023; Camuffo et al., 2020; Ehrig & Schmidt, 2022; Felin & Zenger, 2009; Felin & Zenger, 2017; Zellweger & Zenger, 2021, 2022).

Note that an entrepreneur's theory of value enables a form of perception that is quite different from perception designed to represent or mirror the world (Felin & Koenderink, 2021; Rorty, 1979). These theories do not seek to map an existing reality to a cognitive space—a common description of representations. Rather, theories of value enable focused and novel perception related to specific problems, they thereby *present* novel, "unsensed" objects and resources, often modified or combined, as solutions to these problems that others are unable to observe. In this sense, entrepreneurs are able to learn from "[their] hypotheses about what kind of observations [they] ought to make: whereto [they] ought to direct our attention: wherein to take interest" (Popper, 1967, p. 346). Hypotheses and theories make nonobvious and unique things visible, as captured by Einstein's famous claim that "whether you can observe a thing or not depends on the theory which you use" (Polanyi, 1974, p. 604). In their search for valuable resources, or for resources available at prices below their foreseen use value, entrepreneurs do not just broadly scan the environment. Instead, they search with a focused lens or filter that makes salient and visible non-obvious assets, uses, and hidden sources of value. In this manner, theories of value are mechanisms through which economic actors generate the superior expectations necessary to uncover value in resources through their novel utilization and composition.

The idea that entrepreneurs and other economic actors are theorists and scientists both relates to and differs from other concepts such as strategic foresight and representation (Csaszar, 2018; Csaszar & Levinthal, 2016; Csaszar & Steinberger, 2022; Peterson & Wu, 2021), entrepreneurial judgment (Foss & Klein, 2012; Packard et al., 2017), entrepreneurial choice (Agrawal et al., 2021; Gans et al., 2019), and entrepreneurial heuristics (Bingham & Eisenhardt, 2011; Mousavi & Gigerenzer, 2014). Representations in the neo-Carnegie tradition are commonly cast as lower dimensional or reduced-form depictions of a performance landscape or environment (Gavetti & Levinthal, 2000, p. 135; also see Gavetti & Menon, 2016) or as a simplified understanding of the reality individuals face (Gavetti, 2012; Lakoff, 1987). Entrepreneurial theories of value are not focused on representing the environment, either in part or whole.[3] Rather, they represent actor-specific beliefs and hypotheses about how value might be

[2]Of course, an entrepreneurial theory of value is not a panacea—a surefire mechanism for generating riches *ex nihilo*. Theories, after all, can be wrong. But, as shown in Camuffo et al. (2020) and Agarwal et al. (2023), having a theory beats not having a theory. In both papers, the authors empirically show how having a theory and a scientific approach to startup activity significantly increases the chances of success. Furthermore, both papers show that entrepreneurs that had a theory were also able to enact more informed "pivots" and engage in more fruitful experimentation.

[3]In many ways, extant cognitive approaches to strategy have many links with the theory-based view and the idea of entrepreneurs possessing theories of value. Some of the links (and differences) have been discussed in prior work (e.g., Felin et al., 2023). Our goal in this article is *not* to compare the theory-based logic with alternative approaches to cognition—for some recent debate on this issue, see Ehrig and Foss (2022) and Zellweger and Zenger (2022). The focus of this specific paper is rather on the downstream choices of entrepreneurs *once* they have a theory of value they would like to pursue.

created, thus providing an actor-specific causal logic for revealing *hypotheses* about how to solve particular problems (Felin & Zenger, 2016; Hsieh et al., 2007).

In this sense, an entrepreneur's theory of value can be thought of as a very specific type of representation—a forward-looking projection or "presentation" of the causal solution structure specific to a problem—a causal logic that can then be tested, revised, or abandoned as needed (Ehrig & Schmidt, 2022; Zellweger & Zenger, 2021). By providing a logical architecture or framework for what-if analyses and counterfactual thinking, an entrepreneur's theory informs judgment (Foss & Klein, 2012), enables foresight (Csaszar & Laureiro-Martínez, 2018; Gavetti & Menon, 2016), or may reveal simple heuristics (Bingham & Eisenhardt, 2011). An entrepreneur's theory can however do more than reveal underpriced resources; it also provides downstream guidance about how to test, protect, and compose the value that the theory envisions—which is the focus of our paper and the central topic to which we now turn.

3 | A TAXONOMY OF ENTREPRENEURIAL THEORIES OF VALUE

Although prior research has highlighted the value of entrepreneurs possessing theories, this work has not categorized these theories nor considered the downstream implications of theory *types* for organization and governance. By highlighting core elements of similarity in what entrepreneurs' theories reveal about resources, we group theories in ways that systematically inform critical downstream choices about how to maintain and protect intellectual property, how to validate the theory, how to gather and govern resources, how to build the team, and which type of financing to pursue. To be sure, prior work in entrepreneurship has offered some advice about downstream choices, but this rather generic advice has often left the entrepreneur with little guidance about how to sort through the causal connections and resolve potential contradictions or trade-offs (Felin et al., 2020; Shepherd & Gruber, 2020). Our objective is to simplify and structure the entrepreneur's decision making, linking definable features of entrepreneurs' theories to a set of downstream choices about how to solve the problems these theories identify—and to work out the cascading implications of the resource configurations implied by the theory.

Our aim in this article is to simplify the entrepreneur's task in composing downstream choices, prescribing an alignment that helps economic actors select an entrepreneurial strategy that goes well beyond the rather general prescriptions and tools offered in prior work. By matching entrepreneurs' theory types to downstream choices, we aspire to make entrepreneurs more efficient and structured in their choice of what to do, more attentive to the correct signals, and ultimately more productive with the choices made. In this manner, our contribution is both theoretical and practical. We seek to both reveal and refine the actions to which entrepreneurs must attend in the earliest stages of the venturing process in order to optimize performance—actions that, we argue, are often entailing implications of the entrepreneur's particular theory.

We realize that there are any number of broad or abstract, fine-grained, specific, and practical ways that entrepreneurial theories of value could be categorized. For example, entrepreneurial activity could be categorized by the customers they target or by what part of the value chain they address (cf. Adner, 2017). However, we believe that one of the most important and consequential ways of thinking about theories of value is to highlight the type of entrepreneurial rents that they envision (Rumelt et al., 1991; Westgren & Wuebker, 2019). Many characterize entrepreneurs as searching for varied types of economic rents (Alvarez & Barney, 2004; Mahoney, 2001; Penrose, 1959; Rumelt, 2005; Schoemaker, 1990; Shane & Venkataraman, 2000; Stoelhorst, 2021),

measured as economic returns that exceed the costs or, more precisely, the opportunity costs of assembling them.[4] From this perspective, all value creation ultimately reflects value generated from acquiring (or employing), recombining, and investing in assets and resources at prices that, in aggregate, sum to less than the value that this reconfiguration creates.

