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**Creating, Capturing and Protecting Value:
A Property Rights-based View
of Competitive Strategy**

by

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Abstract

This paper develops a property rights-based view of strategy (the “PRV”). A property right (or economic right) is an individual’s net valuation, in expected terms, of the ability to directly consume the services of an asset (including, e.g., a monopoly position) or consume it indirectly through exchange. Resources expended on exchanging, protecting and capturing such rights are transaction costs; thus, we directly link property rights, transaction costs, and economic value. We assume that all relevant exchange is costly and that all agents maximize their property rights. This implies that economizing with transaction costs may be a distinct source of value, and potentially of sustained competitive advantage. Moreover, strategizing may be understood as revolving around influencing impediments (i.e., transaction costs) to value creation. Expectations and contracting also become crucial parts of processes of creating, protecting and capturing value. We use these insights to derive a number of refutable propositions, and argue that key insights from both industrial organization economics and the resource-based view are consistent with the PRV.

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Introduction

This paper develops a view of competitive strategy that is based on the economics of property rights and transaction costs. We define a property right in terms of expected value, namely as an agent's valuation of the expected benefits that flow from the services of an asset (including, e.g., a monopoly position). Resources expended on exchanging, protecting and capturing such rights are transaction costs (Barzel 1997: 4). This directly links property rights, transaction costs and economic value, and allows us to treat strategizing in a unified way in terms of processes of creating, capturing and protecting value, clarifying the role of transaction costs in these processes. Two basic assumptions with far-reaching implications underlie our approach. First, exchange is *costly*, the implication being that value may be created from reducing the costs of exchange and the inefficiencies caused by these costs. Second, *all* interacting agents maximize their property rights. The implication of this assumption is that strategizers will expend resources to capture value created in exchange relations that is not protected by other strategizers and to protect themselves against the capture attempts of other strategizers. These resources are properly seen as transaction costs. Three overall implications for strategy follow from these assumptions:

1. *Economizing as a source of competitive advantage:* Value creation and competitive advantage may derive from reducing transaction costs and attendant inefficiencies (i.e., deadweight welfare losses).
2. *The duality of capture and protection:* To the extent that strategizing involves the capture of value controlled by other players, such strategizing is constrained by the resource (transaction) costs expended on protecting value by these other players. In turn, resources expended on protection is influenced by the perceived resources that would-be capturers expend on capture activities.
3. *The centrality of contracting and expectations in competitive interaction:* Contracting and expectations, which have hitherto been given somewhat scant attention in the

strategy literature, turn out to be of great strategic importance, because they significantly influence the perceived costs and benefits of strategizing

As indicated, our arguments revolve around the notion of property rights. From an economic (as distinct from a legal) perspective, property rights may be defined as "... an individual's net valuation, in expected terms, of the ability to consume the services of [an] asset, or to consume it indirectly through exchange" (Barzel 1994: 394). Given that property rights are subject to optimization, a number of propositions follow. Thus, secure property rights create incentives to *create* value. However, when property rights are less secure, less value will be created. Moreover, given insecure property rights, incentives to expend resources (i.e., incur transaction costs) on *capturing* value (without compensating others on the margin) exist for some agents. In turn, the agents who are subject to capture attempts have incentives to expend resources (i.e., incur transaction costs) on *protecting* value. These ideas form the core of the property rights-based view (henceforth, the "PRV") of strategy that we develop in this paper.

The linkages that we establish between economic value, property rights, and transaction costs allow us to cast fundamental issues in strategy in a new light. Thus, in the PRV the core questions for competitive strategy are these:

1. *How can firms create value?* In terms of the PRV, how can firms benefit from reducing inefficiencies caused by transaction costs?
2. *What is the nature of impediments to value creation?* In terms of the PRV, how do capture and protection activities eliminate (some) exchange opportunities and thus reduce created value?
3. *How may strategizers gain competitive advantage by influencing the impediments to value creation?* In terms of the PRV, in which ways can strategizers influence capture and protection activities in a way that is favorable to themselves?

In the PRV, *strategizing* means influencing impediments to value creation to the advantage of the firm so that a competitive advantage can be enjoyed. By *competitive*

advantage we simply mean above-normal profits. A *competitive strategy* is a plan of how to carry out strategizing relative to buyers, sellers, and actual as well as potential rivals so that competitive advantage can be enjoyed.

The design of the paper is as follows. We begin by explaining the economics of property rights that forms an important input into the PRV (“*Key Insights of the Economics of Property Rights*”). We then discuss how concepts and insights from the economics of property rights may be applied to the understanding of competitive strategy. We structure our discussion so that the three questions above are addressed and answered *seriatim*. In order to clarify the role of transaction costs for competitive strategy, we take our starting point in the zero transaction cost setting discussed by the Coase (1960). This allows us to identify the implications for competitive strategy of introducing transaction costs (“*A Zero Transaction Costs Benchmark*”). We then provide specific examples of how the PRV furthers the understanding of competitive strategy. Refutable implications are derived (“*Strategizing in the PRV: Influencing Impediments to Value Creation*”). The paper ends with a discussion of how the PRV relates to other approaches to strategy, such as industrial organization economics and the resource-based view (“*Relations to Other Strategy Approaches*”).

Key Insights of the Economics of Property Rights

The Economics of Property Rights: Overall

So far, property rights economics has only been applied to the strategy field in a few papers (Foss and Foss 2000; Kim and Mahoney 2001). Related approaches with common antecedents with property rights economics, such as transaction cost economics and the economics of agency, have been much more extensively applied.¹

¹ However, Poppo and Zenger (1998) adopt ideas on measurement costs, which are derived from the economics of property rights (i.e., Barzel 1997), in their analysis of the make-or-buy decision. PRV insights are also indirectly present in the analysis of the organizational and strategic ramifications of intellectual property issues (Teece 1987). Finally, Jones (1983) develops a PRV approach to organizational culture.

