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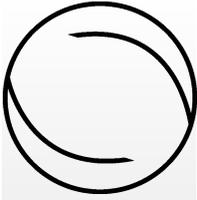
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Peripheral Vision

Original and Derived Judgment: An Entrepreneurial Theory of Economic Organization

Kirsten Foss, Nicolai J. Foss and Peter G. Klein

Abstract

Recent work links entrepreneurship to the economic theory of the firm, using the concept of entrepreneurship as judgment introduced by Frank Knight. When judgment is complementary to other assets, it makes sense for entrepreneurs to hire labour and to own assets. The entrepreneur's role, then, is to arrange or organize the human and capital assets under his or her control. We extend this Knightian concept of the firm by developing a theory of delegation under Knightian uncertainty. What we call *original judgment* belongs exclusively to owners, but owners may delegate a wide range of decision rights to subordinates, who exercise *derived judgment*. We call these employees 'proxy-entrepreneurs', and ask how the firm's organizational structure — its formal and informal systems of rewards and punishments, rules for settling disputes and renegotiating agreements, means of evaluating performance and so on — can be designed to encourage forms of proxy entrepreneurship that increase firm value while discouraging actions that destroy value. Building on key ideas from the entrepreneurship literature, Austrian economics and the economic theory of the firm, we develop a framework for analysing the trade-off between productive and destructive proxy entrepreneurship. We link this analysis to the employment relation and ownership structure, providing new insights into these and related issues in the economic theory of the firm.

Keywords: judgment, entrepreneur, delegation, employment relation, ownership

Introduction

Modern firms are increasingly encouraging entrepreneurship at all levels of the organization (e.g. Day and Wendler 1998; Yonekura and Lynskey 2002). To foster entrepreneurial attitudes and behaviour, managers must give significant discretion to employees. Delegated rights can, however, be used in both beneficial and harmful ways, presenting managers with a trade-off between encouraging beneficial entrepreneurship and facilitating harmful entrepreneurship inside the firm. Building on key ideas from the economics of entrepreneurship (Knight 1921; Casson 1982), Austrian economics (e.g. Von Hayek 1945; Von Mises 1949; Kirzner 1973) and the

Kirsten Foss
Copenhagen
Business School,
Denmark

Nicolai J. Foss
Norwegian School
of Economics and
Business
Administration;
Copenhagen
Business School,
Denmark

Peter G. Klein
University of
Missouri, USA

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theory of the firm (Coase 1937; Holmström 1979; Hart 1995; Williamson 1996), we develop a framework for analysing this trade-off. We link this analysis to issues of the employment relation and asset ownership, arguing that our entrepreneurial perspective provides a fresh look at these classical issues in organizational theory.

We begin with recent work linking entrepreneurship to the economic theory of the firm using the Knightian concept of entrepreneurship as judgment (Casson 1982; Foss 1993; Langlois and Cosgel 1993; Foss and Klein 2005). The foundation of this approach is the proposition that entrepreneurial judgment is costly to trade, an idea originally suggested by Knight (1921). When judgment is complementary to other assets, it makes sense for entrepreneurs to hire labour and own assets. The entrepreneur's role, then, is to arrange or organize the human and capital assets under his or her control. This role becomes particularly important in a dynamic economy where agents face unforeseen changes, so that sequential decision-making, such as revising business plans that embody entrepreneurial judgment, is necessary (Coase 1937; Von Hayek 1945; Williamson 1996). Asset ownership plays a critical role in facilitating the entrepreneur's revision of such plans. Thus, the exercise of entrepreneurship is closely tied to resource ownership and the employment relation, providing a rationale for the existence of the firm.

The claim that entrepreneurial judgment is manifested in ownership is straightforward for small firms with one or few owners. It is harder to see the entrepreneurial element in ownership within large, complex organizations with fragmented ownership and decentralized decision-making.¹ We argue that a type of Knightian entrepreneurship — what we term *original judgment* — is inseparable from resource ownership, and is exercised by owners even if they delegate most day-to-day decisions to subordinates. In firms with decentralized organizational structures, employees have considerable latitude, but, as non-owners, their discretion is limited or constrained. In our framework, employees holding decision authority can be described as 'proxy entrepreneurs,' exercising delegated or *derived judgment* on behalf of their employers. Such employees are expected not to carry out routine instructions in a mechanical, passive way, but to apply their own judgment to new circumstances or situations that may be unknown to the employer. This type of arrangement is typically seen in the management literature as a form of empowerment, simultaneously encouraging employees to utilize the knowledge best known to them and giving them strong incentives to do so (e.g. Hill and Amabile 1993; Osterloh and Frey 2000; Gagné and Deci 2005). Such discretion is ultimately limited, because owners retain the rights to hire and fire employees and to acquire or dispose of complementary capital goods.² The precise manner in which employees' discretion is limited is given by the firm's organizational structure — its formal and informal systems of rewards and punishments, rules for settling disputes and renegotiating agreements, means of evaluating performance and so on. Under some organizational structures, the employment relation is highly constrained, giving employees few opportunities to engage in proxy entrepreneurship. In other firms the employment relation may be much more open. Granting such latitude to employees brings benefits and costs. As agents become less constrained, they are likely to engage in both 'productive' proxy entrepreneurship — activities that increase

joint surplus — and ‘destructive’ proxy entrepreneurship, meaning activities that reduce joint surplus. One important function of contracts and organizational design is to balance productive and destructive proxy entrepreneurship by selecting and enforcing the proper contractual constraints. The optimal organizational structure, in the Knightian perspective, is one that encourages employees to use derived judgment in ways that increase firm value while discouraging unproductive rent-seeking, influence activities and other forms of proxy entrepreneurship that destroy value. The allocation of ownership rights and the characteristics of the employment relation thus matter for the efficient exercise of judgment. While not at variance with established approaches to the economic theory of the firm (e.g. Holmström 1979; Hart 1995; Williamson 1996), our approach goes beyond this literature.