Building on prior work (e.g., Casson, 1982; Hébert & Link, 2007), we delineate three distinct types of theories that entrepreneurs may possess, classifying them based on what they reveal about assets and resources and the specific entrepreneurial rents they propose to generate (Keyhani et al., 2015; Westgren & Wuebker, 2019). Thus, some theories reveal opportunities for simple resource *arbitrage* (as developed in Barney, 1986; Casson, 1982; Kirzner, 1973; Kirzner, 1997; Ricardo, 1817; Shane & Venkataraman, 2000); others illuminate valuable resource *recombinations* (as conceptualized by Lippman & Rumelt, 2003; Montgomery & Wernerfelt, 1988; Nelson & Winter, 1977; Penrose, 1959; and Schumpeter, 1934); and still others highlight valuable paths to modifying resources—*specializing* them to solve particular problems or address particular uses (as captured by Klein et al., 1978 and Williamson, 1985). These three theory archetypes can then be matched to subsequent choices about how to organize and govern value creation and capture.

The theories of value we discuss target particular types of latent value that conveniently mirror different forms of rent creation. Our three archetypal theories of value—theories of resource *arbitrage*, theories of resource *recombination*, and theories of resource *specialization*—highlight three unique paths to identifying "underpriced" rent-generating resource bargains. Overall, our unique contribution is *not* in individually identifying these three theories of rent generation, as they can be found individually in the extant literature. Rather, our contribution resides in laying them out side by side, describing their features and differences, and then highlighting their implications for consequential entrepreneurial choices related to organization and governance.

Our theory is both normative and descriptive. It is normative in the sense that it provides guidance to entrepreneurs regarding how—in light of the theories they possess and the rents they seek to realize—they should act to optimize their testing and pursuit of their theory of value. And our theory is descriptive to the extent that it shows how *some* entrepreneurial firms correctly match or contingently "fit" their theories with the appropriate forms of organization and governance. In contrast to existing work on *external* fit—how startups and organizations need to contingently structure themselves depending on the nature of the environment (e.g., Csaszar & Ostler, 2020; Davis et al., 2009; Mousavi & Gigerenzer, 2014)—we emphasize *internal* fit.[5] That is, we are interested in how an entrepreneur's theory type needs to internally fit with downstream organizational and governance choices.

We see our theory as akin to Williamson's (1991) logic of discriminating alignment, whereby *some* firms efficiently match (or "economize") transaction type with the correct governance mechanisms and accordingly enjoy higher performance, whereas others do not and accordingly experience lower performance (Nickerson & Silverman, 2003). In our theory, some actors appropriately match the type of theory they pursue with commensurate downstream choices.

[4]An economic rent has been defined in several equivalent ways. However, the most general definition of an economic rent is a payment to a factor of production in excess of the factor's payment in its next best alternative use. Roberts and Milgrom (1992, p. 269) define a rent as the portion of earnings in excess of the minimum amount needed to enter a particular industry.

[5]The literature on organizational fit and alignment is vast, spanning multiple decades. Though, as highlighted by a recent review (Sarta et al., 2021), it is strongly focused on exogenous environment-organization fit and alignment rather than endogenous factors (cf. Leppänen et al., 2021; Lewin & Volberda, 1999). For recent work on "internal fit" in strategy (though based on a different set of dimensions), see Farjoun and Fiss (2022) and Zajac et al. (2000).

Current advice about these downstream organization and governance choices either offers generic one-size-fits-all solutions or suggests that all such choices should be uniquely matched to a particular value proposition. In contrast, our theory offers contingent prescriptions and much-needed nuance for new ventures.

3.1 | Theories of resource arbitrage

The first and perhaps simplest type of entrepreneurial theory reveals value from redeploying an existing asset in some way that other economic actors have failed to recognize. These are theories of resource arbitrage, where value is hypothesized to exist by simply buying or securing the services of an asset or resource at a price below its value in an alternative hypothesized use—a use that others observing or using the asset fail to recognize. The economic actor's recognition of this underpricing commonly reflects a novel belief or theory about how to solve a problem, perhaps enabled by asymmetric information (Barney, 1986) about an alternative, more valuable use unseen or underappreciated by others (Kirzner, 1973; Shane & Venkataraman, 2000).

A theory of value involving arbitrage envisions imperfections in product markets that allow deployment of assets to generate value. The rents revealed by arbitrage theories are Ricardian in character. They result from resource heterogeneity and the uneven distribution of knowledge or imagination about their value in use. In this realm, entrepreneurs take advantage of the fact that not all knowledge and beliefs are widely distributed or held (Hayek, 1945). As a result, entrepreneurs may possess knowledge and insight about an asset's use value unseen by others, thereby allowing entrepreneurial arbitrage. Importantly, however, these hypothesized rents or "entrepreneurial profits are not returns to ownership of things" (Makowski & Ostroy, 2001, p. 487). Instead, they result from novel beliefs and hypotheses about what to do with an existing asset or assets and consequently require no real investment, other than securing access to the asset. Arbitrage theories involve "discovering sellers and buyers of something for which the latter will pay more than the former demand" (Kirzner, 1973, p. 48). Or, as Kirzner notes, they involve the "discovery of something obtainable for nothing at all," as "no investment at all is required," and value is "already within one's grasp" (1973, p. 48).

In the context of theories of arbitrage, entrepreneurs act as arbitrageurs wholink scarce assets to new, more valuable uses. For example, they might highlight a new and more valuable use of a physical location, perhaps a location currently used for frozen yoghurt that is better suited for a coffee shop. Such arbitrage may simply leverage geography, porting a concept well-understood in one region to another where it has yet to be introduced. An entrepreneur might observe the success of hot chicken shops in one region and launch them in another or start an established accelerator franchise in a city where entrepreneurs are underserved. An arbitrage theory may simply change the target customer, for instance shifting an established consumer offering to an enterprise audience, as the company Fusion-io once did quite successfully with solid-state storage.

Arbitrage theories may take well-known problem solutions found in patents, technologies, or routines and use them to solve a different problem. Such "context conversions" (cf. Hargadon, 2003) are captured in the tale of Marco Polo bringing pasta to Italy from Asia, or theatrical makeup techniques deployed with little modification to prevent infections in medical settings (Lilien et al., 2002), or robotic table game techniques applied to inventory tracking (Franke et al., 2014). To create and capture value through arbitrage requires the entrepreneur

to secure rights to resources, and to reveal a new, valuable use to a potential buyer, or perhaps resell these rights after revealing the new use (Arora et al., 2021; Arora & Gambardella, 2010).

3.2 | Theories of resource recombination

A second, more complex type of entrepreneurial theory reveals new value from solving a problem through novel combinations of existing assets and resources. These theories of value concern potentially novel or superior combinatorial matches among available assets, resources, and activities (Kogut & Zander, 1992; Uzzi et al., 2013). They are, as Richardson (1997) argues, built through "new ways of combining resources to meet consumers' desires" (p. 105). These theories are thus Schumpeterian (1939), involving "innovation [that] combines components in a new way" (p. 88) and require a "different employment of the economic system's existing supplies of productive means" (1934, p. 68). These theories combine assets as they exist, echoing Nelson and Winter's (argument that "any sort of novelty in art, science, or practical life consists to a substantial extent of a recombination of conceptual and physical materials that were previously in existence" (1982: p. 130).

Real-world examples of entrepreneurial theories that are fundamentally about recombination abound. Waze, a mobile application that provides driving directions and real-time traffic and road conditions, recombined a location sensor, a data transmission device (a mobile phone), a GPS system, and a social network. None of these technologies was new, but the novel combination was revolutionary. Further, internet-based platform companies such as Airbnb and Uber have generated new value by recombining latent market assets (unused cars, homes, et cetera) and rather well-known technologies (payment processing, central dispatch, and online customer rating) to compose valuable new businesses. Many mobile application-based companies simply incorporate a single new item—the social graph—and thus catalyze new and valuable recombinative products, while other valuable products have been created by removing features. Both addition and subtraction from asset bundles are paths to value creation for theories of recombination.