It is therefore appropriate to state the fundamentals of the economics of property rights, particularly as these relate to firm strategy issues.²

The economics of property rights has rightly been described as "generalized microeconomics" (Eggertson 1990; De Alessi 1990). It contains a set of concepts and insights that are precise and microanalytic, and which analysts have found particularly useful for understanding the nature and consequences of particular contractual and institutional arrangements (e.g., Cheung 1983; Jones 1983; Eggertson 1990; Alston, Eggertson and North 1996; Barzel 1997). The economics of property rights was founded on the recognition that transactions involve the exchange of property rights, rather than the exchange of physical goods *per se* (Coase 1960). In fact, the unit of analysis is the individual property right. In general, the approach may be characterized as being occupied with the analysis of all those processes by which property rights are exchanged, captured and protected — processes that may take place both within and between firms. An important assumption in the economics of property rights is that all of these processes consume resources. A key implication of immediate relevance for strategy is that value may be created by reducing the costs incurred as a result of these processes (Williamson 1994). The emphasis on costly processes of exchanging, capturing and protecting property rights directs attention to the contracts that structure the exchange of rights (Cheung 1983; Barzel 1997) and the institutions that protect or hinder such exchange (Coase 1960; North 1990). Thus, the perspective is capable of addressing several levels of analysis, from the level of individual choice behavior, over contracts, to the institutions that define and enforce the rules of the game. In our normative application of property rights economics to the strategy field (i.e., the PRV), the level of institutions is not considered.

² For more encompassing presentations, see De Alessi (1990) and Eggertson (1990). Note that the PRV that we use is different from the approach of Hart (1995) and his various associates, which is sometimes also called the "property rights approach."

The Capture and Protection of Property Rights

The reason why property rights theorists direct attention to rights rather than to goods is fundamentally that goods typically have many *attributes*, that is, characteristics and services. For example, a brand name may be applied to different categories of goods, thus yielding many services. Property rights may be held with respect to such attributes.³ As a general matter, a property right — that is, the unit of analysis of the PRV — may be defined as

... an individual's net valuation, in expected terms, of the ability to directly consume the services of the asset, or to consume it indirectly through exchange. A key word is ability: The definition is concerned not with what people are legally entitled to do but with what they believe they can do; in other words, what they believe they control de facto (Barzel 1994: 394; emphasis in original).

Although this definition is logically disconnected from legal considerations, it is nevertheless implicit that agents' abilities to consume (directly or indirectly), the services of an asset are dependent upon their ability to exclude others from consuming the services of the same asset. Clearly, this partly depends on legal protection. However, legal protection is merely one aspect of the protection of rights from the capture attempts of other agents.

Thus, when legal protection of property rights is not perfect, strategizing agents will expend resources on capturing property rights. By “capture,” we refer to the resource-consuming strategies of appropriating value without compensating others

³ Refined taxonomies of property rights have been developed. A particularly influential distinction is the one between *use rights*, which define and allocate the known uses of an asset; *income rights*, that is, the rights to consume assets; *rights to exclude* non-owners from access to assets; and, finally, *rights to transfer* permanently to other parties all the above mentioned rights over assets, that is, to alienate or sell the relevant rights (Eggertson 1990). For example, in a franchise relation, the franchisee obtains the rights to the use of the brand name from the franchisor. However, his use rights over the brand name are restricted to the sale of certain products. Moreover, property rights may be held to income streams from using or selling attributes of an asset. In the case of a franchise relation, the parties typically partition the income streams so that the franchisor receives an initial fee and royalties, while the franchisee is the main residual claimant.

on the margin. These include such activities as theft and competition, most obviously such competitive activities as emulation, copying, reverse engineering, etc., but also price, quality and technological competition. In turn, capture gives rise to other strategizing agents expending resources on protecting these rights, as both try to enhance their ability to consume, directly or indirectly, the services of the relevant assets. By the term “protection,” reference is made to resource-consuming strategies of reducing others’ capture attempts. These include such activities as making use of the legal system, contracting, entry deterrence, secrecy, etc. Transaction costs are then defined as the costs of capturing and protecting property rights as well as exchanging these (Barzel 1994, 1997).⁴ These costs dissipate value.

As indicated above, there is a *duality between capture and protection activities* (see also Hirshleifer 1989; Furubotn 1991; Skaperdas 1992). Important strategic aspects of this concern the expectations the parties hold with respect to others’ capture and protection activities. Thus, a maximizing agent will take into account the resources that others spend on protection when he contemplates capture.⁵ Conversely, an agent who contemplates protecting value will take into account the resources others plan to spend on capture. As an extreme case, if these agents hold exactly the same estimates of the costs of capturing and protecting property rights, rights will be allocated instantaneously, and in such a manner that those rights that are not perceived as being worth protecting will be placed in the public domain and captured. In this equilibrium, no strategizing activity will take place. Strategizing occurs when expectations differ (we elaborate on this later).

⁴ Transaction costs are sometimes referred to as, for example, the costs of obtaining information (i.e., search and measurement costs) and of not having the relevant information (i.e., agency costs), and the costs of writing and enforcing agreements as well as not being able to fully enforce or commit to agreements (including the hold-up problem). However, all of these costs may be restated in a more compact manner as the costs of transferring, capturing and protecting property rights.