The paper proceeds as follows. We begin by outlining the judgment approach to entrepreneurship, linking it to resource ownership, and distinguishing between original and derived forms of judgment. Next, we model, by means of a simple graphical example, the trade-offs between destructive and productive derived judgment. We argue that ownership of assets is a means for an entrepreneur holding original judgment to implement his or her preferred extent of derived judgment in the firm. The overall contribution of this paper is to show how the notion of entrepreneurship as judgment enriches the theory of economic organization. The Knightian approach to entrepreneurship, we argue, complements traditional approaches to the modern economic theory of the firm (i.e. moral hazard, the hold-up problem) (Holmström 1979; Hart 1995; Williamson 1996; Kim and Mahoney 2005).

Judgment and Delegation

Entrepreneurship as Judgment

Foss and Klein (2005) show how the theory of entrepreneurship and the theory of the firm can be linked using the concept of entrepreneurship as judgment. This view traces its origins to the first systematic treatment of entrepreneurship in economics, Richard Cantillon’s *Essai sur la nature de commerce en général* (1755). It conceives entrepreneurship as judgmental decision-making under conditions of uncertainty. Judgment refers primarily to business decision-making when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown (what Knight terms ‘uncertainty’, rather than mere probabilistic risk). More generally, judgment is required ‘when no obviously correct model or decision rule is available or when relevant data is unreliable or incomplete’ (Casson 1993).

As such, judgment is distinct from notions prevalent in the entrepreneurship literature, such as boldness, daring or imagination (Begley and Boyd 1987; Chandler and Jansen 1992; Aldrich and Wiedenmayer 1993; Hood and Young 1993; Lumpkin and Dess 1996), innovation (Schumpeter 1911), alertness (Kirzner 1973), leadership (Witt 1998a, 1998b) and other concepts of entrepreneurship that appear in the economics and management literatures. Judgment

must be exercised in mundane circumstances, as Knight (1921) emphasized, for ongoing operations as well as new ventures. Alertness is the ability to react to *existing* opportunities, while judgment refers to the creation of *new* opportunities.³ Those who specialize in judgmental decision-making may be dynamic, charismatic leaders, but they need not possess these traits. In short, decision-making under uncertainty is entrepreneurial, whether it involves imagination, creativity, leadership and related factors or not.

Knight (1921) introduces judgment to link profit and the firm to uncertainty. Judgment primarily refers to the process of businesspeople forming estimates of future events in situations in which the relevant probability distributions are themselves unknown.⁴ Entrepreneurship represents a particular form of judgment, one that cannot be assessed in terms of its marginal product and which cannot, accordingly, be paid a wage (Knight 1921: 311). Various reasons for this asserted non-contractibility are given in the literature. The 'decisive factors', Knight argues, 'are so largely on the inside of the person making the decision that the "instances" are not amenable to objective description and external control' (Knight 1921: 251). Kirzner (1979: 181) argues that 'entrepreneurship reveals to the market what the market did not realize was available, or indeed, needed at all'. Casson (1982: 14) takes a more Schumpeterian position, arguing that '[t]he entrepreneur believes he is right, while everyone else is wrong. Thus the essence of entrepreneurship is being different — being different because one has a different perception of the situation' (see also Casson 1997; Demsetz 1988). The implication of these arguments is that there is no market for the judgment that entrepreneurs rely on, and therefore exercising judgment requires the person with judgment to start a firm. Of course, entrepreneurs can hire consultants, forecasters, technical experts and so on. However, in doing so they are exercising their own entrepreneurial judgment about whom to hire.

Original and Derived Judgment

Original judgment refers to the entrepreneurial formation and execution of a business idea. The idea may be anything from a loose, overall concept of how to combine inputs into outputs to a carefully specified, detailed business plan. A business plan involves the identification and coordination of inputs and activities designed to make the business profitable. If the plan is highly detailed, the entrepreneur may delegate parts of its implementation to agents. However, in this case the entrepreneur will limit the employees' entrepreneurial behaviour, as the essential actions to be taken are already laid out in the plan. If the entrepreneur recognizes a need for ongoing adjustment of the business plan, and wishes to take advantage of specific knowledge he or she does not possess, he or she will delegate the right to exercise derived judgment to employees.⁵

The hierarchy of delegation may be deep and nested. Owners may choose to exercise original judgment directly, in the day-to-day management of assets, or to delegate some or all proximate decision rights to subordinates. Owners may be represented by a board of directors that decides which decision rights to delegate to managers, who exercise derived judgment over resource uses (and try to communicate such judgments to the board). Managers may then further

delegate their own derived judgment rights to lower-level employees. As Knight (1921) argued, corporate governance is a nested hierarchy of judgment. In an important sense, however, original judgment remains with the owner, because as a minimum, even the most 'passive' owners must choose someone to manage the asset. As Rothbard (1962: 538) puts it:

'Hired managers may successfully direct production or choose production processes. But the ultimate responsibility and control of production rests inevitably with the owner, with the businessman whose property the product is until it is sold. It is the owners who make the decision concerning how much capital to invest and in what particular processes. And particularly, it is the owners who must choose the managers. The ultimate decisions concerning the use of their property and the choice of the men to manage it must therefore be made by the owners and by no one else.'⁶

The claim that owners make the 'ultimate' decisions about resource use does not imply that owners supply the complete *content* of the firm's entrepreneurial plans. Instead, the owners, or the board of directors on behalf of the owners, may rely on plans and proposals developed by hired managers or outside consultants. In this situation, the board's judgment consists of deciding whether to commit resources to implement the business plan presented by the manager or consultant. In Fama and Jensen's (1983) terminology, owners exercise *decision control* while delegating *decision management* to non-owners.

