

**WHERE DO FACTOR MARKETS COME FROM? TOWARD A RESOURCE-
BASED THEORY OF THE ENTREPRENEURIAL FIRM**

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We propose a new perspective on the entrepreneurial firm, providing an account of entrepreneurial factor markets where—in contrast to received wisdom—the firm performs an important function as a *precondition* to and, in some sense, a *creator* of factor markets. Historically, scholars have conceptualized the firm as the platform from which the entrepreneur acts and creates competitive advantage. In contrast, we suggest that the firm is the means through which such advantages are established. In our view, the firm is an island of entrepreneurial innovation, which increases efficiency through increasing returns, and provides the means through which goods otherwise not possible in the market are brought into being. The firm, we conclude, is the entrepreneur’s means of realizing an imagined competitive advantage. We contribute to a rich literature exploring the roots of entrepreneurial strategy, and our exploration of entrepreneurial factor markets provides an essential theoretical link necessary for a creation-infused account of entrepreneurial firm formation.

Structural uncertainty arises when a firm needs to base its decisions on judgments about future outcomes that are yet unknowable. Parametric uncertainty arises from the possibility of a range of market imperfections including bounded rationality and opportunism. Whereas it is possible to adopt strategies to insure against parametric uncertainty, or at least to mitigate its effects, structural uncertainty cannot be eliminated strategically. —Langlois and Robertson (1995:18)

Factor markets figure prominently in resource-based perspectives on firm strategy. In the domain of entrepreneurship, scholars have extended resource-based logic to explore firm formation and emergence, arguing that entrepreneurs create firms to reduce uncertainty in the resource coordination process through which they appropriate and hope to create value (Alvarez and Barney, 2005). This coordination process amounts to the implemented strategy of the firm (e.g. “strategic entrepreneurship”), and its success depends on either the superior judgment of the entrepreneur about the future value of a particular strategy (Knight, 1921; Klein, 2008), or, luck (Barney, 1986). This perspective aligns with an emerging consensus among entrepreneurship scholars that opportunities for entrepreneurial profit do not exist objectively when these resource-combining decisions are made (Alvarez and Barney 2007; Klein, 2008; McBride and Wuebker, 2013; Westgren and Ariew, 2013), and that bids by entrepreneurs in factor markets are based on guesses as to what the future market demands may be and how factors can be coordinated and combined to fulfill those demands. Value related to those resource combinations can only be known *ex post*, suggesting that the value of any particular resource combination is unknown *ex ante* and revealed in the future through action (McMullen and Shepherd, 2006; Klein, 2008).

However, an account of entrepreneurship that takes irreducible uncertainty seriously leads to a curious puzzle. There can be no market for combinations of resources

that are under the process of being, or have recently been, created by the entrepreneur, as they have no realized value. Factor markets, by definition, cannot include recently created or unused capital goods, since they have no market value until their profit potential has been disclosed through use in profit-generating strategies. It is not possible to discuss the “market value” of factors until they have been more broadly accepted as means toward supplying goods that are of value to consumers (McBride and Wuebker, 2013), and for which there must be markets for those factors. While the resource-based view provides an explanation for how entrepreneurs exploit opportunities through combining resources that are at least partially available in factor markets, it is silent as to where factor markets come from.

This paper explains the creation of factor markets. We provide an answer to the question “where do factor markets come from?” by drawing on insights from Austrian economics (Menger, 1871; Böhm-Bawerk, 1889; Mises, 1949; Rothbard, 1962) to articulate the challenge to a resource-based view of the entrepreneurial firm—the *calculation problem*—and to develop a solution for that problem. The Austrian School, with its long history of analyzing the market as a dynamic, entrepreneur-driven process (Mises, 1949; Kirzner, 1973; Salerno, 1993; 2008) with heterogeneous resources and capital, provides a robust framework for developing theory linking the development of factor markets to advance the development of a resource-based view of the entrepreneurial firm (Jacobson, 1992; Bylund, forthcoming). In so doing, we propose an account of entrepreneurial factor markets where—in contrast to received wisdom—the firm performs an important function as a *precondition* to and, in some sense, a creator of factor markets. In the following sections, we describe our perspective on firms and factor

markets and detail its implications for conceptions of strategic entrepreneurship and the roots of competitive advantage.