⁵ In this paper, we rely on the assumption that agents are maximizing in order to simplify the reasoning. We fully acknowledge that bounded rationality may be a much more descriptively realistic assumption. However, introducing bounded rationality would unnecessarily complicate our reasoning.

The consistent emphasis in the PRV on resources spent on the capture and protection of property rights on the part of all parties involved in economic activity allows the analyst to address and comprehend phenomena that are often left out of sight in the conventional economic analysis of firm behavior. We provide an illustration of this in the next section, where we also briefly introduce some of the key themes of the PRV.

Unconventional Insights: The Capture and Protection of Surpluses Under Monopoly

Consider a monopolist who pursues a strategy of price discrimination. In the usual textbook analysis, the monopolist captures property rights over the consumers' surplus when he moves from charging consumers a uniform price to charging differentiated prices. This analysis is incomplete, arguably because it does not go sufficiently far with respect to accounting for the parties' maximizing behavior. Notably, it is implicitly assumed that the monopolist rightly holds the expectation that consumers will invest no resources in protecting rights to consumers' surplus, so that this surplus is unprotected, that is, lie in the "public domain." Consumers' expected costs of protecting rights *may* be such that they will choose to place rights in the public domain; however, this should be explicitly asserted (and supported by argument) rather than being implicitly assumed. A fuller analysis would recognize that maximizing consumers may resist the monopolist's capture attempts through arbitrage (among themselves) (Varian 1989) and bargaining (with the would-be discriminating monopolist). Thus, "... in anticipation of the potential of becoming the victims of monopolization, people can take protective action to avoid the associated loss" (Barzel 1994: 407) (see also Furubotn 1991). This may cause the monopolist's capture to be more costly and therefore less complete than is assumed in the conventional analysis.

A strategic lesson is that firms that wish to pursue competitive strategies that involve price discrimination (e.g., "versioning" in IT markets, Shapiro and Varian 1999) must carefully consider what kind of customers they up are against in terms of

what are these customers' expectations about the would-be discriminator's capture attempts and how many resources they are capable of investing in protecting their rights. They should also consider how they can influence the expectations of such customers to their advantage. That influencing other players' expectations is a key ingredient of strategizing, is, of course, a central theme in game theory approaches in strategy (e.g., Shapiro 1989; Ghemawat 1997). The PRV complements this theme in a number of ways. Thus, as we develop later in more detail, the PRV points to the importance of contracts as instruments of influencing expectations (cf. the above example).⁶ Moreover, the PRV extends this point by emphasizing that the dissipation of value is strongly dependent on what the parties expect about each others expenditures on capture and protection activities, so that a firm may create value by choosing contracts that reduce dissipation. In terms of the above price-discrimination example, the monopolist may, for example, introduce contractual clauses that commit the firm to selling at a uniform price, because this may economize on the resources spent on bargaining with consumers and thus reduce dissipation of value (hence producing the textbook outcome).⁷ In the following sections, we develop more such insights from the PRV.

A Zero Transaction Costs Benchmark

In this section, we examine some fundamentals of the PRV. An answer to the three fundamental questions of this paper — that is, Through which processes is value created? What is the nature of impediments to value creation? How may strategizers influence these impediments in order to optimize value creation? — may begin, perhaps somewhat paradoxically, from an extreme setting characterized by zero transaction cost and unrestricted bargaining. This is the setting underlying the Coase

⁶ In fairness, it should be noted that some contributions to game theoretical IO recognize this (see Aghion and Bolton 1987).

⁷ By thus stressing that contracting may be an important part of strategizing and that *all* parties engage in capture and protection activities, the PRV adds additional insights to the analysis of buyer selection (e.g., Porter 1980: chapter 6; Michael 2000).

theorem (“Coasian settings”). This is a useful starting point, because it allows us to understand what assumptions we have to add to the extreme setting in order to make room for strategizing, that is, understand the three fundamental questions above.

Creating and Sharing Value in a Coasian Setting

We begin from the notion of exchange (of property rights). Exchange itself is value creating in the sense that economic surplus (i.e., “gains from trade”) is realized through exchange.⁸ Exchange arises because of differences in resource endowments and/or comparative advantages (caused by, for example, unique assets and innovative activities). Our perspective on the first fundamental question, Through which processes is value created?, is thus an exchange one. The strength of such a perspective is that it leads directly to considering impediments to exchange and how created value may be influenced by such impediments. In turn, it allows for an understanding of strategizing as directed towards influencing these impediments to the advantage of the firm. In order to develop such a perspective, it is useful to first consider what are the conditions for creating the maximum conceivable amount of value.

The Coase theorem provides an answer to this. It asserts that in the absence of transaction costs (i.e., impediments to exchange),⁹ initial assignments of property rights or legal entitlements to assets will make no difference to efficiency in the sense that the identical value-maximizing allocation will be realized regardless of who holds the relevant property rights or bear legal liability (Coase 1960, 1988). Moreover, in the Coasian setting, all rights, including the rights to producers’ and consumers’

⁸ See Davis and Kay (1990), Brandenburger and Stuart (1996), Nalebuff and Brandenburger (1996), Parolini (1999: chapter 3) and Bowman and Ambrolini (2000) for informative discussions and clarifications of the multiple meanings of “value” in strategy discourse. And see the recent exchanges between Priem and Butler (2001), Priem (2001), Makadok (2001) and Makadok and Coff (2002) for important debate on “which value should be valued” in strategy research. However, none of these contributions deal with the important distinction between private and social value, which becomes crucial as soon as transaction costs are introduced, and which is key to much of our analysis. We discuss this distinction later.