In large, complex organizations, judgment is delegated across many levels. As the success of the business plan likely depends on the actions of top managers, the board delegates considerable discretion to them. These managers, in turn, delegate discretion to their own subordinates, and so on throughout the organization. Thus, all levels below the owners exercise judgment that is derived from the original judgment of the owners. For ease of exposition, in the following we focus on a simple model of a single entrepreneur-owner holding original judgment, and an employee who can exercise derived judgment. This employee exercises derived judgment in the sense that the entrepreneur delegates discretion to him but constrains his entrepreneurial activities, where the relevant constraints are derived from the original business plan and relate to, for example, the type of activities and the means of coordination described in that plan.

Derived Entrepreneurship: Productive and Destructive

The Productive/Destructive Distinction

In most of the entrepreneurship literature, both in economics and in management, there is a general, though usually implicit claim that all entrepreneurial activity is socially beneficial (e.g. Von Mises 1949; Kirzner 1973; Yonekura and Lynskey 2002; Shane 2003). However, as Baumol (1990) pointed out, entrepreneurship may be socially harmful if it takes the form of rent-seeking, or attempts to influence governments or management to redistribute income in a way that consumes resources and brings about a social loss. It is therefore necessary to introduce a distinction between productive and destructive entrepreneurship. This distinction applies in principle to both original and derived entrepreneurship. However, in the following we only consider the distinction in the context of derived entrepreneurship.

For employees to exercise derived judgment they must have some discretion. When employees use their discretion to expend effort creating or discovering new attributes and taking control of these in such a way that value creation is reduced, we shall speak of 'destructive entrepreneurship'. Thus, discovering new forms of moral hazard (Holmström 1979), creating hold-ups (Williamson 1996) and inventing new ways of engaging in rent-seeking activities (Baumol 1990) are examples of destructive entrepreneurship. 'Productive entrepreneurship' refers to the creation or discovery of new attributes that lead to an increase in value creation. For example, a franchisee may discover new local tastes that, in turn, may form the basis for new products for the entire chain; an employee may figure out better uses of production assets and communicate this to the total quality management (TQM) team of which he is a member; etc. In the following, we use this distinction to sketch an entrepreneurial approach to internal organization.

As described above, we assume that employees, while not exercising the original judgment, exercise derived judgment through decision rights that are delegated to them. As proxy entrepreneurs, they make decisions about the use of resources owned by others.⁷ These decisions may be value-creating (productive) or value-destroying (destructive). Although original judgment cannot be assigned a marginal product, owners can form expectations about the costs and benefits of employees' derived judgments.

Managing Derived Judgment

Many firms operate on the presumption that beneficial effects can be produced by giving employees more rights to work with company assets, monitoring them less and trusting them more. We shall call this a matter of 'reducing constraints on employees' in various dimensions. For example, firms such as 3M allocate time to research employees that they are basically free to use however they wish. This practice, it is hoped, will result in serendipitous discoveries. Many consulting firms have adopted similar practices. Industrial firms have long known that employees with many decision rights — researchers, for example — must be monitored and constrained in different, and typically much looser, ways than those employees charged only with routine tasks. More broadly, the increasing emphasis on 'empowerment' during recent decades reflects a recognition that employees derive a benefit from controlling aspects of their job situation (Osterloh and Frey 2000; Gagné and Deci 2005). The total quality movement emphasizes that delegating various rights to employees motivates them to find new ways to increase the mean and reduce the variance of quality (Jensen and Wruck 1994). To the extent that such activities increase created value, they represent productive entrepreneurship.⁸

Stimulating the productive creation and discovery of new asset attributes by reducing constraints on employees results in principal-agent relationships that are more open-ended, because agents get opportunities to exercise their own, often far-reaching, judgments. However, reducing the constraints that agents face introduces potentially destructive proxy entrepreneurship. Managing the trade-off between productive and destructive proxy entrepreneurship thus becomes a critical management task.

How can firms reduce the chance that derived judgment will be exercised in ways that are detrimental to the firm? In other words, how can destructive proxy entrepreneurship be minimized? Firms may delimit employees' use of assets, such as telephone and internet, by specifying their use rights over the relevant assets, instructing them to act in a proper manner towards customers, to exercise care when operating the firm's equipment, and the like. However, firms are unlikely to succeed entirely in their attempt to curb such activities. Monitoring employees may be costly; moreover, employees may creatively circumvent constraints, for example by inventing ways to hide their behaviour. Although firms may know that such destructive entrepreneurship takes place, they may prefer not to try to constrain it further. This is because the various constraints that firms impose on employees (or, more generally, that contracting partners impose on each other) to curb destructive entrepreneurship may have the unwanted side effect that productive entrepreneurship is stifled (see Kirzner 1985). More generally, imposing (too many) constraints on employees may reduce their propensity to create or discover new attributes of productive assets within the limits set by the business plan.

In this context, the employment relation and asset ownership are important because they give owner-entrepreneurs the rights and the ability to define formal and informal contractual constraints, that is, to choose their own preferred trade-offs. Ownership by conferring authority allows the employer-entrepreneur to establish his or her preferred organizational structure — and therefore a certain combination of productive and destructive entrepreneurship — at lowest cost. This function of ownership is particularly important in a dynamic world (Schumpeter 1911; Kirzner 1973; Littlechild 1986; D'Aveni 1994), where the trade-offs between productive and destructive entrepreneurship inside the firm are likely to change as the entrepreneur-owner revises his judgment.

An Example

Consider a relation between two actors, Jack and Jill. Cooperation between Jack and Jill generates gains from trade because their services are complementary. Each can exercise either original or derived judgment. Assume that the relation is an employment relation and that it involves the use of an asset. The relation is only productive if the asset is used (cf. our earlier remarks on judgment and asset ownership). This asset has multiple attributes (Barzel 1997), that is, multiple functions, uses and characteristics. Given Knightian ignorance and uncertainty, Jack and Jill do not know all relevant present and future attributes of the asset. Instead, attributes must be discovered, over time, as the asset is deployed in production. The relation can be organized so that Jack is employer and Jill employee, or vice versa. The asset may be owned by Jack or by Jill. In this mini-economy (cf. Holmström 1999), what allocation of ownership and assignment of roles of employer and employee maximizes value?