THE CALCULATION PROBLEM

A complex economy is based on individual bids for factors of production—labor, land, and capital goods—to be used in production processes. In the case of established firms—with an existing position in the market and an articulated multi-stage production process—the underlying economic logic of the business is known, and knowledge of the potential profitability of the business by exploiting this position relative to competitors is also known. The resource-based perspective on firm strategy analyzes the firm in terms of its collection of these factors of production—the “tangible and intangible assets a firm uses to choose and implement its strategies” (Barney, 2001)¹—and argues that their artful and effective deployment generates competitive advantage. Embedded in this perspective is a view of the firm as a collection of idiosyncratic and unique resources, and that firms themselves are at least as heterogeneous as the resources they embody or control. Studies invoke the resource-based perspective to explain differences in organizational structure (Eisenhardt and Schoonhoven, 1996; Peteraf, 1993) and deployment of resources (Amit and Schoemaker, 1993), suggesting that the root of a firm’s competitive advantage is closely connected to these activities.

¹ Note that Barney (2001) does not imply asset *ownership*, which, e.g., Grossman and Hart (1986) do in viewing the firm as “consist[ing] of those assets it owns or over which it has control” (p.693), but only assets that are used to implement a strategy. For Barney (2001), it is conceivable for a firm to use (but not own) an asset to choose and implement a particular strategy (see also Kirzner’s [1973] “pure” entrepreneur).

Extending resource-based logic to entrepreneurship suggests that the entrepreneur coordinates resources in order to exploit an opportunity (Lachmann, 1956; Alvarez and Barney, 2005, 2007a, 2007b) and that this resource coordination process is, in some sense, the firm's implemented strategy, often conceptualized as "strategic entrepreneurship" (Ireland, Hitt, and Sirmon, 2003). Extending this line of reasoning, entrepreneurs are exercising superior judgment (Barney, 1991; Klein, 2008) and more accurately envisioning the value of a particular combination of resources, and then acting to realize that resource combination (Foss and Klein, 2012). In so doing, the entrepreneur engages in two activities: (1) coordinating internal resources according to a particular value-creating strategy, and (2) procuring factors in the strategic factor market in order to implement these strategies.

Building on these insights, the emerging "entrepreneurial theory of the firm" draws on a resource-based perspective as a rationale for firm creation, arguing that entrepreneurs create firms in order to control uncertainty in the coordination process (Alvarez and Barney, 2005). Here, however, the traditional resource-based logic, with its roots in the factor markets, encounters a paradox. Extant firms that operate in dynamic and competitive markets bid on factors of production in which the true value of resources are unknown before they are used in a specific setting in the firm (Lippman and Rumelt, 1982) and tackle uncertainty related to this conversion process. Yet entrepreneurs do not have this luxury. Entrepreneurs also bid on factors of production, with the distinction being that these bids for land, labor, and capital goods are to be used in production processes that are innovative and not yet in existence, and are consequently inherently uncertain. As noted by Shane (2003: 37) "the entrepreneur cannot use the price of the

new product to determine whether or not to acquire resources to invent it because information about the price of a new product cannot exist before its invention. Only after the inventor has developed the product and introduced it to the marketplace, can anyone know its price.” If the opportunities that these production processes represent are not “discovered”, as Shane (2012) argues, but rather have no mind-independent existence (McBride and Wuebker, 2013; Westgren and Ariew, 2013), this challenge is exacerbated. Therefore, this second entrepreneurial activity—the market bidding for factors—can only be based on entrepreneurial guesses of future market demands and how these factors could be used to fulfill those demands. As noted by Coase (1937), “it seems improbable that the firm would emerge without the existence of uncertainty”.

Entrepreneurs can only seize a profit opportunity “by acquiring factors of production at a market price or monetary cost which they expect to be lower than the selling price they will obtain for the consumer good once it has been produced” (Huerta de Soto 2010: 114-115), and they have no knowledge (only a guess) as to whether present prices support such a venture. This poses a problem, since there can be no market for combinations of resources as they are under the process of being or have recently been created by the entrepreneur—and therefore have no realized value. Factor markets, therefore, cannot include recently created, untraded or unused capital goods, since they have no value until their profit potential has been discovered through use in profit-generating strategies. In other words, there is no objective “market value” of factors until those factors have been accepted as a means towards supplying goods that are of value to consumers. This market value is represented in the market price for the factor.