surpluses, will become perfectly delineated through costless bargaining. Because rights are perfectly delineated, there are no capture and protection activities (see also Makowski and Ostroy 2001). This implies that the creation of value may be logically disentangled from the appropriation of value. Relatedly, there is no distinction between social and private value creation (i.e., no externalities, and therefore no common pool resources, no hold-ups, etc.). The parties first agree to maximize the value that can be created from the resources they control, and afterwards split this value through a costless bargaining process in which each party's property rights over a part of the surplus become delineated through the prices and side-payments that emerge from bargaining (Milgrom and Roberts 1990). The total conceivable created value is equal to the sum of the differences between suppliers' opportunity costs and consumers' reservations prices, and in a Coasian setting, this amount of value will, in fact, be created.

The Coase theorem does not directly inform us about how this value will be shared, that is, how much each agent will appropriate. All we know is that *some* delineation of rights will be achieved and that this will be efficient in the sense that it will maximize value creation (Coase 1988).¹⁰ However, in a large numbers situation, the sharing of these surpluses becomes determinate (Makowski and Ostroy 1995, 2001); specifically, here property rights will tend to be delineated such that all agents receive their contribution to the creation of value (idem.).¹¹ In the following, we make no specific assumptions, however, about the number of interacting agents.

⁹ Which also implies that unlimited transfer payments between the parties can be made. Conventionally, it is added that it is necessary that preferences do not display wealth effects. For Coase's own critical comments on this, see Coase (1988).

¹⁰ Of course, such delineation takes place with respect to attributes that are known to agents. We are not making the argument that the Coase theorem implies perfect foresight or complete contingent contracting. Thus, agents may be surprised by unforeseen contingencies. (Given the assumption of zero cost bargaining, this will not cause hold-ups under certain assumptions; see Milgrom and Roberts 1990).

¹¹ The more precise formulation is that under unrestricted bargaining, a player's added-value places an upper bound on how much value that particular player can hope to capture (Brandenbruger and Stuart 1996).

Strategy and Competitive Advantage in a Coasian Setting

What meaning can we now ascribe to strategy in a Coasian world; for example, what is the interpretation of generic strategies and competitive advantage in such a setting? First, generic strategies may only be interpreted in terms of endowments; for example, different endowments may result in different costs of production (the basis of cost strategies) or different production possibilities (the basis of differentiation strategies). Since these endowments are given from the beginning, so is the execution of the generic strategies. Endowments (e.g., production knowledge) may be imitable (cf. Reed and DeFilippi 1990; Barney 1991), but the imitability issue is simply not relevant, because protecting property rights is costless. Second, some producers — namely, those who control endowments that result in higher productive efficiencies or higher perceived value-added — may realize above-normal rents, that is, have a competitive advantage. This competitive advantage will be sustainable (Barney 1991), precisely because in a Coasian setting all property rights are secure. Although we may thus formally make room for sustained competitive advantage in the sense of earning rents in equilibrium, the effect of the assumptions underlying the Coasian setting is to virtually eliminate most of the interesting content of strategy. All competitive advantages are given from the outset, and there are no problems of protecting and splitting created value. There can be no strategizing as we have defined it, that is, influencing impediments to value creation to the benefit of the firm.

Impediments to Creating Value: Introducing Transaction Costs

When transaction costs are introduced and property rights therefore are imperfectly delineated, three important and closely related implications follow. First, the independence between creating and sharing value breaks down, because the delineation and protection of property rights becomes costly. This implies that the equality between social and private value creation also breaks down, so that maximizing private value creation does no longer necessarily mean that social value creation is also maximized; for example, maximizing the former may reduce the

latter.¹² Second, the introduction of transaction costs (i.e., impediments to exchange) means that created value will fall short of the Coasian ideal. This can happen for a number of connected reasons. Thus, some transactions may never occur, for reasons of adverse selection (Akerlof 1970), monopoly pricing, and high costs of protecting the relevant income stream (Grossman and Hart 1986; Teece 1986). Furthermore, value may be dissipated because of capture, such as bargaining (Williamson 1985, 1996), moral hazard (Holmström 1982), adverse selection (which dissipates value by introducing a need for, e.g., product guarantees), and excess sorting (Barzel 1982), and rent-seeking. Underlying all these instances of value being reduced below the Coasian ideal is asymmetric and possibly imperfect information, which causes property rights to be less than perfectly delineated and protected, so that capture will take place (Kim and Mahoney 2001). This provides an answer to our second fundamental question, What is the nature of impediments to value creation? Third, strategizing — that is, influencing impediments to value creation to the benefit of the firm — may become a way of gaining competitive advantage. We develop this understanding in the following section.

Strategizing in the PRV: Influencing Impediments to Value Creation

Basic Elements of the PRV

In this subsection, we define in a more elaborate manner what we see as the two central analytical elements of the PRV, namely comparative contracting and an understanding of competitive interaction that revolves around what we earlier called the “duality of capture and protection.” We then develop our understanding of strategizing as influencing impediments to value creation on the basis of these two central elements.

¹² Note that this implies that, for example, Porter’s (1980) framework is implicitly founded on a postulate about transaction costs, since in this framework, maximizing firm level profits may reduce overall societal welfare.