The employer exercises original judgment by conceiving and implementing a business plan. The employee exercises derived judgment in executing all or elements of that plan. The employer puts the plan in place by instructing and monitoring the employee in accordance with the plan; for example, by monitoring

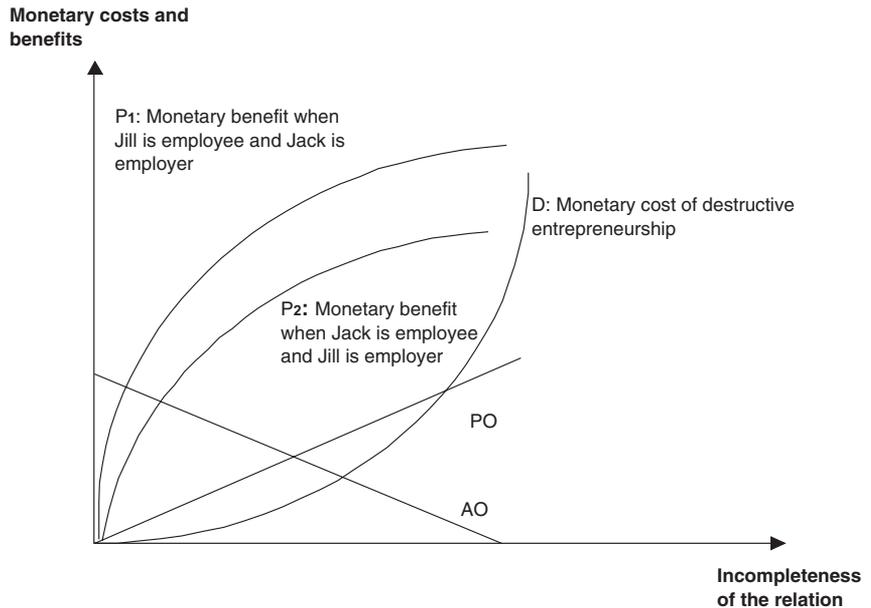
whether the employee maintains the value of the business plan by keeping the required quality levels of the product or service, physical assets, suppliers, etc. The employer not only forms original judgment, but also revises the business plan in the course of the relation as he discovers new uses of the assets in the project. As the employee is also equipped with entrepreneurial abilities; he or she may discover hitherto undiscovered attributes of the asset in the relation. Some of these discoveries will add to the value of the business plan, either by adding elements to the plan or increasing the effectiveness of the implementation of the plan. For example, in a restaurant chain, the discovery, by a local manager, of a new dish may add value to the overall chain.

The employment relation is constrained in several dimensions. There are limits to what the employee can do, as well as when, how, with whom, etc. In other words, the decision (property) rights held by employee are circumscribed by the employer (cf. Jones 1983). The number, scope and character of such constraints are choice variables (imposing them on the employee obviously requires bargaining power; we deal with this later). The employer may issue more or less detailed instructions. At one end of the spectrum, the employer instructs the employee about everything; no scope is left for derived judgment. At the other end, the employee has very considerable discretion; he has virtually full scope for exercising his or her derived judgment. Here we use the terminology that the relation can be made more or less 'incomplete.'⁹ Less complete relations are those that give the employee more discretion. To abstract from enforcement issues (which are well treated in the modern economic theory of the firm), we assume that all the constraints that the employer specifies can be costlessly enforced, once implemented. What may require bargaining power, however, is the implementation of the employer's preferred constraints.

Value Creation as a Function of Entrepreneurship

As suggested above, there are costs as well as benefits associated with the relaxation of employment constraints, and, hence, an optimum level of incompleteness that is larger than zero. Figure 1 maps Jack and Jill's expectations (we assume these coincide) with respect to the effect on firm value of the employee's productive and destructive proxy entrepreneurship as functions of the incompleteness of the relation when combined with the employer's original judgment, as embodied in the business concept. The trade-off may be regulated by means of the constraints that are placed on the employee, for example, by determining the budgets to which employees have access (Jensen and Meckling 1992), the activities they can engage in (Holmström 1989), the people with whom they can work (Holmström and Milgrom 1990), the type of equipment to which they have access and how they are allowed to operate that equipment (Barzel 1997).¹⁰ Such specifications of decision rights are simultaneously specifications of incompleteness. To simplify, one may think of 'the degree of incompleteness' in terms of the time that the employee is allowed to use corporate resources (including their own work time) to conduct 'research', that is, activities that are not directly prescribed by the employer—owner, as in the above example of 3M allowing their research personnel very considerable discretion.

Figure 1.
Monetary Surplus
as a Function of
Entrepreneurship



The P-curve then shows the benefits that may result from such *productive* proxy entrepreneurship as a function of the free time the agent is given. The P-curve thus maps those new discoveries of the employee that, when implemented, complements the employer's original judgment. The claim is that, as the employee is given more freedom, there is a greater probability that he or she will discover more beneficial attributes of the productive asset he or she operates. For example, the probability increases that the employee may discover new ways of making the asset more effective or new markets to which the asset's services may be deployed. The relation between total benefits and more free time is a strictly concave one. The decreasing marginal returns from new discoveries may be caused by the increasing difficulties of implementing the new discoveries, given that the employer and the employee are constrained in terms of the time that is available for productive activities. Alternatively, the employee's attention is more focused on making valuable discoveries when he or she has less free time than when he or she has more.

Because of differential entrepreneurial capabilities, and the complementarities between Jack and Jill's judgments, it matters for the joint monetary surplus from the relation who assumes the role of employer, the principal, and who is the agent (and as we argue later, who owns the asset). As shown in Figure 1, joint monetary surplus is higher when Jill is employee and Jack is employer.