To perform their function, entrepreneurs must use market prices combined with their own judgment about future demand and the value consumers place on having that demand satisfied. Without markets for factors, entrepreneurs are “blind” due to excessive uncertainty and cannot be expected to discover profit opportunities. In a view of entrepreneurship infused with resource-based theory, the entrepreneur exists in a world in which there is no market for the firm or the specific factors it owns and uses. A resource-based perspective on entrepreneurship may be able to explain how entrepreneurs exploit opportunities through combining resources at least partly available in factor markets—but it does not explain where factor markets come from. Without a tractable resolution for this paradox it is not possible to advance a modern theory of the entrepreneurial firm, in particular one with the resource-based view at its foundation.

An example helps to illustrate our point. Unless there is already a “market for copper,” why would any entrepreneur invest in machinery to dig up mountains, smash the detritus into even smaller bits, and set those bits on fire to capture the ore? A profit opportunity for copper extraction requires a particular institution—a market—in which copper can be priced and sold. If there is no market there is no bidding, and consequently no profit opportunity—only an opportunity for losses. Only the entrepreneur who extracts the copper can discover its value by making it suitable for consumption, bringing it to consumers in a form that is interesting to them as a means to attain ends. It follows that the creation of capital goods—the combination of human-devised resources for the purpose of providing the market with consumption goods—has no salability since there is no market for them *ex ante* (Menger, 1871). This is not a matter of relying on scarce resources for above-market profits (Dierickx and Cool, 1988), but of innovating and thus

creating new resources for which there cannot already be a market. The emerging firm thus constitutes a capital good without possibility of a reliably appraised market value, since there is no product market. The existence of a market must follow the creation of goods to be offered in it. So, how can newly created goods be sold and how can they be properly valued?

As capital goods are innovated, unguided by market prices but following the entrepreneur's judgment, it follows that the outcome of the venture (to the extent it exceeds the common return on capital) is entrepreneurial profit. The lack of market, and thus market prices, means the entrepreneur is breaking new ground, and thus creating new value. We cannot attribute any new value to the relative scarcity of capital in the factor market (as there is only what the entrepreneur created). Rather, the value is imputed from product markets only after their market values have been revealed.

Imputation of value and, consequently, market prices, thus introduces a sequence that runs counter to that of the physical production process: while production must take place from natural resources via capital goods to consumer's goods, direct valuation can exist only of the latter, since they are the only goods that are directly used for the satisfaction of wants; capital goods used to produce those goods are only indirectly valued through their specific contribution to consumers. The real value of the machines used by General Motors to produce automobiles is thus derived from their contribution to the benefit consumers get from using the automobiles produced; likewise, the value of the materials used to produce those machines is in turn derived from their contribution to the ultimate product (automobiles), and consumers' satisfaction thereof, via the machines.

This constitutes the economic problem of production, which relates to how scarce resources are utilized to most efficiently satisfy consumers. Consumption—the satisfaction of wants—is the ultimate (and only) goal of production as well as the valuation thereof, but offers no guidance before there are markets. The market valuation of the means of production, which provides entrepreneurs with profit/loss feedback (Mises, 1951), is revealed after the fact in established market prices. The entrepreneur must therefore overcome the “pricelessness” of breaking new ground, and is not relieved of this burden until competing entrepreneurs, through their buying and selling determine market prices. In other words, the market value of factors is appraised through entrepreneurial bidding, which itself is based on varying expectations by entrepreneurs of the expected sales price of consumption goods.

Due to the backtracking imputation of value “upstream” from consumers, Austrian economists call consumption goods “lowest order” goods as a way to distinguish goods that directly satisfy consumer wants from goods used in production:

The prices of the goods of higher orders are ultimately determined by the prices of the goods of the first or lowest order, that is, the consumers’ goods. As a consequence of this dependence they are ultimately determined by the subjective valuations of all members of the market society. [...] The prices of the complementary factors of production are conditioned by the prices of the consumers’ goods. The factors of production are appraised with regard to the prices of the products, and from this appraisal their prices emerge.
(Mises, 1949 [1998]: 330-331)

Higher order goods—factors of production—can only indirectly satisfy consumer wants and, therefore, their market values are imputed from the values of consumers through the prices that they are, or are expected to be, willing to pay for lowest-order goods. Entrepreneurs, eager to profit from price discrepancies, are in the business of attempting to foresee what prices consumers are willing to pay, and act as “bidders at an

auction” where current owners “put up for sale land, capital, goods, and labor” (Mises 1949 [1998]: 332).