The imagination to compose a theory of recombination may, of course, stem in part from the recognition of new uses or some new problem to solve. However, while theories of arbitrage merely match an existing asset to a new problem, theories of recombination involve imagining new arrangements of assets to solve a problem or satisfy a new use. Recognizing a novel problem to solve may fuel a new theory, but the underlying mechanism of rent generation is the recognition of previously unseen, valuable complementarity among existing activities and assets.

3.3 | Theories of resource specialization

A third type of entrepreneurial theory moves beyond recognizing novel uses for resources or the imaginative recombination of them. These theories of value envision entirely new assets and resources composed through unique investments to modify them. Theories of resource specialization hypothesize transforming assets (some of which may be otherwise ordinary, or widely available) into uniquely specialized resources that can then be applied to a novel use or problem, or that are co-specialized with other assets or activities (Argyres & Zenger, 2012; Williamson, 1975). Such theories modify components, alter activities, and recraft assets in ways that dramatically elevate their fit and complementarity with one another or elevate their fit to a

problem. Notably, these modifications form new assets, activities, and resources that previously did not exist. Though theories of resource specialization may certainly entail elements of recombination, the primary mechanism of value creation for this class of theories involves active and unique investment.

The economic rents that potentially result from theories of resource specialization are quite noticeably unlike arbitrage rents, which, by Kirzner's definition, require "no investment at all" (1973, p. 48). And they are also quite distinct from Schumpeterian rents, which accrue to novel recombinations of resources already "in existence" (Nelson & Winter, 1982, p. 130). Here, rents emerge from novel insights about how to invest in and thereby transform assets into entirely new ones (Klein et al., 1978; Lippman & Rumelt, 2003; Williamson, 1975, 1985). These theories induce economic actors to make unique, previously unseen investments and reflect beliefs about how to take what were previously common assets and render them idiosyncratic in valuable ways—more complementary or co-specialized to other assets and resources, or more customer tailored to solving a particular problem.

To illustrate, Elon Musk's theory of value for Tesla demanded significant investment in developing unique assets. As Musk described in the Tesla Q3 2020 shareholder letter:

> Tesla is absurdly vertically integrated compared to other auto companies, or basically almost any company. We have a massive amount of internal manufacturing technology that we built ourselves...It's like, okay, what are the things we want to make? Design a machine that will make that thing, then we make the machine... This makes it quite difficult to copy Tesla—because you can't do catalog engineering. [When it comes to Tesla] there is no catalog. We're just making a crazy amount of machinery internally...if we're trying to make progress and nobody's got the machines that we need, we've got to make it. So we do. Designing and making our own power electronics. Manufacturing our own motors, chargers. The thing I think that people just don't really understand about Tesla is that it's a whole chain of startups.

The rents that result from resource specialization theories are precisely those discussed in transaction cost economics by Williamson (1975). Through investment, firms compose "cost advantages" by "[transforming] a large numbers exchange condition...at the outset into a small-numbers exchange relation" (Williamson, 1975, pp. 28–29). In other words, firms compose economic rents by making specific asset investments that while initially available in large numbers are, after this transforming investment, unique to the actor and unavailable in markets.

Klein, Crawford, and Alchian (1978: 298) use similar language to discuss how specialized asset investments create "appropriable quasi rents" measured as the value of an asset to the investing user in excess of its value to the "second highest valuing user." Through specialized investment, assets are made novel or uniquely valuable to a specific use or user. The rents pursued by these theories are monopolistic in character, providing something new in a way that was not provided before, and doing so in a way that others cannot easily copy.

As we discuss more fully later, efforts to generate these unique asset and activity-transforming investments without owning the assets and activities may lead to the classic hold-up problem that is foundational to transaction cost economics (Klein et al., 1978; Williamson, 1975). The transaction cost literature focuses on the implications of such unique investments on decisions to integrate or govern exchanges. However, our emphasis is on the simple point that governance choices supporting specialized investments in modifying resources are *preceded* by an economic actor's

TABLE 1 Taxonomy of entrepreneurs' theories of value.

Theory	Description	Key mechanism	Rent(s) created
Arbitrage	Actor sees value in an asset that others do not	Information	Ricardian
Recombination	Actor sees value in asset combinations that others do not or cannot	Imagination	Schumpeterian
Specialization	Actor sees value in unique, specialized asset investments that others cannot	Transformation	Monopoly

theory about how these unique asset investments will compose economic rents. Table 1 summarizes our taxonomy of entrepreneurial theories of value.

3.4 | Summary: Clarifying boundaries

To both distinguish among our three theories of value types and highlight their potential overlap, Figure 1 maps theories along three key dimensions: essentially the necessary, though not sufficient, condition for value creation for each theory type. Theories can target new or old problems, address a single activity or asset or an abundance of them, and leave activities and assets largely unchanged or substantively transformed through investment. Resource arbitrage theories focus on a new problem (Dimension 1), hypothesizing an existing, single activity or asset that can be used to target this new problem. Theories of resource recombination hypothesize value in recombining multiple existing or unmodified assets and activities (Dimension 2), targeting either an old or new problem. Finally, resource specialization theories hypothesize value in transforming one or more assets or activities that could address either new or old problems (Dimension 3). Note that Figure 1 also contains a space where theories possess none of these three mechanisms of potential value creation. In other words, this space represents situations for which no newly discovered problem, novel recombination, or newly imagined and modified assets or activities are hypothesized. Absent a potential mechanism of value creation, we label these as non-theories or "anti-theories."

Figure 1 also illustrates how increases in the novelty and complexity of theories maps onto our three dimensions and thereby relates to our taxonomy. For example, arbitrage theories "merely" demand that the entrepreneur possesses a theory featuring new insight about how a particular asset or resource can satisfy some new use. Recombinative theories demand that the entrepreneur imagines and recognizes complex patterns of complementarity inherent in combinations of existing assets and resources and may either address new or old problems. Theories of resource specialization are quite unbounded and involve the entrepreneur transforming and creating entirely new resources, often aided by complex resource recombinations that may address some new use or solve some new problem. Thus, as shown in Figure 1, novelty and complexity increase as one moves from the front-lower-left to the back-upper-right.