However, there are also costs to giving the employee more free time for discovery, namely destructive entrepreneurial activities. The D-curve shows the costs from *destructive* proxy entrepreneurship as a function of the free time the employee is given.¹¹ The claim is that, as the employee is given more freedom, there is a greater probability that he or she will discover new ways of destroying

value. For example, the probability increases that the employee may discover new ways of misusing equipment, engaging in wasteful new projects, etc. Thus, with increased discretion over the multi-attribute asset, the employee will discover more new ways of controlling attributes, which increases the employee's own benefit, but reduces expected joint surplus.

The Parties' Preferred Constraints

Although the different degrees of incompleteness represent differences in created value for the different teams (i.e. {Jack as employer, Jill as employee}, {Jill as employer, Jack as employee}), we cannot identify the preferred points of the parties until we have taken full account of their costs and benefits, that is, their opportunity costs and the way in which they share the joint monetary surplus from the relation.

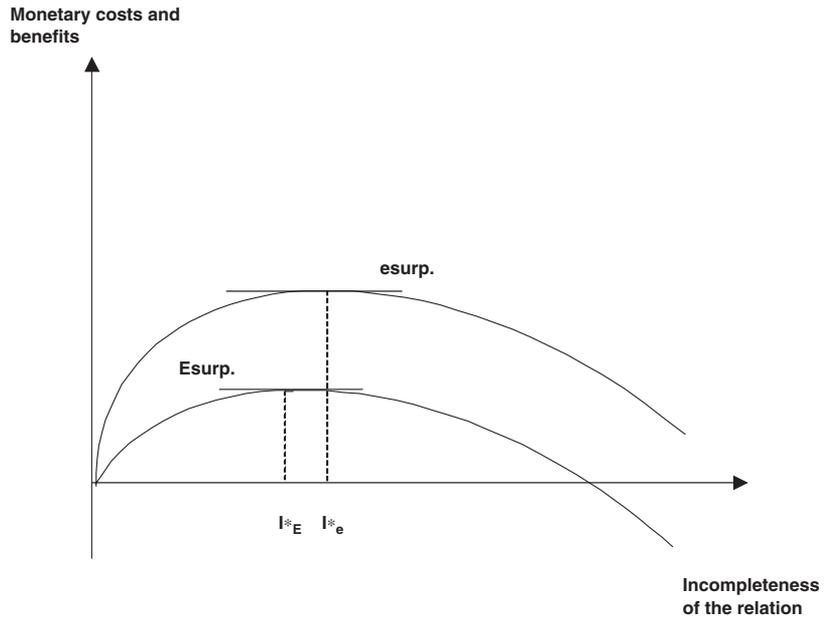
With respect to the *employee*, we assume that she realizes relationship-specific private benefits (i.e. a non-transferable utility) of engaging in entrepreneurial activities and that this provides her sufficient motivation.¹² Because of these benefits, the employee suffers opportunity costs of being constrained.

The AO curve in Figure 1, assumed to be linear, represents the employee's opportunity costs of being constrained. These costs are inversely related to the degree of incompleteness. The employer suffers opportunity costs (the PO curve) of letting the employee exercise judgment by spending work time and other corporate resources on activities that may lead to discovery, because such resources could have been spent on routine activities. We assume that these costs are a linear function of the time given to the employee. Both parties share the monetary joint surplus in some proportion. We can assume, as is conventional, that they share 50:50. The employee's total benefits are thus the sum of her share of the joint surplus plus her private benefits, while the employer's net benefits are simply his share of the surplus minus his opportunity costs. Given the way these curves have been drawn, the team that maximizes net created value (monetary) is the one where Jack is employer and Jill is employee.

Given the specification of costs (including opportunity costs) and benefits in Figure 1, Figure 2 shows the preferred constraints of the parties. Figure 2 depicts a curve, *Esurp.*, which represents the employer's share of the created value (minus his opportunity costs)¹³ and a curve, *esurp.*, which represents the employee's share of the surplus plus her private benefits.¹⁴ Given this, the employer's preferred degree of contractual incompleteness is given by I^*_E and the employee's is given by I^*_e . Thus, the parties disagree about how many constraints should be imposed upon the employee! The parties may strike any contract between I^*_E and I^*_e (this will always be beneficial compared to a situation of no contract). However, given the assumption that a part of the employee's total benefits and the employer's costs are private, bargaining is likely to be costly and dissipate value.

In fact, as the example is constructed, no sharing rule can generate agreement on the preferred degree of contractual incompleteness, and any sharing rule will therefore cause some inefficiency. Moreover, according to Figure 2, it is more lucrative to be an employee than to be a principal, which may imply that the party who holds comparative advantages in forming original judgment (i.e. Jack, in Figure 1) may prefer to be an employee with the party who is comparatively

Figure 2.
The Parties' Preferred
Degree of Incompleteness



disadvantaged in forming original judgment as a employer (i.e. Jill, in Figure 1). This is clearly inefficient: As the example has been constructed, the team in which Jack is employer and Jill is employee creates more value than the other team.

In a zero transaction cost world, this inefficiency may be handled through the appropriate choices of sharing rules, bribes, and contractual constraints (Coase 1960). However, bargaining costs may swamp the benefits from such arrangements (Wernerfelt 1997). Given bargaining costs, it matters who sets sharing rules and contractual constraints. If, for example, the employee can set the constraints but cannot bribe the principal, not even 100 % residual claimancy will make it attractive to become employer, since, in this case, the agent will prefer total absence of constraints, which in turn means that joint monetary surplus will be zero (and the employer still has to suffer the opportunity costs of the employee's entrepreneurial activities). The question, then, is how these inefficiencies are minimized, that is, choosing the efficient team (i.e. team {Jack is employer, Jill is employee} or {Jill is employer, Jack is employee}), sharing rules and contractual constraints. We argue that ownership to the asset in the relation plays a key role with respect to all three issues.