Factors are heterogeneous by nature, and their ontology contains an important entailment, specifically that factors have an infinite number of specificities and complementarities, and these specificities and complementarities are unbounded (Felin, Kauffman, Koppl and Longo, 2013). The Austrian perspective intuits this ontology of the factor markets, noting that complementarities of capital combinations are “ever changing, and will be dissolved and reformed” (Lachmann, 1956:16). From this perspective, unseen as well as *unforeseen* types of factor services or capital goods are possible (McBride and Wuebker, 2013). Some of these factors will be the result of entrepreneurship (Salerno, 2008) and the creation of new factors—not merely the recombination of existing traded factors—is an important part of extending the division of labor, augmenting production processes (Böhm-Bawerk, 1889; Strigl, 1934; Skousen, 1990) and ultimately enabling the market to satisfy more consumer wants.

Yet this perspective is embedded with an unresolved puzzle. As a thought experiment, imagine a novel factor service or capital good—the first of its kind to be created. Assume that it is created in order to produce a previously unseen lower-order good, which means that there are no real prices to rely on, and thus the entrepreneur operating in our thought experiment has only expectations of consumers’ future willingness to pay as a guide. As Rothbard (1962) notes:

There would be no way for [the producer] to estimate any implicit price or opportunity cost for the capital good at that particular stage. Any estimate would be completely arbitrary and have no meaningful relation to economic conditions (Rothbard, 1962 [2004]: 613).

An implicit consequence of any variant of a perspective on entrepreneurial creation (Schumpeter, 1911; Shane, 2003; Alvarez, Barney and Anderson, 2012) is that factors of this kind would seem to exist in a non-market state under which pricing and profit calculation are not just supremely difficult, but ontologically impossible. The theoretical step from creation of previously unknown factors or factor services, and capital goods to the entrepreneurial “bidding” for these factors in a market, has yet to be taken. The object to be traded may, in fact, have been created, but the market for it has not. There are neither buyers, nor are there sellers, and therefore no existent market prices and consequently no common denominator for calculation. There is only a single potential seller: the creator-owner.

THE MARKET STATE OF "NEW COMBINATIONS" AND THEIR PRICES

Our thought experiment elucidates a curious challenge to any resource-based theory of the entrepreneurial firm: the existence of the firm implies the creation of factors (new combinations) that did not previously exist in the market, since they support the specific tasks in the newly created production process. Those factors cannot have a market price. Within an existing firm, those factors will have a particular degree of specialization achieved through new, previously unknown combinations of specificities and utilizations of complementarities across the internally organized stages of production.

This newness of a factor does not necessarily entail the outright creation of a new physical machine or tool, although it does not preclude it. What is problematic for the entrepreneur is not the newness of the factor itself, but the lack of a market price for the *specific use* of a capital good in a particular production stage, and the consequent inability to correctly appraise the social value of the separate production stages carried

out by the new structure. The basic question that a factor’s market price answers is what the social value of this factor is in the expected use for which it is sold—relative to either its alternative uses, or the substitute capital goods available in the market.

In order to illustrate the function of the firm, we must consider in what form there is novelty, and thus whether there is novelty in the physical shape (creation) or discovery of a new “attribute” or use of existing goods (Barzel, 1997; Foss and Klein, 2012). In the former case, the entrepreneur establishes a new production structure by creating a previously inexistent capital good to be used in one (or more) stage(s) in the production process; in the latter, the entrepreneur uses existing capital goods in novel ways to produce consumer’s goods. We illustrate these cases in Figure 1, Quadrants II and III.

INSERT FIGURE 1 ABOUT HERE

Case I. Turning our attention to Figure 1, Quadrant II we consider our first case entrepreneurial activity, where existing factors for the production stages integrated in the firm are purchased in the market but used in new ways. In this state of affairs, market prices are available for all factors; it is only the service of those factors that are new. While prices for market factors exist, they do not represent the market valuation of the novel use imagined by the entrepreneur. In this case, the entrepreneur must estimate the potential change to the market price that the newly discovered use of the factor may lead to in order to remain profitable (Barney, 1991), and also estimate the value of these factors within the imagined production process. While the factor traded in the market is an economic good to the extent of the services for which it has been used, the new service imagined by the

entrepreneur is yet to become an economic good, and therefore is not (and cannot be) valued or priced. It is, as noted by Felin, et al. (2013) an “unpretestable but possible” opportunity (p.23). The market price of the physical good should therefore be expected to change as its new uses, due to our entrepreneur’s foresight, are revealed to competing entrepreneurs and affect the market prices for the good as well as substitutes and complements.