Comparative contracting. In the zero transaction cost benchmark, institutions and contracts do not matter for allocational outcomes. As soon as transaction costs are introduced, however, different institutions and contracts need to be compared in terms of their efficiency properties (Coase 1960; Williamson 1985, 1996), and “Nirvana” comparisons are irrelevant. Comparative contracting is a central tool in competitive strategy for the basic reason that it helps to identify impediments to value creation, as emphasized by Williamson (1994). For example, firms that draft superior contracts with their suppliers may enjoy a competitive advantage from this. However, the principle of comparative contracting goes beyond the comparison of actually existing, concrete contracts. It may also be used in counterfactual reasoning. For example, in terms of the above example of the would-be price-discriminating monopolist (“Unconventional Insights”), the relevant comparison may be between situations where the buyers through mutual contracting can hinder the attempt at price-discrimination, and situations where contracting costs hinder this. Assessing the size of the relevant contracting costs is evidently important for the would-be price discriminator. In other words, the price discriminator’s possibilities of capturing consumers’ surplus and increasing his returns through this competitive strategy is constrained by the underlying transaction costs, in this case, contracting costs.

Competitive interaction: Expectations and the duality of capture and protection.

The principle of comparative contracting is closely connected to the second analytical cornerstone of the PRV, namely that of competitive interaction understood in terms of the duality of capture and protection based on maximizing agents’ expectations. This is because contracting influences capture and protection activities. By the “duality of capture and protection” we mean the general principle that all capture activity is based on an expectation of the resources that are invested in protection, and all protection activities are based on an expectation of the resources that invested in capture. Thus, seen from the point of view of a strategizing firm, the success of its capture and protection activities depends on transaction costs, namely the resources incurred by others on *their* capture and protection activities. Again, in terms of the price-discrimination example, the would-be discriminator’s success

depends on the resources that the consumers invest in protecting their surplus. In turn, what they invest is dependent on what they believe the would-be discriminator will invest in capture. Etc. An equilibrium obtains when these expectations coincide. In such an equilibrium, all strategizing will have ceased. In the following, we sharpen the principle of duality by emphasizing that all relevant parties maximize (their property rights), and therefore seek to take into account other players' capture and protection activities. Note that maximizing behavior does not necessarily imply that expectations coincide (i.e., we are not assuming "rational expectations").

The two above elements allow for an understanding — namely, the PRV — of the sources of competitive advantage and the nature of strategizing that goes beyond existing approaches (notably, the resource-based view and the industrial organization view). Thus, the PRV points to unrecognized possibilities and limitations of strategizing, specifically how contracting and the underlying structure of transaction costs constrain or enable strategizing. It directs attention to efficiency-based sources of value creation. And it highlights the importance of expectations in the competitive process. In the following we offer elaborate on these points, offering examples of PRV reasoning and deriving refutable propositions from the discussion.

Rivalry, Market Power and Contracting

Consider Porter's (1980) competitive force of "internal rivalry." This may be exemplified by in the simplest possible way by a homogenous goods duopoly which is engaged in Bertrand (price) competition. In the usual analysis, property rights to the consumers' surplus are fully appropriated by the consumers (because the duopolists compete so that $p = mc$). However, rivalry may be curbed if the competing duopolists realize that by spending resources on merging,¹³ they will be able to capture parts of the consumers' surplus by restricting supply. If buyers are passive (as is normally assumed) and leave the surplus in the public domain, the merging

¹³ We assume that horizontal price agreements are ruled out by law. By "resources incurred on merging," we have in mind such costs as salaries to corporate lawyers, as well as possible efficiency losses from the increased size of the firm.

duopolists will be successful in their capture. A deadweight welfare loss, which is approximated by the well-known “welfare triangle,” results. (No attention is paid to the resources spent on merging). The story usually stops here.¹⁴ This is because it is not recognized that consumers may spend resources on protecting “their” surplus. In other words, it follows from the principle of the duality of capture and protection that the competitive force of “bargaining power of buyers” may influence the value that can be obtained from a strategy that is directed at reducing internal rivalry. It can do so in two ways, namely, first, by reducing the size of the welfare loss from monopolistic pricing, and, second, by introducing a new welfare loss in the form of resources incurred on protecting rights.

For example, applying the principle of comparative contracting informs us that farsighted buyers may enter into a long-term supply agreement with one of the duopolists, so that they effectively block the monopolizing merger. The duopolist will be compensated in such a way that he is marginally better off than entering into the merger. This works when the buyers’ losses from the merger are larger than the merging duopolists’ gain, which in turn depends on cost conditions and the elasticity of demand. The costs incurred by the buyers in this case are contractual costs plus the compensation paid to the duopolist with whom they sign the agreement.¹⁵ While the latter costs are purely distributional, the former represents dissipated wealth, that is, they diminish the amount of created value. If the duopolists in fact merge, the buyers may form a coalition and the resulting situation will be one of bilateral monopoly. The outcome will be indeterminate, but will be at least marginally better for them (taking into account the costs of forming and enforcing the coalition). Dissipation of value takes place because forming and enforcing a coalition between the consumers is costly.

¹⁴ For example, Williamson (1968). However, see Kreps (1990: 314), Barzel (1994), and Makowski and Ostroy 1995: 815).

¹⁵ Strictly speaking, both are transaction costs, since both are resources invested in protecting property rights.

As another example, consider business strategies of predatory pricing (see also Demsetz 1982). In this case, the relevant preys are the predating firm's competitors and buyers. In contrast to the standard analysis, the principle of duality of capture and protection suggests that these preys are not defenceless against a monopolizing predator. Thus, the principle of comparative contracting shed lights on how contracting may influence the outcome. For example, the preyed-upon firm(s) can enter into long-term supply contracts with consumers that will protect them against the predator. A contract that stipulates the prevailing competitive price as the one under which future transacting will take place may be sufficient to protect the preys (Barzel 1994).