Asset Ownership

Ownership Facilitates Entrepreneurship

Ownership plays a key role in easing entrepreneurship and exchange (i.e. minimizing costs of dissipation). Asset ownership confers a *bundle* of rights,

including rights to hitherto unknown attributes of the relevant asset. Ownership reduces information, communication and contracting costs relative to a situation in which it was necessary to contract over all these rights. Thus, ownership eases the implementation of entrepreneurial judgment in a productive venture by allowing entrepreneurs to acquire, in one transaction, a bundle of rights to attributes (i.e. a distinct asset). This means that the parties do not have to engage in costly bargaining over many rights to single attributes (Barzel 1997). The dissipation of value is at a minimum. Moreover, ownership also facilitates the use of entrepreneurial judgment in a productive venture by conferring a legally recognized right to define contractual constraints (Coase 1937; Williamson 1996).

Recall now the possible inefficiency caused by the individual with comparative advantages in forming original judgment (here, Jack) wishing to assume the role of employee and being directed by the comparatively disadvantaged individual (here, Jill) because this would give him higher returns. This inefficiency may be avoided if somehow Jack can be made just as well off as employer in the efficient team as employee in the inefficient team. Simply adjusting the sharing rule with respect to the monetary surplus to compensate Jack will not do: If Jack receives, for example, 100% of the surplus, this will not compensate him, if Jill keeps the right to set the constraints. In fact, the greater the employer's share in the surplus, the greater will be the employee's incentive to choose constraints that maximize his or her own private benefits at the cost of the joint monetary surplus.

The power to set constraints is conferred by asset ownership. Thus, an employer who owns the asset can set constraints in such a way that he or she can influence the size of the surplus that will be shared among the parties, and in this way make sure that he or she will be actually be compensated for assuming the role of principal in the efficient team. In other words, ownership has the function, in our example, of minimizing the dissipation of value — it means that Jack and Jill do not have to engage in costly bargaining — and of selecting the efficient team, that is, the one that best utilizes the parties' comparative advantages in forming original and derived judgment. To put it in a compact manner, ownership is a means of implementing the principal's preferred degree of incompleteness in a low-cost way.

Although we have presented our arguments in the context of a static setting, the above functions of ownership are particularly important in a dynamic context, because in such a context an ongoing process of entrepreneurial creation and discovery will require that constraints in a relation are redefined. Thus, in terms of Figure 1, the slopes of the D- and the P-curves are likely to change over time as a result of entrepreneurial activities on the part of both the agent and the principal. The power conferred by ownership allows the principal to adjust the level of contractual constraints to ensure that he or she has incentives to maintain the role of principal in the efficient team, realizing comparative advantages of entrepreneurship. Indeed, as noted below, the notion that contractual constraints define the scope of entrepreneurship, rather than simply allowing agents to choose the values of particular variables with known distributions, is an inherently dynamic, forward-looking concept of organizational design.

Other Applications

Our theory of ownership as a means of implementing a preferred set of constraints in a productive relation, and therefore a certain combination of productive and destructive entrepreneurship, has application beyond the determination of who should be the owner. It can also cast light over the more general issue of why a certain agent owns a certain asset, independent of his relationships with other agents. The theory of ownership presented in Hart (1995) revolves around the hold-up problem: One should own those assets that are complementary to one's (non-contractible) human capital investments, since this increases (ex post) bargaining power and therefore the rents that may be expected from investments. This seems to be a less-than-general explanation: people own many things, the ownership of which cannot be explained by hold-up considerations (e.g. standard kitchen utensils in a household).

Another common idea is that those who discover new knowledge have an incentive to use it themselves because of the transaction costs of knowledge transfer. Given this, there is a general tendency for ownership of complementary assets to move to the knowledge source (rather than the other way round), because knowledge is harder to trade than most other resources (Foss 1993; Casson 1997). The problem with this explanation is that it does not allow to distinguish analytically between ownership and rental agreements. Our theory can do this, however.

For example, suppose that a car rental company put very few constraints in the contracts they offer renters, so that the latter could use the company's cars for the purpose of running a taxi business or a truck operation. Thus, the company does not much constrain productive *and* destructive proxy entrepreneurship. In reality, however, a car rental company will normally prefer to circumscribe, in a relatively detailed way, the possible productive and destructive entrepreneurship that the renter can engage in. For example, usually, rental cars cannot be used for commercial purposes, among other things because the company fears that the car will not be driven in a proper way, and that this will diminish the demand of other renters for the car's services. Thus, in order to maintain demand and control externalities, the company constrains the use of the car in many ways. However, a renter who wishes to use a rental car for entrepreneurial, commercial purposes is not likely to find the constraints imposed by the car rental company to be optimal. Hence, that person may prefer to own the car in order to be able to impose his or her own preferred way of using the car: that is, he or she owns the car in order to carry out his or her own entrepreneurial plans.¹⁵

Conclusion

Contribution to Theory

In the entrepreneurial judgment approach, the theory of the firm becomes a theory of how the entrepreneur arranges his or her capital assets, including which combinations of assets they will seek to acquire and which assets they may later

divest in an attempt to carry out the commercial experiment that embodies their judgment (Knight 1921; Casson 1982; Foss 1993; Langlois and Cosgel 1993; Foss and Klein 2005). The present paper extends this approach by explaining how entrepreneur–owners delegate decision rights to employees and how the employees' exercise of derived judgment is best circumscribed.