One implication of this perspective is that the calculation problem is an irreducible feature of the entrepreneurial landscape. Attempting to divide the world into “innovative” and “replicative” entrepreneurship (Shane, 2009; Acs, 2010) or conceptualizing some entrepreneurial opportunities as “discovered” and others “created” (Alvarez and Barney, 2010) will not resolve this problem. In cases where a market factor is used in a previously undiscovered way to produce an already-existing lower-order good (e.g. a discovered opportunity or a case of replicative entrepreneurship) we would expect that the imputed price would already reflect the value that consumers place on the goods for consumption, *considering the efficiency of existing production structures* (Strigl, 1934). As the entrepreneur introduces a new way of using these capital goods, the only change that we would expect would be due to increased supply as a result of the new (and presumably more efficient) use of factor(s), implying increased supply in the consumer market and, hence, lower-priced goods. However, the market prices of factors used by the entrepreneur in the new production structure allows for limited cost accounting, since market prices for the capital goods (though in other uses) and goods of the lowest order already exist. To the extent that they do not, that is, in the effect on consumers of the new use of capital goods, the entrepreneur provides the function of

exchanging present goods for future goods but still is unable to calculate the magnitude of the prices received in the future. In this simplest case and simplest form of entrepreneurial activity, we see that imputed factor price must necessarily change with this additional use to reflect the value that consumers place on the new good. It may also bring about a change in product prices, and therefore possibly a ripple-effect shift in consumer demand.

As an entrepreneur imagines a new, multi-stage structure of production to facilitate a more efficient production of an already-existing good in the market using existing market factors (see e.g. Adam Smith's (1776) "pin factory" example), judgment is only required for the internal organization of the firm (Alvarez and Barney, 2005) since the factors have market prices and the products produced have market prices. Yet, there are no market prices and, therefore, no rational appraisal of the individual tasks and production stages performed through the entrepreneur's new combination of resources. Thus, in any state of affairs under our first case there is no tractable mechanism to effectively and efficiently organize to manifest the imagined production structure, or to choose between alternative mechanisms for production. When all factors of production are available and priced, our entrepreneur can purchase factors, but has no guidance for the market price of outputs or organizing for production.

Case II. Let us now consider an alternative world, represented in Figure 1, Quadrant III, where entrepreneur creates a new factor of production that is not readily available in the market; for example, a new mechanical device such as a machine or tool. Here, as before, the entrepreneur is guided only by market prices for factors that are already traded in the

market; for example, the raw materials and labor used to build the machine. Prices for the factors used in building the machine should facilitate a basis for making calculations of the outlay (the monetary value foregone upon purchase) related to the machine's parts and construction process, but this does not help the entrepreneur to estimate the economic opportunity cost of having and using the machine. There is no guidance available to value the capital good coordinated and deployed in this alternate use. There are no prices at all, since the capital good is not available in the market.

While market prices will support the calculation of market value of the already-existing factors that the entrepreneur might select, or help to adjudicate between different factors, they cannot necessarily establish whether there is real value in the imagined production structure. For this to be possible, the value to consumers must first be acted upon in their combined willingness and ability to pay for the end product, and then imputed to the capital good in its present use. Yet this "chain of imputed value" does not yet exist; and, therefore, the price mechanism cannot be used to estimate whether these uses of factors will be efficient or not. And, while existing prices for consumer goods to be produced by the novel production structure can (at best) offer limited guidance given some degree of inertia around present prices, the exact future price cannot be known. Thus, the potential value for the envisioned production structure can be known *ex post*, when consumers in their buying (or not buying) provide the market valuation of the produced good and, hence, the capital structure for producing it. Again, in this state of affairs, the condition of the world in the future is ultimately unknowable *ex ante*:

A firm can estimate an implicit price when an external market exists; but when a market is absent, the good can have no price, whether implicit or explicit. Any figure could be only an arbitrary symbol. Not being able to

calculate a price, the firm could not rationally allocate factors and resources from one stage to another (Rothbard, 1962 [2004]: 613)

Neither the combination of resources established by the entrepreneur, nor the factors used to establish or run it, are traded in the market. The firm necessarily integrates several resources and more than one production stage in its internally created combination of resources, which suggests that there can be no rational basis for calculating the value of the whole structure, or its constituent parts, since they provide services that are specific or unique to the firm's production structure.