4 | MATCHING AN ENTREPRENEUR'S THEORY TO DOWNSTREAM CHOICES

Armed with a theory, entrepreneurs face the challenge of creating the value they envision and capturing some portion of it. Prior work offers a variety of recommendations about what

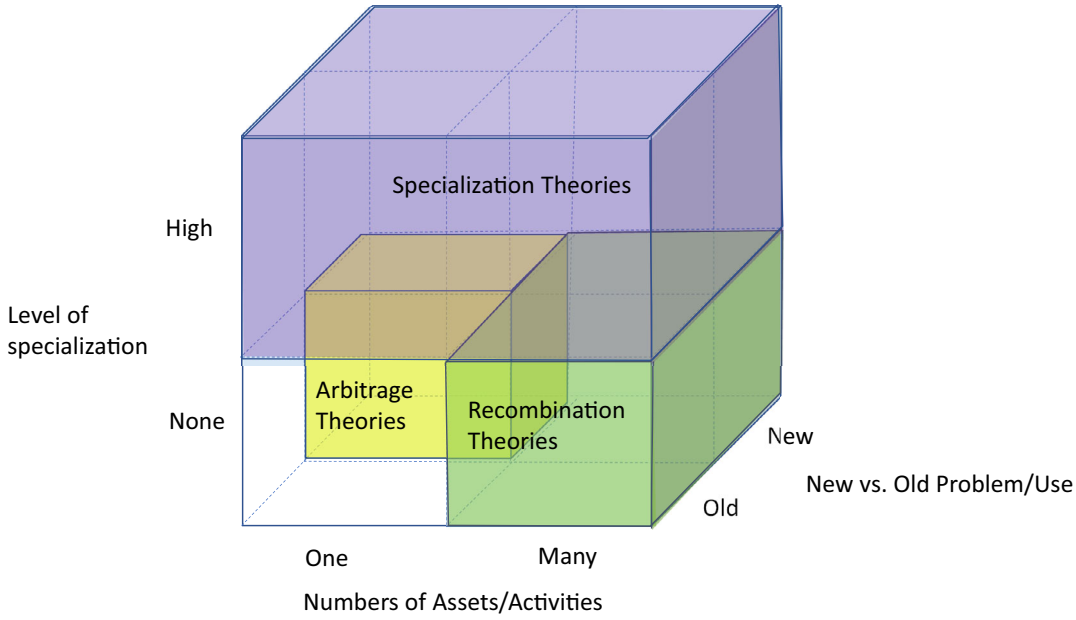

FIGURE 1 Entrepreneurs' theories of value.

entrepreneurs should do at the earliest stages of the entrepreneurial process to enable value creation and capture. These critical early decisions include determining the necessity of intellectual property protection, designing experiments to refine the theory or the resulting offering, choosing which assets to purchase or employ, composing the founding team, developing an entry strategy, and securing financing (Camuffo et al., 2020; Clough et al., 2019; Graham et al., 2009; Hellmann & Puri, 2002; Lazar et al., 2020; Mauer et al., 2018; Westgren & Wuebker, 2019). One strand of prior literature seeks to identify entrepreneurial "best practices," essentially focusing on average treatment effects that imply general prescriptions about how entrepreneurs might enhance their chance of survival or elevate performance through a particular downstream choice (Aulet, 2013; Eisenhardt & Bingham, 2017; Leatherbee & Katila, 2020; McGrath, 1999). Another strand, much of it with a practitioner bent, encourages entrepreneurs to catalog all possible downstream activities with an eye toward uniquely aligning downstream choices to a hypothesis—but offers no real guidance about how to do so (Davidsson et al., 2021; Osterwalder & Pigneur, 2010).

We are sympathetic to both agendas. However, we aim to provide guidance that is more general than the second strand of literature, and more theory-specific (or theory-*type*-specific) than the first strand. We accomplish this by focusing on a set of downstream choices that, when appropriately aligned to our theory types arguably elevates performance or when misaligned potentially undermines it. As noted, we do not intend to address all downstream choices. Rather, we focus on those choices that follow logically from our taxonomy, recognizing that the other choices not addressed may varyingly benefit from either more general or more theory-specific guidance that is unrelated to our taxonomy.

We begin our analysis with a discussion of downstream choices that require minimum commitment and investment—decisions about secrecy and decisions about how to evaluate the theory's value-creating potential. We then move to more commitment-intensive choices involving the assembly of resources—choices of asset ownership, team composition and financing.

The order in which we cover these choices is broadly informed by the rough order in which entrepreneurs themselves encounter them, once they have developed their theory of value. However, we recognize that, in practice, this process can be nonlinear and idiosyncratic, with significant "back-and-forth" between the respective choices.

4.1 | Secrecy

Once an entrepreneur possesses a unique type of theory, a critical, initial downstream choice involves how secretive to be in describing the theory to others, including stakeholders and other critical resource providers. At the outset, the content of a theory is perhaps the entrepreneur's most valuable asset. Sharing it risks appropriation by others, in particular by early stakeholders including financiers or even members of the founding team. On the other hand, sharing the theory may be central to its validation and the assembly of the resources required to pursue it.

Although the financial economics literature offers some guidance to entrepreneurs about how to protect an idea potentially available for sale (Anton & Yao, 1994), or how to deter idea stealing while still motivating collaboration from critical stakeholders (Biais & Perotti, 2008), we suggest here that the need for secrecy depends on the type of theory that the entrepreneur possesses. For arbitrage theories, the requirement for secrecy is total. Absent protection, perhaps a patent or legal claim, such theories and their associated value are easily "stolen" or appropriated. This may be accomplished most easily by early stakeholders who have domain expertise and can evaluate the idea, and/or by resource providers who have the resources and capabilities to exploit it.

More complex theories that hypothesize value in recombining assets, while perhaps not demanding complete secrecy, also merit some caution in sharing. Because theories of recombination involve assets that already exist, with the value generated through the addition (or subtraction) of resources, outsiders who gain information about the theory might be able to cognitively compose and physically secure the hypothesized bundle of resources, thus presenting a risk of value appropriation. However, by simply soliciting the input of a given complementary resource provider, while withholding the broader theory, the entrepreneur may protect the theory's value from capture by others.

What may seem somewhat counter-intuitive is that for theories of resource specialization creating and capturing value may require little to no secrecy. Given the novel nature of resource specialization, and the need to recompose assets into yet unseen forms, others are quite likely to disbelieve (or not understand) the entrepreneur's theory even if it is explained to them. Here, the entrepreneur's challenge shifts from the central concern of whether the theory can be acted upon by others to concerns about communicating the theory effectively to critical resource providers. Entrepreneurs will have varying and widely discrepant beliefs about the future, and disclosing more information about the logic of a theory ultimately elevates the probability of convincing others of its merits. In other words, the more complex the theory, the more limited the downside from sharing the content of the theory. Theories that are easy to understand, and for which resources are simple or easy to combine, require a high degree of secrecy to avoid value appropriation by others. In contrast, theories that require highly specialized asset investments may encourage broader information sharing to enroll other stakeholders in a shared vision for the transformation of resources they possess or control (Benner & Ranganathan, 2013; Benner & Zenger, 2016). Column 1 of Table 2 summarizes these implications.

TABLE 2 Theories and critical downstream choices.

	Critical downstream choices				
	1	**2**	**3**	**4**	**5**
Theory	Secrecy	Experimentation	Asset Ownership	Team Formation	Financing
Arbitrage	Maintain complete secrecy	Estimate potential demand; insight about the value of the offering for specific markets or customer segments	Asset ownership not required for value creation, but important for value capture	Employees are easily onboarded, though they may be unnecessary and pose unnecessary risk	Bank
Recombination	Partial secrecy	Reduce technical and market risk; confirm feasibility of technology and select between different go to market strategies	Asset ownership not required for value creation, but ownership of uniquely complementary assets important for value capture	Equity and employment for the unique and complementary talent necessary for the venture	Venture
Specialization	Limited secrecy required	Refine assumptions underpinning the theory itself; test particular subproblems associated with asset transformation	Asset ownership of original and uniquely specialized assets critical for both value creation and capture	Granting equity and persuading key co-founders to join and make venture-specific investments absent strong traditional incentives	Self or Boot-strapped

4.2 | Experimentation

Another set of early choices that may demand minimal to modest investment involve decisions about how (or whether) to test and validate an entrepreneurial theory. These testing efforts may entail conducting surveys, focus groups, and customer interviews, or pursuing internet-based A/B testing, "minimum viable" products, and "future probes" (Brown & Eisenhardt, 1997; Camuffo et al., 2020; Koning et al., 2022; Leatherbee & Katila, 2020). Although prior work highlights a diverse set of experimental tools, the literature says little about what forms of experimentation make sense when, or where the boundary conditions of effective experimentation fall (Felin et al., 2020; Shelef et al., 2020; Shepherd & Gruber, 2020).