The general implication of this reasoning is that there is likely to be a close connection between the potential in an industry for monopolization (i.e., capturing consumers' surplus), such as may be brought about by means of merger and predatory pricing, and long-term contracting between buyers and sellers in that industry. This may be further generalized, as in the following proposition.

Proposition 1: The opportunity for value capture through curbing rivalry in an industry is negatively correlated with the costs of entering into long-term contracting between buyers and sellers in that industry.¹⁶

The overall strategic implication of the proposition is that it is only where the transaction costs of making long-term contracts between buyers and sellers and/or among buyers are high that there may be a role for competitive strategies that lead to the capture of value.¹⁷ Thus, *some* transaction costs being high is a condition for strategizing that aims at exploiting market power. For example, this may be the case

¹⁶ A more directly operational version of the proposition is to say that in a cross-sectional study, variables that measure the degree of concentration and particularly entry barriers should correlate negatively with variables that measure the extent of long-term contracting. Testing this proposition will require controlling for such factors as asset specificity and price-stability, both of which tend to promote long-term contracting (Williamson 1996; Cheung 1969).

¹⁷ The possibility that some buyers may free-ride on the contracting efforts of others should be taken into account. This problem, too, is essentially a transaction cost problem, since with zero transaction costs, comprehensive contracts that eliminated free-riding would be feasible.

in industries with many small consumers, where coordination and contracting costs may hinder that they successfully protect their property rights to consumers' surplus. By providing a necessary, but not sufficient condition for exploiting market power as a means of gaining competitive advantage, this line of reasoning indicates both the limitations and possibilities of strategizing.

Strategizing by exploiting market power so that it brings competitive advantage may consist in making it costly for victims of monopolization to enter into long-term contracts with other firms. One obvious way to influence impediments to a firm's capture of value is for the firm to engage in frequent product upgrading (as in the car or software industries) that makes it unattractive for preys to engage in long-term contracting with incumbent competitors or potential entrants. Specifically, long-term contracting may be rendered unattractive under these circumstances because 1) there is no guarantee that incumbent competitors or potential entrants can match the upgrading efforts of the would-be monopolizer, and 2) even if they could match the would-be monopolizer, renegotiating contracts is costly.¹⁸ This strategy of influencing impediments to value capture only works if the relevant firm is a technological leader, for the simple reason that users prefer the most technologically advanced products. Thus, frequent product upgrades may not only work for a would-be monopolist because they are means of "non-price predation" (i.e., raising rivals' costs, Salop and Scheffman 1983), but also because they make it hard for preys to enter into the contracts that may counteract the exercise of market power. Another instance of strategizing aiming at blockading contracting between buyers and competitor firms is vaporware, that is, announcing an upcoming product so that competitors' sales are freezed (Shapiro and Varian 1999: 275). We later discuss other examples of the impact of expectations on strategizing.

Value Creation Through Strategizing Toward Buyers

¹⁸ Thanks to Jackson Nickerson for helping us to clarify this argument.

The competitive forces of buyer and supplier bargaining power have usually been considered without much attention being paid to the resource (transaction) costs of capture and protection activities (Porter 1980: chapter 6). To be sure, the economics of the vertical boundaries of the firm (Williamson 1996; Teece 1987; Hart 1995) directs attention to such resource costs, notably in connection with the hold-up problem (see Chi 1994 for applications). However, in the PRV capture and protection activities in the context of strategies toward buyers and suppliers go beyond the resource costs associated with the hold-up problem. In particular, the PRV directs attention to the strategic implications of value that buyers and sellers choose to leave unprotected, that is, leave in the public domain. In the following we consider firms' relations to buyers in this perspective.

As an example, consider a financial firm, such as a bank. Such a firm will typically offer some services for which customers pay a fixed price. Often the use of such services is not directly rationed, because it is overly costly to measure use. For example, there may not be limits to the number of times an account-holder may make use of the services of bank clerks. This implies that the bank places value in the public domain, and that some customers will incur resource costs in capturing this. The bank's strategy of charging a fixed price for some services creates, first, a moral hazard problem, since those customers who have low costs of capture will capture services in excess of what they pay for. In turn, this creates an adverse selection problem to the extent that the bank chooses to increase the price of the services. This will harm the potential value creation of the bank, because its customer base (market share) decreases. Raising the prices of the offered services will not solve these problems. Adopting various payment schemes, so that customers are directly charged for their use of each services may be prohibitively costly. However, a strategizing bank may still influence the impediments to its value creation by raising the costs to customers of capture and/or by means of reducing its own protection costs. These are considered in the following.

With respect to raising customers' costs of capture, banks may manipulate opening hours or reduce the number of bank clerks (i.e., raising customers queuing costs), so as to make it more costly to capture those services that are costly to produce. However, such arrangements are not costless to the bank; for example, some customers may find it too costly in terms of queuing costs to stay with the bank. Thus, some transactions may not take place, which reduces value creation. More generally, firms may adopt non-price-rationing strategies in order to increase their created value through raising the costs of capture on the part of buyers (Barzel 1982; Foss 1996). Notably, in cases where firms sell products of different quality at a single price, firms may raise customers' costs of capturing the high quality products by means of packaging, tying arrangements, etc.¹⁹

These considerations are particularly relevant in industries where it is costly to price individual services at the marginal value, and where services are therefore offered at a fixed price, and sometimes offered as a bundle. The reasoning suggests the following proposition:

Proposition 2: The opportunities for value creation by adopting non-price rationing strategies is positive correlated with high costs of pricing services individually. This is particularly likely to be the case in industries that produce complex goods and services, and/or where there is a large variance in the quality of inputs and outputs. In such industries, strategizing towards customers (and sellers) will more often take the form of non-price rationing than in industries that produce goods of more uniform quality.