As in the first case, there are implications for organizing entrepreneurial activity. Any physical or intellectual process created by the entrepreneur cannot be separately appraised since it cannot be traded in the market—the entrepreneur can only estimate the value of the *whole process* from market-traded inputs to market-traded outputs. As in our first case, our entrepreneur cannot rationally choose between alternative means within the established production processes, and therefore the resource combination is by necessity integrated and subject primarily to the judgment of the entrepreneur for its internal organization. We conclude that there is not—and *cannot* be—any internal cost accounting to help the entrepreneur make rational decisions regarding the individual internal stages or resources in the integrated process. Here, we tip our hat to Coase, (1937) through Rothbard (1962), and onward: the internal processes of the firm cannot use the market price mechanism for coordination (Rajan, 2012). And, we add a line of our own: market prices and management/coordination costs may, in fact, explain when firms supplant markets and markets supplant firms (Williamson, 1975; Klein, Crawford and Alchian, 1978; Barzel, 1982), a theory of market failure alone is probably not a complete theory of the firm (Nickerson and Zenger, 2008) and it most certainly is not a

theory of firm emergence. Employing a nautical theme, tacking toward a theory of the entrepreneurial firm requires a story about the creation of new factors. Our line of reasoning suggests that the creation of market factors is only possible within firms, since creation—by definition—must be an activity that in itself as well as in its outcome lacks a market, and, consequently, market prices. Given these parameters, we can begin to articulate a more complete perspective on entrepreneurial judgment, and its importance not only for the creation, initiation, and maintenance of a particular production structure, but also to establish a particular internal “derived judgment” (Foss, Foss and Klein, 2006) for its internal organization.

CREATING NEW FACTORS (THE RAISON D'ÊTRE FOR THE FIRM)

We can see that that the calculation challenges faced by an entrepreneur are present in both known and foreseen, previously existing goods as well as previously unknown and unforeseen goods. However, in the case of the unknown and unforeseen, the market prices for the products have yet to be formed and profitability cannot be estimated. Not only does the entrepreneur, as a boundedly rational animal (Simon, 1957), lack the means to estimate the value of a novel product, such valuation is not just practically impossible, but theoretically impossible (McBride and Wuebker, 2013). Given this state of affairs, we conclude that there is no basis for the imputation process and, therefore, there cannot be entrepreneurial bidding for new factors.

We slouch along to an uncomfortable conclusion: our breezy description of the entrepreneur as a judgmental and energetic participant in factor market recombination skips over the fact that the entrepreneur cannot simply acquire factors in the market to

realize an entrepreneurial creation, since there is no market for the specialized resources his imagined production structure requires.

We suggest that the entrepreneur's solution to this dilemma is the firm. Not because, as received wisdom suggests, that an entrepreneur needs to establish a firm due to increased transaction costs related to the inability to perform cost accounting or engage in trade (Williamson, 1979; Conner and Pralahad, 1996). Rather, we propose that the entrepreneur will choose to establish a firm in order to realize his envisioned structure of production, previously unsupported by the prevailing market structure, and in so doing making the production structure possible despite the lack of imputed value (and, by implication, lack of factor markets). We suggest that a firm is best conceptualized as a solution to the calculation problem (or, more correctly, as a means for the entrepreneur to cope with a situation where calculation is impossible due to the lack of market).

The entrepreneur is aiming at establishing a production structure that is practically out of reach for the market through contracts or non-integrated trade since it depends on nonsalable goods. The existing factors and production structures are, tautologically, supported by the market and are necessarily within the limit of the market. Their existence is proof enough that this is the case. The entrepreneur, through imagining a yet-to-be-created, imagined-to-be more efficient, production structure aims to establish it outside of the limit of the market despite market incompatibility—but with the possibility of finding more efficient uses of resources through innovation, the division of labor, etc. In our view, the firm provides an entrepreneur with a “container” with which to evade incompatibilities with the existing market structure by integrating production stages. Said another way, the organization and internal structure of the entrepreneurial firm is a new

chunk of social reality (McBride, Theil, and Wuebker, 2013) that enables the entrepreneur to integrate (and encapsulate) a set of incompatible market structures and a vehicle with which to realize, negotiate, and eventually integrate that new set of production structures in the market (Bylund, 2010, 2011; McBride and Wuebker, 2013). The entrepreneurial firm, in its nascent stages, is a bundle of inefficiencies that resolves uncertainty, and provides a container from which to realize and experiment with new resource combinations.