For a theory of arbitrage, experimentation may focus on gaining information about the value of the offering and refining estimates of willingness to pay. Experimentation for theories of arbitrage might focus on A/B trials with varied pricing for different customer segments, and in so doing refine the economic valuation of the hypothesized arbitrage. As the input prices are known, the focus of experimentation may shift to refining the unit economics associated with delivering resources in a new way. However, as we discuss in more detail below, an entrepreneur must balance the value of information gained through early experimentation against the possibility of unintended effects of experimentation, including the dispersion of valuable information (Schmalensee, 1978; Shelef et al., 2020). Thus, the relatively distinct downstream choices regarding secrecy and experimentation are interdependent.

Selecting and structuring experiments with theories of recombination often focus on expending moderate amounts of resources and time to calibrate the attributes of a hypothesized solution. This process may include exploring an array of product features—in combination with a given go-to-market strategy—that optimize the value created and captured. Experimentation in these settings can provide insight about whether the hypothesized recombination is feasible, and, if so, whether and for whom it is valuable. Many if not most of the experimental techniques surfaced in practice and refined in scholarly settings—such as interviews with potential customers, prototyping to demonstrate technical feasibility, and/or the development of a "minimum viable" product to reveal customer demand and willingness to pay—apply to this class of theories. Here, the challenge is navigating the joint exploration of possible features and then matching the selected composition with a suitable go-to-market strategy (Gans et al., 2020). A theory of recombination offers a lens through which an actor sorts and ranks possibilities, thereby reducing the costly time spent searching for product–market fit (Zellweger & Zenger, 2021).

For theories of resource specialization, the focus of experimentation differs dramatically. Investments in modifying assets and activities are often quite costly. Yet, until such investments are made, information gained from market-facing experiments based only on imagined products may be deleterious. Here, experiments may also reduce value, not because they induce theft or competition, as noted above, but because such experiments may induce spurious learning. This is because, until the product is in its near final form, potential customers and other stakeholders may not understand the imagined product sufficiently to provide productive feedback. Theories of resource specialization involve composing novel, complex solutions or perhaps address deeply ill-structured problems. They involve the composition of entirely new resources. Often the critical initial uncertainty centers not on the customer's willingness to pay or the scope of the market (the "total addressable" market) but rather on the logic of the theory and the viability of surmounting the (often substantial) technical hurdles associated with composing new and novel resources.

Rather than focus on determining willingness to pay, refining product features, or helping to select a go-to-market strategy, experiments for theories of resource specialization seek to

refine and validate the assumptions or solve critical subproblems that underpin the theory. Curiously, despite the high cost of experimenting to test a resource specialization theory, experimentation may still prove particularly critical, not only for testing and updating a theory but also for communicating the theory's value to early employees or stakeholders (such as financiers) deemed critical to generating the value a theory envisions. In a sense, whether external stakeholders believe and "buy into" a particular theory of resource specialization, for instance by investing, represents an important mechanism of validation. Column 2 of Table 2 summarizes our logic surrounding experimentation.

4.3 | Assembling resources

A particularly central question that entrepreneurs face in pursuing their theories of value is deciding whether and how to organize a firm to explore it. Entrepreneurs must decide which if any physical assets need to be owned or purchased, and which can be outsourced (Foss & Klein, 2012; Zenger et al., 2011). They must also decide which, if any, co-founders to add or employees to hire—or whether it is sufficient to work with contractors to access needed capabilities or skills (Burns et al., 2016; Lazar et al., 2020). Finally, entrepreneurs must identify possible sources of financing for their venture (Chen et al., 2010; Cumming & Johan, 2017). Each of these resource assembly choices should be guided by the theory the entrepreneur intends to pursue. To discuss the specific form of discriminating alignment, we turn first to the question of asset ownership before turning to building a founding team and securing financing.

4.3.1 | Asset ownership and governance

Within the theory of the firm literature, choices about firm boundaries, including choices of which assets to own or not own, follow rather mechanically from understanding the attributes of exchanges that an entrepreneur seeks to generate. In truth, of course, the entrepreneur's real task takes on the dual structure of deciding both what to compose and deciding how to govern its composition. We argue that understanding the type of entrepreneurial theory that an entrepreneur possesses, whether arbitrage, recombination, or specialization, provides important insight into these governance decisions.

Consider an entrepreneur who possesses an arbitrage theory—a theory that entails where and when existing goods, services, and raw materials can be introduced elsewhere and sold at greater than their cost of purchase. Here, the entrepreneur's question is what form of ownership is required to compose and capture the rents envisioned by this arbitrage theory. Importantly, the realization of value from arbitrage may not require the entrepreneur to form a firm, hire employees, or even assume the ownership of assets (cf. Hayek, 1945). The resource for which the entrepreneur foresees an alternative, more valuable use is presumably observable and traded in the market. By our classification, arbitrage theories, in their pure form, do not demand recombining resources or require investment to execute the arbitrage. Rather, to create the value (and ignoring who captures it), entrepreneurs must simply reveal the arbitrage opportunity and then deploy the asset (or allow others to do it) to generate the value.

Of course, if the entrepreneur wishes to capture the value inherent in the arbitrage, decisions about the ownership of assets and the composition of a firm become consequential. To capture value, the entrepreneur must secure use rights to the specific assets to be arbitraged

prior to revealing the arbitrage. Waiting to secure these rights until after revealing the arbitrage will likely result in the disappearance of the resource's underpricing, as asset prices are bid up by others using this newly revealed information about their value. If there is uncertainty about this value, as some have argued, then ownership may be essential for both creation and capture (Foss & Klein, 2012; Kaul, 2013). In summary, asset ownership may not be essential to creating value inherent to an arbitrage theory, but owning use rights to assets, which may of course be obtained through leasing or ownership, is essential to value capture.

An entrepreneur with a theory of recombination faces a more challenging task in deciding how to structure asset ownership and whether and how to form a firm. Theories of recombination are more complex in nature and involve more than a simple arbitrage of a single asset or resource. These theories envision bundles of interdependent assets, resources, and activities, and the entrepreneur must decide precisely which to own (or employ) and which to access contractually. However, because these assets are "simply" being recombined in their *existing state*, as emphasized by Schumpeter (1934) and Nelson and Winter (1982), value creation may not necessitate taking ownership or forming a firm to orchestrate the recombination. Rather, the entrepreneur can simply gain access to assets and activities through contracts and partnerships and introduce the value foreseen through recombination.