In established economic theories of organizational design, delegation is usually analysed with a principal–agent model. Such models have been exhaustively treated in the economics literature. A basic implication of this apparatus is that more complete contracts are preferable to less complete contracts. However, if agents are allowed to exercise derived judgment, as in our approach, this conclusion changes. There is a positive level of incompleteness, not because complete contracts are costly to draft (as in Crocker and Reynolds 1993), but because complete contracts curb entrepreneurial activities, both productive and destructive. More generally, in the kind of open-ended world envisaged by Knight (1921) as well as Austrian economists (Von Mises 1949; Shackle 1972; O'Driscoll and Rizzo 1985; Koppl and Minniti 2003), limiting employee discretion involves more than simply making formal, written contracts more complete. Discretion is constrained by organizational structure, which includes not only formal contracts, but also the complementary elements of informal norms ('corporate culture' and other implicit contracts), official and unofficial means for resolving disputes (Williamson 1996), and so on. Ownership conveys the right to define key elements of this organizational structure.¹⁶

Moreover, in contrast to the new property rights approach (Hart 1995), ownership has broad implications for firm performance. In our approach, the arrangement of property titles affects not only *ex ante* relationship-specific investments (as in the new property rights approach), but also how the firm will perform through time (original judgment rights should be allocated to the party best able to exercise them); likewise, internal organization affects not only current performance (as in agency theory, mechanism design, etc.), but also dynamics — how derived judgment will be exercised through time. The judgment approach to organizational design is thus inherently dynamic.

Implications for Future Research

As already indicated, the approach of this paper is in some important ways different from the mainstream in the economic theory of the firm. Thus, we have sidestepped the issue of motivating the agent by means of explicit incentives, by assuming that the agent realized a private benefit from having the freedom to engage in entrepreneurial activities that provide sufficient motivation for them to engage in these activities. This is not because we consider explicit incentives unimportant, but rather because we think the assumption that the agents can be (partly) motivated by being given more influence over their job situation is a realistic one (and a neglected one, too). Incorporating explicit incentives into the analysis should provide additional insight into optimal organizational design, however.

Our approach also suggests that existing studies of contractual completeness, by focusing narrowly on the presence or absence of certain clauses in formal,

written contracts, may not adequately capture the actual discretion possessed by parties in economic relationships. Agents may have substantial rights to exercise derived judgment even when they are subject to strong, formal contractual restrictions. This is because, under Knightian uncertainty, the contracting space is always open-ended, so that new margins may be created or discovered over which agents may optimize their gains.¹⁷ To give our approach empirical content, however, it is necessary to specify some observable proxies for derived judgment. It is unclear how such proxies could be identified in a large sample of firms, suggesting that case studies and quantitative analysis based on surveys of employee perceptions are necessary.

Conceiving of owners as entrepreneurs has further implications for the economic theory of the firm. Our analysis has focused on the judgment rights delegated to employees and the importance of stimulating productive proxy entrepreneurship. This does not imply, however, that we regard the entrepreneur-owner's original judgment rights as purely formal and symbolic. On the contrary, we view owners — even corporate shareholders — as critical decision makers, not simply passive providers of capital.¹⁸ As such, their behaviour belongs at the forefront of research on the economics of organization. For example, if owners are entrepreneurs, then the firm should be viewed not as a production process, a stock of knowledge, or a governance structure, but as an *investment*. The firm-as-investment literature (Gabor and Pearce 1952, 1958; Vickers 1970, 1987; Moroney 1972; Klein 1999) challenges several aspects of conventional micro-economics, such as the claim that managers should expand output to the point where marginal revenue equals marginal cost, rather than the point where the return on the last dollar of money capital is just equal to the opportunity cost of that last dollar of money capital.¹⁹ The firm-as-investment concept relates closely to an emerging literature on merger as a form of firm-level investment (Bittlingmayer 1996; Andrade and Stafford 2004).

Finally, we note some implications of our perspective for ongoing work in the tradition of Austrian economics. Much of the contemporary Austrian literature focuses on the organic, 'spontaneous' nature of market exchange, the distribution of tacit knowledge (Von Hayek 1945), and the failure of top-down, central planning (Von Mises 1920). However, in our view, the emphasis on 'market' over 'hierarchy' (to use Williamsonian terms) has resulted in a lack of attention to organizations, the ubiquitous, central features of all modern economies (Simon 1991).²⁰ In Foss's (2001) terminology, even in 'Hayekian settings' there is a role for 'Misesian ownership' and 'Coasian authority'. We hope the analysis presented in the present paper encourages further research in the Knightian and Austrian traditions on the functions of ownership, authority and delegation within firms and other organizations.

Notes

- 1 While much of the modern entrepreneurship literature focuses on start-ups and sole proprietorships, it is striking that none of the major contributions to the economic theory of entrepreneurship — those of Schumpeter, Knight, Mises, Kirzner and others — dealt specifically with small or new firms.
- 2 To state the issue differently: decentralized decision rights and incentive compensation approximate the high-powered incentives of private property and the price mechanism, but not perfectly (Foss 2003). De facto discretion is not a perfect substitute for de jure discretion. We thus