While this proposition relates to increasing customers' costs of capture, firms may also increase value through reducing their protection costs. For example, the bank in the example may innovate other substituting services that are much less costly

¹⁹ Firms also strategize relative to sellers. Sellers may capture value through adversely selecting inferior qualities of already produced goods, reducing the quality of goods and services that are being produced below what has contractually been agreed upon (i.e., moral hazard) (Barzel 1982), or hold-up (Williamson 1996). Strategizing firms may protect against these capture attempts through seller selection, posting hostages, investing more in drafting contracts, etc. (Chi 1994).

to produce, such as internet-banking, where the marginal costs of producing services are considerably lower (and to some extent transferred to the customers) than under conventional production of banking services. Customers will accept such substituting services to the extent that this implies that they will no longer be rationed (or not rationed as much) in their use of the services. Another example of protection against capture is provided by Michael's (2000) examination of tapered integration in franchising. Such integration is undertaken, he argues, to improve the franchisor's bargaining power, because it provides him with valuable information about the costs to be used in purchasing.

An individual strategist undertakes an equilibrium amount of protection activity when the marginal benefits of protecting against capture equal the marginal costs of this. The equilibrium amount of protection likely differs across firms. Firms with more efficient protection technologies may create more value relative to the competition (Hubbard 2000). Thus, differential protection technologies may help explaining competitive advantages in an industry.²⁰ Relatedly, the presence of a large potential for customers' capture of value also helps explaining the *dynamics* of competitive advantage (i.e., the creation and renewal of competitive advantage).

Industries where firms' costs of pricing individual services, sorting customers, etc. are particularly high will also be industries in which customers' capture will be particularly intensive. In such industries, much innovative activity is likely to be directed towards reducing firms' measurement costs (Foss 1996). This innovative activity may result in superior protection technologies which may be sources of competitive advantage. In fact, much competitive activity in industries such as insurance and banking actually revolves around designing more efficient technologies for protecting against capture. For example, banks adopt technologies that allow them to keep track of the number of times that customers use credit and debit cards, and price customers according to this (e.g., the first twenty withdrawals in a month

²⁰ This establishes a link to the resource-based view of the firm and of strategy (Wernerfelt 1984; Barney 1991). See Foss and Foss (2000) for an argument that differential capabilities are, in turn, largely explainable in terms of transaction costs.

may be priced at price zero). They also invest huge amounts of money in new credit scoring systems (e.g., Experian) in the hope that these (supposedly) superior technologies will not only increase created value but also that they can appropriate large parts of this extra created value — in other words, that they will gain competitive advantage.

The principle of the duality of capture and protection suggests that the benefits of such innovative activity may be constrained by buyers' attempts to protect the surplus they have already captured. Customers may exercise their outside options and shift to other firms that have not yet adopted new, more efficient protection technologies; this will induce innovative activity in those firms that are now frequented by customers with high propensity to capture. Also, the successful implementation of new protection technologies may often require that existing contracts (e.g., loan agreements) are renegotiated; however, customers may be able to resist this. In this case, prior long-term contracting may serve to protect the value customers have captured.

Equilibrium is reached when all impediments to value creation have been discovered, and all agents have optimized their capture and protection activities. In equilibrium all rights will be perfectly delineated in the sense that there will be no incentives to engage in capture, since those rights that are worth protecting will be protected.²¹ Strictly speaking, no room for further strategizing exists. Strategizing, as we have defined it, is a disequilibrium phenomenon. So far we have suppressed the equilibrium / dis-equilibrium issue. We consider this next.

Influencing Impediments to Value Creation Through Influencing Expectations

If all strategizers have precise expectations about other strategizers' capture and protection activities (i.e., the set of available capture and protection strategies and the costs and benefits associated with these), an equilibrium will be reached in which strategizers acquire only those property rights whose value, net of the costs of

²¹ Of course, there will still be value left in the public domain.

protection, are positive, and would-be capturers will not make any attempts to capture such rights (Barzel 1994: 396). In this equilibrium, strategizers' expectations coincide. This will be the case when the relevant information on which expectations are based is costless. If instead, and more realistically, information about other strategizers' capture and protection activities is costly to obtain, strategizers' expectations may not coincide. This means that resources will be spent on capture and protection in excess of the equilibrium amount. Because divergence of expectations lead to disequilibrium investments in capture and protection activities (i.e., rent-seeking activities), value is dissipated. In turn, activities that reduce such dissipation, and therefore increase created value, will emerge.

One such activity is the influencing of expectations. In particular, dissipation may be *reduced* by signaling efforts to the extent that such efforts help to establish equilibrium expectations.²² This suggests that although such activities do dissipate value relative to the zero transaction cost benchmark (or the perfectly competitive equilibrium), they may diminish the dissipation of value relative to a situation in which disequilibrium investments in capture and protection activities are undertaken.²³ Firms that invest resources in signaling do so, because they 1) expect to be able to capture value (Porter 1980; Tirole 1988) and 2) because they expect to save resources from having to invest less in capture activities (compared to a non-signaling situation). Intuitively, the extent of signaling (i.e., frequency, resources invested in signaling) is likely to be related to the divergence of agents' expectations, because it requires a greater effort to harmonize expectations the larger their divergence. This suggests an alternative explanation of the industrial organization proposition that in industries that are subject to shocks to technology, market growth, regulation, etc., signaling will be more frequent than in more tranquil environments: The reason is not

²² This provides a link between our PRV approach and game theory approaches to strategy (e.g., Shapiro 1989; Ghemawat 1991, 1997).