However, if the entrepreneur seeks to capture some portion of the created value, then the ownership decisions become highly consequential. Poor decisions in either direction—owning what should not be owned or outsourcing what should not be outsourced—have substantial consequences. Errant decisions to integrate may burden the entrepreneur with excessive cost, weak incentives, and decreased flexibility. Errant decisions to outsource may burden the entrepreneur with an outside owner of an asset or activity who can then capture much of the value envisioned by the entrepreneur's theory. How then does the entrepreneur decide which assets and activities to own or employ and which to outsource?

A full treatment of this issue is beyond the paper's scope. But our central intuition is that an entrepreneur should generally own or employ assets and activities that a theory reveals to be both unique *and* complementary to other assets in the envisioned recombinative bundle (Argyres & Zenger, 2012). Failure to integrate unique and complementary assets and activities grants outside owners the leverage to appropriate the value that the entrepreneur creates, once that value is revealed—a classic example of hold up, albeit here without the need for any specialized investment (Hart & Moore, 1990; Williamson, 1975).[6]

Entrepreneurial theories of resource specialization depart dramatically from our two previous archetypes. The entrepreneur hypothesizes value in modifying assets in specialized ways such that they are unique *ex post*. In this sense, these modified assets are classic illustrations of the "fundamental transformation" that lie at the heart of the transaction cost literature (Williamson, 1975). Here, integration becomes valuable for two essential reasons. First, absent ownership of the assets to be modified, those who do own them prior to modification may be quite reluctant to make the specialized investments that the entrepreneur deems necessary, regardless of what contractual terms the entrepreneur offers. Outside asset owners may simply disbelieve in the merits of the entrepreneurial theory and therefore fear that, even if they make the specialized investments that the entrepreneur requests, the theory will fail and leave the entrepreneur unable to pay them.

[6]As Kaul (2013, p. 1768) characterizes this argument: if "all assets that were being recombined were generic, the ownership of the assets would be irrelevant...in this pure Schumpeterian case, the exercise of entrepreneurial judgment does not require the creation of a firm."

Second, even if the theory is accurate, those who own assets that an entrepreneur wishes to have transformed may fear that the entrepreneur will attempt to appropriate (i.e., "hold them up for") the value of any uniquely specialized investments that they make; the entrepreneur knows that the asset owner has no alternative use for the unique investments. Of course, this is the standard hold-up logic used to justify integration decisions (Klein et al., 1978; Williamson, 1975, 1985). Fearing this form of appropriation, outside asset owners may be unwilling to make these specialized investments, and integration becomes the remedy. Integration enables the entrepreneurial firm to essentially authoritatively "command" those controlling the specialized investments rather than attempt to induce them.

Third and finally, the direction of this potential hold-up may also operate in reverse. The entrepreneur may fear that, after inducing specialized investments by external actors, these external actors—who are also aware of specialized investments by the entrepreneur—will seek to hold up the entrepreneur. Fearing an outcome of endowing an external actor with significant leverage to appropriate value, the entrepreneur may choose to integrate to prevent this appropriation hazard.

Note that these first two arguments suggest that integration—or the ownership of assets to be rendered unique through specialized investments—may be essential to creating the value that an entrepreneur envisions. Here, ownership may be necessary to persuade those who control assets to use them as the entrepreneur desires (Van den Steen, 2010). The third and last argument suggests that, even if outside asset owners can be persuaded to make these specialized investments, the choice to not own these assets creates a bargaining setup in which outside asset owners can appropriate substantial portions of the value that the entrepreneur orchestrates (Williamson, 1975). Of course, well-crafted alliances may also enable firms to support and protect these specialized investments (Gulati, 1995; Wormald et al., 2022). But, in many circumstances, ownership of these unique and specialized assets may be essential for both value creation and value capture. Column 3 of Table 2 summarizes the boundary choice implications for governing value creation and value capture for our three stylized theories of value.

4.3.2 | Assembling the team

Much like decisions about asset ownership, decisions about what skills and capabilities to secure in composing a founding team are decisions about firm boundaries—that is, decisions about what to keep within the firm and what to access externally. Prior work has documented many of the challenges founders face in these early "make or buy" team formation choices. These challenges include enrolling and rewarding team members (Burns et al., 2016; Felin & Zenger, 2009), addressing potential attrition as the business evolves (Kirtley & O'Mahony, 2020; McDonald & Eisenhardt, 2020), and deciding what talent to employ and what talent to contract for (Burton et al., 2019). Considering team formation through the lens of our three entrepreneurial theory types offers fresh insight about alternative approaches to accessing talent and illuminates which approach is useful, and when (Lazar et al., 2020, p. 53).

Simple arbitrage theories suggest little need to expand the founding team beyond the entrepreneur who composed the theory. Although ownership rights over the asset to be arbitraged are essential, no other capabilities require recombining. Indeed, if the

entrepreneur can secure intellectual property rights to the theory of value, she may be able to altogether avoid the founding process by selling rights to the idea. Thus, an entrepreneur with an arbitrage theory may have little need for a co-founder and instead simply access contractors or hire employees. Technical risk associated with arbitrage theories is low, as little or no specialized human or technological assets are required. Uncertainty about market demand is also likely minimal. Communicating the theory to potential employees is relatively straightforward, and at a bare minimum need only concern the employment relation; communication does not necessarily require the team member to assent to the theory, as they will be compensated through wages.

As a theory becomes more complex and requires more specialized skill, and uncertainty about its potential value increases, a mix of early team members (incented primarily through equity) and lightly connected peripheral members and/or temporary workers become a more suitable arrangement. This mix is particularly sensible until clarity around the theory's merits is gained, including perhaps a final set of product attributes and critical details about the go-to-market strategy. Much like the conversation about assembling unique and complementary assets, the entrepreneur must seek to selectively employ talent that a recombinative theory identifies as uniquely specialized or complementary. Failure to do so creates a similar form of holdup risk, as discussed in regard to assets. Of course, even employment may not prevent hold-up efforts from talented employees who discover they are both unique and highly complementary to the firm's other assets and activities. However, outsourcing creates even greater exposure to holdup. If external firms employ the critical complementary capabilities needed, they become particularly well positioned to appropriate the entrepreneur's envisioned value. Theories of recombination, due to their increased complexity, are also harder to communicate than arbitrage theories. However, building a team of co-founders who agree on the merits of the theory, and its vision of what to combine (and how), may be critical to success. The challenge for the entrepreneur is selecting a team stable enough to traverse from pre-product market fit to scaling up the business (Hellmann & Puri, 2002; Rajan, 2012).

An entrepreneur in possession of a theory of specialization may face a significant challenge in convincing others of its merits. The assets in question have yet to be combined and modified, and the process of combining and modifying may itself require invention. Uncertainty about demand may also be substantial in the context of resource specialization, perhaps requiring significant customer education and market creation (Benner & Ranganathan, 2013; Santos & Eisenhardt, 2009). Organization and execution challenges associated with theories of resource specialization are also substantial. Much of the hypothesized value has never been created before and may necessitate not only the development of new technologies but the addition of co-founders and employees willing to develop capabilities, routines, and human capital quite specific to the new venture. Furthermore, the learning and adaptation inherent in pursuing a resource specialization theory—no matter how accurate the original insight—implies a need for significant persuasion of talent and stakeholders to take up the entrepreneur's theory. Here, the central requirement for an early team member is likely conviction about the overall point of view. Thus communication and belief in and agreement about the theory are central mechanisms for binding the team to the nascent venture (Gartenberg & Zenger, 2021). For resource specialization theories, a nascent entrepreneurial team may be much less like the teams we study in entrepreneurship and instead more "cult"-like (Lazar et al., 2020; Thiel & Masters, 2014)—in an importance sense, early startup teams believe they are "fanatically right about something those outside it have

missed" (Thiel & Masters, 2014, p. 125). Column 4 of Table 2 summarizes our implications for entrepreneurial team formation.