- stand with Coase (1937), Williamson (1985, 1996) and Hart (1995) and against Alchian and Demsetz (1977) and Jensen and Meckling (1976), in seeing firm and market as alternative mechanisms for resource allocation, rather than simply different sets of contractual relations.
- 3 In the treatment of Austrian economist Israel Kirzner, entrepreneurship is characterized as 'a *responding* agency. I view the entrepreneur not as a source of innovative ideas *ex nihilo*, but as being *alert* to the opportunities that exist *already* and are waiting to be noticed' (Kirzner 1973: 74).
 - 4 There is a long debate on whether Knightian uncertainty is meaningful, or whether 'uncertainty' is simply highly subjective, and therefore not insurable, risk (e.g. Demsetz 1988). We are agnostic on this issue, which does not seem to matter for our argument. Relatedly, it may be open to discussion whether Knightian uncertainty includes ignorance in the sense of unforeseen contingencies (Shackle 1972; Littlechild 1986; Williamson 1996). Unforeseen contingencies are important in our framework.
 - 5 Note that the notion of 'derived judgment' does not imply a subordinate position in economic or legal significance; the notions of original and derived judgment are hierarchical (and temporal).
 - 6 Kirzner (1973: 68) argues, similarly, that entrepreneurial alertness cannot be fully delegated: 'It is true that "alertness" ... may be hired; but one who hires an employee alert to possibilities of discovering knowledge has himself displayed alertness of a still higher order The entrepreneurial decision to hire is thus the ultimate hiring decision, responsible in the last resort for all factors that are directly or indirectly hired for his project.' Kirzner goes on to quote Knight (1921: 291): 'What we call "control" consists mainly of selecting someone else to do the "controlling"' Unlike Knightian judgment, however, Kirznerian alertness can be exercised without asset ownership. For more on the contrast between Knight and Kirzner, see Foss and Klein (2005).
 - 7 Of course, to the extent that the proxy entrepreneur's decisions affect the value of his or her own personal reputation, human capital and so on, that person is acting as an entrepreneur-owner, exercising original judgment with regard to these intangible, personal assets.
 - 8 Our notion of 'more constrained' and 'less constrained' employment relations includes, but is broader than, the notion of contractual completeness in the transaction cost literature (e.g. Crocker and Masten 1991; Crocker and Reynolds 1993; Saussier 2000). Crocker and Reynolds (1993) define completeness as the probability that a contingency not covered by prior contractual agreement arises. Under Knightian uncertainty, all contracts are incomplete, meaning that it is impossible to specify all contingencies *ex ante*. The firm's organizational structure, governing the employment relation more broadly, can constrain employee opportunism even when formal contracts are highly incomplete in the Crocker and Reynolds sense.
 - 9 As described above, we have in mind a broader notion of 'completeness' than what is found in modern contract theory.
 - 10 For example, regulating with whom an employee is allowed to interact clearly influences destructive as well as productive entrepreneurship: on the one hand, it may lead to destructive collusion among agents (as in Holmström and Milgrom 1990); on the other hand it may lead to the generation of new ideas as the TQM literature emphasizes (Jensen and Wruck 1994).
 - 11 Of course, one may envisage not only different P-curves, but also different D-curves.
 - 12 Aghion and Tirole (1997) make a similar, clearly heroic, assumption. As justification, one may point to the fact that the ability to more or less freely dispose of a certain percentage of one's working hours has become increasingly part of many employment packages, particularly in 'dynamic' industries (IT, biotech, consulting, etc.).
 - 13 More precisely, the employer receives $Esurp. = \frac{1}{2} (P - D)$.
 - 14 More precisely, the employee receives $esurp. = \frac{1}{2} (P - D) + (k - AO)$, where k represents the value of AO when incompleteness is zero.
 - 15 Of course, in this situation, car rental companies may increase earnings by offering differentiated products, where rental fees and contractual constraints differ for different segments of the market, or new firms may arise for special-purpose segments of the market. However, even those firms that offer cars with fewer or other contractual constraints may be too constraining for some, particularly those who (expect that they) are likely to discover so far unimagined activities (i.e. entrepreneurs). They will still want to become owners.
 - 16 We do not claim that the informal aspects of organizational structure are *completely* controlled, or 'designed,' by owners. We certainly recognize that, for example, corporate culture can grow and evolve organically, that there is an element of 'spontaneous order' within the firm. But we maintain that formal constraints, established and revised by owners, are the ultimate drivers of organizational form.
 - 17 See Foss and Foss (2000) for a discussion of how this heuristic contrasts with the conventional modelling approach in economic contract theory. Of course, in actual modelling, contracting spaces are somehow closed, because of the immense mathematical complexities of working

- with open spaces. Foss and Foss invoke the notion of an open contracting space as a feature of the interpretation and application of the model.
- 18 These claims of course apply a fortiori to large block-holders, institutional investors, venture capitalists or angel investors in venture-backed firms, and other 'active' investors or investment groups.
 - 19 If the firm is earning positive net returns at its current level of output, instead of increasing output until marginal net returns fall to zero, the firm could simply take those returns and employ them elsewhere, either to set up a new firm in the same industry or to diversify into a new industry (Gabor and Pearce 1952: 253). The efficient scale of production is determined by outside investment opportunities, not simply the marginal returns from producing a single output.
 - 20 An obvious exception is Von Mises (1944).

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Kirsten Foss

Kirsten Foss is Associate Professor at the Centre for Strategic Management and Globalization, Copenhagen Business School. Her main research interests are organizational design, modularity and the economics of organization. Her work has been published in such journals as *Strategic Management Journal*, *Research Policy*, *Industrial and Corporate Change*, and others.

Address: SMG-CBS, Copenhagen Business School, Porcelainshaven 24 2000 Frederiksberg, Denmark.

Email: kf.smg@cbs.dk

Nicolai J. Foss

Nicolai J Foss is a Professor at the Department of Strategy and Management, Norwegian School of Economics and Business Administration, and a Professor of Economic Organization and Strategy and Director of the Centre for Strategic Management and Globalization, Copenhagen Business School. He has published numerous papers on strategic management, the theory of the firm and the methodology of the social sciences.

Address: SMG-CBS, Copenhagen Business School, Porcelainshaven 24 2000 Frederiksberg, Denmark.

Email: njf.smg@cbs.dk

Peter G. Klein

Peter G. Klein is Assistant Professor of Applied Social Sciences at the University of Missouri and Associate Director of the Contracting and Organizations Research Institute. His research focuses on the economics of organizations with applications to entrepreneurship, innovation, financial economics and corporate governance. His work has appeared in the *RAND Journal of Economics*, the *Journal of Law, Economics, and Organization*, *Economic Inquiry*, the *International Journal of the Economics of Business* and other outlets. He taught previously at the University of Georgia and the Copenhagen Business School and was a Senior Economist on the Council of Economic Advisers.

Address: Contracting and Organizations Research Institute, 135 Mumford Hall, University of Missouri, Columbia, MO 65211, USA.

Email: pklein@missouri.edu