Our perspective has implications beyond the organization of entrepreneurial activity, informing our understanding of “strategic entrepreneurship.” We propose a new perspective on the firm and competitive advantage. Historically, strategy scholars have conceptualized the platform from which the entrepreneur acts and creates competitive advantage. In contrast, we suggest that the *firm is the means through which such advantages are established*. In our view, the firm is an island of entrepreneurial innovation, which increases efficiency through increasing returns (returning to our thought experiment, this is the case in which new ways of producing existing goods are imagined and diffused) and provides the means through which goods otherwise not possible in the market are brought into being. The firm, we conclude, is the entrepreneur’s means of realizing an imagined competitive advantage. Whether this established advantage can be translated into a sustained one depends on the entrepreneur’s foresight, ability to renew, reorganize, and revitalize firm resources, and the adeptness at which the firm negotiates its way from institutional subjectivity to institutional objectivity and constructing a new economic reality (Searle, 1995; Smith,

Mark and Ehrlich, 2008). This activity, it seems to us, is the heart of “strategic entrepreneurship” (Ireland, Hitt and Sirmon, 2003).

As an entrepreneur establishes a firm, other entrepreneurs—perhaps with lesser original judgment, but sufficiently “alert” (cf. Kirzner 1973) to realize opportunities that have been created by the original entrepreneur—will follow. As they do, they are not able to simply emulate the firm for three reasons: (1) all of the factors used by the innovating firm are not traded in the market; (2) the specialized processes employed by the innovating firm may not be fully understandable from outside the firm, where neither resource attributes nor routines are known but only outputs are made available through trade; and (3) the skills and judgment of the human capital attempting to replicate the production structure of the innovating firm differ due to resource heterogeneity in the market and the specific judgmental strengths of the emulating entrepreneur. In attempting to reproduce the superior structure of production within the original firm, competing entrepreneurs will create a multitude of similar structures that mimic the observable (to them) components of the original production structure; some will underperform the original, and some may outperform it. Even though the emulation attempts may not be perfectly successful, the new firms are likely to largely adopt production structures that are similar to those in the original firm.

Thus, new firms bring new markets into existence by creating factors that are tradable on the market through effectively being substitutes for each other as well as the specific factors used in the original firm. The competitive process of imitating the original firm reduces the original entrepreneur’s “excess” uncertainty through creating markets for factors and capital goods used in the production structure. Factor markets are, therefore,

the effect of entrepreneurs creating firms in order to establish competitive advantages to gain profits—not the other way around.

The competitive market process constitutes a discovery process, where best practices are realized and adopted while lesser solutions are abandoned (Hayek, 1978). It, therefore, ultimately relieves the creating entrepreneurs of the uncertainty endemic to entrepreneurial action by establishing new markets of higher order goods in the entrepreneurial pursuit of profit. This, in turn, allows for and supports increased innovation and specialization in core competencies within firms. It also provides other entrepreneurs with opportunities for profit through supplying services of previously integrated functions that now become traded in the market.

We conclude that the creation of firms—as entrepreneurs’ means to establish specialized production structures through implementing innovative creation and combinations of resources—is an important driving force for the overall adoption of increasing productivity in the market.

CONCLUSION

Young industries are often strangers to the established economic system. They require new kinds of qualities of materials and hence make their own; they must overcome technical problems in the use of their products and cannot wait for potential users to overcome them; they must persuade customers to abandon other commodities and find no specialized merchants to undertake this task. These young industries must design their specialized equipment and often manufacture it, and they must undertake to recruit (historically, often to import) skilled labor. When the industry has attained a certain size and prospects, many of these tasks are sufficiently important to be turned over to specialists. It becomes profitable for other firms to supply equipment and raw materials, to undertake the marketing of the product and the utilization of by-products and even to train skilled labor (Stigler, 1983: 190).