4.3.3 | Financing

Prior work has documented a host of options used by entrepreneurs to finance their ventures. These financing options can vary from one extreme (entrepreneurs self-funding or leveraging friends and family) to the other (entrepreneurs negotiating with parties largely unknown to them for a bundle of cash flow, liquidation, and control rights, essentially trading levels of ownership and control for crucial financial resources) (Furr et al., 2016; Wasserman, 2017). The search for financing can be time-consuming and expensive. Knowing the type of entrepreneurial theory being pursued offers important guidance about the type of financing an entrepreneur should seek.

In the theoretical finance literature, the type of information problem that exists between entrepreneurs and investors shapes financing outcomes. The three types of entrepreneurial theories highlight sharply different information problems. As noted previously, theories of resource recombination and particularly resource specialization present significant communication and evaluation challenges. When theories are hard to communicate and evaluate, poor theories are easily advanced or mistaken for good ones (Akerlof, 1970; Benner & Zenger, 2016). As a consequence, financing complex, novel, or difficult-to-communicate theories becomes more challenging and costly (Benner, 2010; Benner & Ranganathan, 2013; Benner & Zenger, 2016).[7]

Theories of arbitrage are easily communicated and evaluated and, therefore, should readily find financing. Understanding the merits of an arbitrage theory requires the financier to simply understand the value of the asset in its current and proposed new use. Moreover, it may not even be required for the entrepreneur to convince the financier of the resource's value in the new use, as long as the resource has value in its old use, and the price paid for it reflects the old use. Here, there is no real problem with information asymmetry and thus much less concern that the entrepreneur can pass off a bad theory as a good one. Therefore, we suspect that theories of arbitrage are unlikely to necessitate significant self-funding or friends and family financing, and more likely to permit more arms-length transactions with actors such as commercial lenders.

Theories of recombination are more difficult to evaluate, and, accordingly, financing becomes more difficult. Although theories of recombination fundamentally rely on assets as they already exist, funders may not believe the hypothesized value of the proposed combinations. For example, the founders of Airbnb struggled to initially secure funding for their company. Their business idea of renting homes to and from strangers was seen as, at best, a small niche. The logic and value of novel recombinations of existing assets may be difficult to communicate and evaluate during the early stages of the venture, even though tremendous value from a theory of recombination may subsequently become readily evident. Of course, the capital markets have evolved specialized financial actors—venture capitalists—tasked with sourcing and investing in precisely these types of projects (Mallaby, 2022).

[7]This intuition has currency among practitioners and investors, and not merely academics. Mike Maples, for example, observes that "a novel insight is the bedrock of a great startup...and not about mapping the territory or the market. They are about believing something valuable about the future and then starting a movement of people who believe what you believe until everybody believes" (Parrish, 2020).

Theories of resource specialization are the most difficult to communicate and evaluate. Here, the hypothesized resources contribute to production functions that simply do not exist, as the entrepreneur proposes their composition through specialized investments. Consequently, the potential information (or belief) asymmetry is substantial, and entrepreneurs are prone to mistakenly claiming, and perhaps even believing, that their theory holds value. In fact, as noted in our discussion of secrecy, the need to hold secret theories of specialized and co-specialized assets is limited in part because others are unlikely to understand, let alone highly value, such theories. Therefore, the difficulty in securing outside financing increases dramatically given the increase in the information problems associated with the underlying theory. Moreover, even if an entrepreneur can convince a financier about the potential value of their theory, in order to actually secure funding, these individuals are often required to secure agreements from many others within their own organizations (Gompers et al., 2020) or from other outside actors (Lerner, 1994), adding challenge and complexity to the investment decision. As a result, despite their potential for value creation, entrepreneurs pursuing resource specialization theories often require bootstrapping or self-financing of the venture at the earliest stages. Venture capital history (and most venture capitalists) has stories of their greatest "misses." Benchmark Capital's "anti-portfolio"—a public list of some of the firm's missed investments—illustrates the difficulty of identifying the most promising companies in possession of these kinds of theories. Accordingly, venture capital firms have sought to actively evolve their organizational and governance approaches to get better at spotting valuable versions of these kinds of theories (Malenko et al., 2021; Mallaby, 2022).

Our broad claim here is that the theoretical and empirical insights about valuing unique and novel strategies in the broader public markets (Benner & Zenger, 2016; Litov et al., 2012) apply to the financing of entrepreneurial projects. Ultimately, the most complex and novel theories—the ones most difficult to understand and communicate—face the greatest challenge in being funded and, more broadly, in gathering support from key stakeholders. Column 5 of Table 2 summarizes these implications.

5 | DISCUSSION: ENTREPRENEURIAL PROCESS AND DESIGN

We have argued that the type of theory that an entrepreneur develops—and then seeks to explore, test, and pursue—should shape the selection and timing of actions that the entrepreneur takes. We suggest a contingent alignment or "fit" of organizational and governance "design choices" (Burton et al., 2019; Rajan, 2012) with entrepreneurial theory types. An emerging literature on entrepreneurial *process* in strategy makes a persuasive case that we know relatively little about what entrepreneurs actually *do*—the actions, processes, or "steps" that they take to validate their business ideas (Bennett & Chatterji, 2019; McMullen & Shepherd, 2006)—or how they choose among strategies to pursue (Gans et al., 2019). This literature has largely focused on "pre-entry" steps and processes, and the early exploration or validation of an entrepreneurial idea or choice. We add to this literature a focus on the organizational and governance choices an entrepreneur must make once in possession of a theory of value they deem worth pursuing. We argue that both the creation and capture of value from a particular entrepreneurial theory depends on the organizational and governance related choices that align with the theory an entrepreneur possesses. Designing the right type of organization essentially serves as the vehicle for creating and capturing the value that and entepreneurial theory hypothesizes.

Our paper focuses heavily on the need for alignment in entrepreneurial "design"—an approach inspired by extant work that emphasizes a discriminating alignment or an appropriate match between governance structures and the nature of transactions (Williamson, 1989; also see Carter & Hodgson, 2006; David & Han, 2004; Shelanski & Klein, 1995). In our case, we hypothesize how particular types of theories of value are best aligned and matched with particular downstream choices related to experimentation, organization and governance, and financing. Similar to the "economizing" literature of transactions cost economics (Williamson, 1991), we hypothesize that misalignment between theory types and governance—akin to this literature's misalignment between transactions and governance—has significant negative performance consequences for entrepreneurial firms. Entrepreneurs may possess brilliant theories for creating economic value, but see that value remain unrealized due to a poor selection of entrepreneurial design and downstream choices. Indeed, consistent with the empirical literature in transactions cost economics (e.g., Nickerson & Silverman, 2003), fit and mismatch may exist on a continuum along which strong misalignment hinders performance, and strong alignment elevates it. The transaction cost literature's exploration of boundary conditions may also inform future conceptual and empirical work. For example, an entrepreneur's downstream choices (and entry strategy) may be shaped by the strength of the competitive regime in which new ventures are launched. Further, the absence of competition may allow new ventures to poorly match downstream choices to theories and still survive. Some types of theories may also be more amenable than others to (or "forgiving" of) initial poor matching of downstream choices.