In this paper we explore the creation of factor markets, proposing that by connecting the Austrian school to resource-based theory we could elucidate a perspective on entrepreneurial organization in which a firm performs an important function as a precondition to factor markets, rather than the other way around. We did so by detailing

an entrepreneurial paradox—the calculation problem—in which, irrespective of your religious upbringing in entrepreneurship (endogenous or exogenous opportunities) or any particular entrepreneurial context (replicative or innovative entrepreneurship) the factors entrepreneurs either invent or combine exist in a non-market state in which pricing and profit calculations are not just difficult, but they are ontologically unknowable. Since productivity is increased through innovation and division of labor and, therefore, any entrepreneurial advance must by necessity encompass more than one production stage, the market for substitute capital goods can offer no guidance.

We noted that the calculation problem poses a particular challenge to resource-based conceptions of the entrepreneurial firm, since the existence of the firm implies the creation of factors (or at the very least, new combinations) that did not previously exist in the market, since these factors support the specific tasks in a newly created production process. And, if one takes the view that entrepreneurial opportunities are endogenously formed rather than exogenously encountered, the calculation problem is exacerbated. Any conception of the entrepreneurial process or an entrepreneurial theory of the firm that hinges either on endogenous opportunity formation, resource-based logic, or both requires a narrative about the creation of new market factors

We argue that the entrepreneur's means to overcome the calculation problem (and create new market factors) is the firm. Rather than concluding that an entrepreneur needs to establish a firm due to increased transaction costs, unknowable cost accounting, or to engage in trade, we have suggested that an entrepreneur must establish a firm because it is the only way that the structure of production she has envisioned can be established. The establishment of that new production structure necessitates a negotiation and an

integration of a new set of production stages into the already-existing market, and the springing into existence of a host of competitive, imperfectly imitative, production structures by competitors not only helps to establish a new factor market, but also provides the impetus for the search for competitive advantage within the newly-defined market.

In our view, the firm is a means to realize an imagined competitive advantage; it is a “container” in which the negotiation process with the market is necessarily completed. It cannot be conducted on the spot market, through contracting. The firm is an island of innovation for productivity—economically inefficient in the short term, perhaps, but epistemologically necessary as a carrier for a new set of market factors shrouded as a set of new institutional facts. It is through this process that, we believe, goods otherwise not possible in the market are brought into being. We are suggesting that firms may be the reason for the emergence of factor markets, and therefore that firms—as important entrepreneurial means for achieving imagined ends—play an essential role in economic calculation by allowing entrepreneurs to participate fully in the competitive market process.

There are several “gains from trade” made possible through our perspective. First, we have provided a tractable account of where factor markets come from, a necessary foundation for any account of a resource-based view of the entrepreneurial firm. Our insights also have implications for transaction cost theorie(s) of the firm, as Ouchi and Barney (1988:76) note that “the theoretical task of explaining why firms exist is equivalent to explaining why markets do not exist for a particular transaction”. We also contribute to a stream of research on resource development heterogeneity and its

relationship to firm heterogeneity (Chatain and Zemsky, 2011; Ruiz-Aliseda and Zemsky, 2006; Carnabuci and Operti, 2013), offering a novel perspective on competitive advantage. While our explanation for the roots of that advantage is most salient in the context of entrepreneurship, our perspective also informs recent work in strategy exploring “how firm heterogeneity is an endogenous creation of economic actors” (Mahoney and Pandian, 1992: 374) and the development of resources before sale in the factor markets (Chatain, 2013). In our account, firms are created as a means toward competitive advantage, and where the competitive market process creates factor markets that may allow the entrepreneur to procure created resources in the market. We provide hints of the root of the elusive “sustained advantage” by making the case that competitive advantage can be created, at least in part, through expert bidding for strategic factors in the market—yet these markets do not initially exist, but must be created by entrepreneurs striving for profit by attempting to negotiate the insertion of a new set of institutional facts and market factors—e.g. competing integrated processes (called firms). Competitive advantage is, here, theoretically inseparable from the existence of firms; the firms themselves are the mechanism through which advantage is established and sustained.

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Figures

Figure 1: relationship between novelty and known goods and their market pricing

		Factor ontology	
		Existing in the market	New
Use of factor	Known, traded	I Market prices Full calculability	
	Novel	II Market prices for <i>other</i> uses Indirect calculability	III No market prices No calculability