Our theory is normative in suggesting prescriptions about fit, as well as descriptive in predicting the consequences of fit, and thus offers a host of opportunities for empirical testing. As noted above, our paper points to an empirical agenda similar to the empirical literature in transactions cost economics (David & Han, 2004). Thus, future work might explore whether entrepreneurs make downstream decisions about intellection property protection, experimentation, boundary decisions, team formation, and financing that align with the type of entrepreneurial theory they possess. Further work might then explore if the degree of alignment between theory types and downstream choices shapes success in creating and capturing value from the resulting ventures. Given the normative nature of our agenda, we also see opportunities for randomized control trials that use our theory as an educational treatment. For example, ongoing randomized control trials show that having an entrepreneurial theory—compared to not having one—improves venture performance (Camuffo et al., 2020; cf. Leatherbee & Katila, 2020). A natural next step would be to design an experiment in which the treatment group is introduced to the importance of matching its (type of) entrepreneurial theory with the appropriate downstream choices, and then examining if this elevates performance. The critical importance of these downstream choices—relative to simply having a theory and pursuing a scientific approach to entrepreneurial activity (which would serve as the control condition)—could be isolated experimentally, ensuring that the field of entrepreneurial strategy engages in cumulative learning. This type of experimental investigation could also tease out the respective importance (or "weights") of the different downstream choices relative to different types of entrepreneurial theory. Some downstream choices, for some types of theories, may turn out to be more consequential than others—thus offering entrepreneurs invaluable guidance.

We should briefly note that the downstream choices prescribed by our three types of theories frequently relate to *both* value creation and value capture. For instance, secrecy is critical to value capture for theories of arbitrage as well as to theories of recombination. But secrecy may actually be harmful to efforts to create and capture value from theories of resource specialization, as sharing information about the theory may be vital to both composing and capturing

value that the entrepreneur conceives. Similarly, experimentation may be vital to value creation for each of the three types of theories, but it may also shape value capture if experimentation invites competition (Schmalensee, 1978; Shelef et al., 2020). Finally, although selective asset ownership may be vital to value capture for each of these theories, it is arguably only a necessary requirement for value creation with theories of resource specialization (Kaul, 2013), where the entrepreneur needs to actively persuade others of the value of transforming assets into a uniquely, specialized form.

Our arguments also relate to the business model literature (Foss & Saebi, 2017), specifically addressing questions of business model *design*. As Amit and Zott have emphasized, "we do not know much about the *how* of business model design" (Amit & Zott, 2015, p. 3, emphasis in the original; see also Foss & Saebi, 2017). Our argument is that an entrepreneur's theory offers valuable guidance for critical downstream choices related to the business model, the "content, governance and structure of transactions" (Amit & Zott, 2001, p. 511). Put differently, downstream choices and business models are contingent on the type of theory the entrepreneur hopes to pursue, and as a consequence need to be purposefully designed. As Amit and Zott suggest: "Business models are created by entrepreneurs or managers who shape and design organizational activities as well as the links (transactions) that weave these activities together into a system. Such *purposeful design*—within and across firm boundaries—is the essence of the business model" (Amit & Zott, 2015, p. 19, emphasis added). We see our theory as providing important, actionable guidance to an important set of entrepreneurial design choices that feature in many discussions of business models.

In an important sense, any form of organizational design—including entrepreneurial design—is about "fit." However, our paper emphasizes a different form of fit from much of the existing literature, which tends to focus on "external fit" between the *environment* and the organization or business model (for recent work on internal and external fit, see Leppänen et al., 2021). Our focus is specifically on *endogenous* or internal fit, where downstream design choices about organization and governance are ultimately contingent on the entrepreneurial theory that the entrepreneur holds. To highlight this contrast, in our theory the emergent design is *not* (in the first order) seen "as an important lever for enhancing the focal firm's 'ecological fitness', i.e., for *improving the firm's fit with a shifting environment*" (Amit & Zott, 2015, p. 19, emphasis added). This logic of "fitting" structures to the contingent or shifting nature of the environment—building on foundational work by Lawrence and Lorsch (1967) and others (Donaldson, 2001)—of course remains important. But this prior work focuses first on delineating or understanding the *environment* (in terms of dimensions such as uncertainty, ambiguity, or complexity) and then conditioning organizational structures, decisions, and behaviors accordingly. This focus on specifying environmental conditions and matching it with the appropriate strategies or structures has been highly influential in the context of strategic entrepreneurship. For example, scholars have looked at how various environmental characteristics—such as dynamism, velocity or uncertainty—can be matched and aligned with the appropriate decision heuristics, structures and strategies of entrepreneurial firms (e.g., Artinger et al., 2015; Davis et al., 2009). In all, much of this work has focused on adaptation—organization–environment fit—where the *exogenous* contingencies of the environment shape entrepreneurial decision making, structure and behavior.

Our notion of contingency and fit is different. We focus on endogenous or internal fit, rather than fit to external or environmental factors. Though the focus on environments and environmental fit is important, we see environments—*especially* in nascent entrepreneurial settings—as quite ill-defined. In entrepreneurial settings, there are no *ex-ante*, stable environmental

dimensions on which to anchor or base organizational or governance-related contingencies (McBride & Wuebker, 2022). Rather, environments are firm-specific, and in an important sense, theory-specific (Felin & Zenger, 2017). The environment might be seen as the *outcome* of endogenous entrepreneurial activity (Gavetti et al., 2017; Koppl et al., 2015; Packard & Clark, 2020). In our model, the central dimensions of fit and alignment are specific to the entrepreneur, or, more precisely, to the entrepreneur's theory of value rather than the environment. For us, the *type* of entrepreneur-specific theory provides the critical dimension of organizational contingency and fit. Thus, we seek to offer a fine-grained, microanalytic, and practice-relevant approach to structuring nascent organizational activity in ill-defined and novel settings.

6 | CONCLUSION

Theories enable entrepreneurs to see, create, and build resources and resource compositions that enable the creation of value. In this sense, theories allow entrepreneurial actors to "hack" competitive factor markets and to see latent resources and value not obvious to others. We offer a contingent view of theories of value and show how the theories entrepreneurs hold can guide critical downstream choices entrepreneurs face, among them secrecy, experimentation, asset ownership, team formation, and financing. We draw on prior work on economic and entrepreneurial rents to categorize theories of value into three types: resource arbitrage, recombination, and specialization. We argue that each of these entrepreneurial theory types implies a set of aligned, interrelated decisions about how the entrepreneur should organize and govern the process of resource composition and value creation. In other words, many downstream choices related to organization and governance—decisions previously viewed as straightforward, mechanical, or ubiquitously applicable—actually depend on the type of theory the entrepreneur holds. We further argue that making these aligned choices will elevate the performance of an entrepreneur's venture. Thus, this article importantly offers both a descriptive and normative theory of entrepreneurial value creation.

DATA AVAILABILITY STATEMENT

This is a theory paper—No data.

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