²³ As an example, consider the costs of monopoly. These include the deadweight welfare loss, resources incurred by would-be monopolizers (what is normally categorized as "rent-seeking costs") and resources incurred on protection by victims to monopolization. If a would-be monopolizer can credibly

just that signaling is undertaken to keep cartels together in turbulent environments, but also that firms may increase created value incurring fewer costs on capture and protection.

However, the PRV principle of the duality of capture and protection implies more than this. For example, it implies that in industries where customers may protect against capture signaling needs to be directed towards customers as well as towards rivals. This suggests the following proposition:

Proposition 3 In industries in which customers can easily coordinate their protection efforts, because they are few in number, are particularly well organized, have clearly defined shared interests, etc., would-be monopolizing firms will signal to buyers/consumers to a larger extent than will would-be monopolizing firms in industries in which customers can less easily coordinate their protection efforts.

Consider the software industry. Although the user base here is very large, it contains very well organized segments. In principle, such segments could at relatively low costs organize to, for example, switch to other software standards to frustrate the intentions of a would-be monopolizer. This would eliminate lock-in to any particular standards (i.e., lock-in and path-dependence are fundamentally transaction cost problems). The would-be monopolizer's knowledge of users having low costs of protection may be sufficient to stall his monopolizing efforts. However, the would-be monopolizer's costs of capture may be sufficiently low that it will pay for him to signal to users that he is committed to dominate the industry. Frequent announcements of product updates (and other ways of demonstrating technological leadership) may accomplish the trick, because this makes it costly for users to switch to other standards. Other tactics may also be applied, such as signaling the ability to engage in product differentiation and price discrimination, because these makes it more costly for users to organize and protect against the would-be monopolizer's

signal that he will indeed successfully monopolize the market, the resources spent on protection as well as the unsuccessful rent-seekers' capture costs may be avoided.

capture. Also, the assembling and announcement of allies, as when Sun gathered allies in support of Java and took out full-page advertisements listing the companies behind the Java coalition, may serve such purposes.

Innovative Activity and Impediments to Value Creation

Large literatures in innovation studies, the economics of technological change and strategic management are taken up with the link between innovation and value creation (see Lengnick-Hall 1992). Fresh insights into this process can be drawn from the PRV. As already mentioned, the PRV directs attention to the importance of innovations in protection and capture technologies as means of acquiring and sustaining competitive advantage.²⁴ However, other unconventional insights into the value-creating potential of product and process innovations may be distilled from the PRV. From the point of view of a strategizing firm, product and process innovations are potential means of value creation. It is a well-established point that the character of the appropriability regime (i.e., the technological and legal characteristics that surround an innovation) influences how much of the value from an innovation that an innovator can protect from competitive imitation (Teece 1987). Parts of the literature also recognize, albeit implicitly, that an innovating firm is also subject to capture attempts from buyers and sellers, and not just from imitating competitors.²⁵ We argue that given the existence of buyers and sellers that actively try to capture parts of the value created by an innovation, it matters to the innovating firm 1) whether it engages in process or product innovations and 2) what kind of contracts it strikes with its buyers and suppliers in order to protect created value. Consider each point in turn.

²⁴ Indeed, a unique feature of the PRV relative to other approaches to strategy is that it directs attention to the importance of such innovations as sources of created value. The discussion so far suggests a whole range of means of protecting and capturing value that firms may adopt and/or invest in improving or innovate, such as TQM systems, ISO certification, the use of long-term contracts to avoid monopolization, etc. Of contemporary economics-based approaches to strategy, only the PRV offers an explanation of why innovations in these means may create value, because only the PRV explicitly considers the relationship between transaction costs and value creation.

²⁵ Teece's (1987) emphasis on the importance for the innovation process of the terms at which the services of complementary assets are sourced, as well as the characteristics (e.g., specificity) of these assets, is an example.

Information about process innovations is less costly to protect in terms of secrecy than information about product innovations, where secrecy is usually not a feasible protection mechanism. Secrecy implies that the improved cost conditions (i.e., increased value creation) that are the result of a process innovation are likely to be costly to observe. Value created through process innovations may therefore not give rise to capture attempts from suppliers and buyers, and there is, therefore, no accompanying dissipation of value. To the extent that the value created as a result of the innovation does provoke capture attempts (e.g., hold-ups or bargaining tactics in connection with contract renewal), the innovating firm may try to protect this value from capture and dissipation through long-term contracts that stipulate fixed prices.

We argue that the value created by product innovations is more likely to be protected from the capture attempts of buyers and sellers and the attendant dissipation by contractual means than process innovations are, precisely because protecting product innovations usually cannot take place through secrecy mechanisms. Such contracts may, for example, include clauses that stipulate how prices of product upgradings are to be determined relative to some base price, clauses that exist for reasons of protecting created value and reduce dissipation. This reasoning suggests the following proposition:

Proposition 4: Firms with high rates of process innovations relative to product innovations are more likely to enter into long-term contracts that stipulate a fixed price with buyers and sellers than firms with a high rate of product to process innovations.²⁶

The PRV and Other Strategy Approaches

In this section, we briefly discuss how the PRV relates to other economics-based approaches to strategy, namely the resource-based view (the “RBV”) and the

²⁶ Of course, under “fixed price” contracts are included contracts that make provisions for changes in the general price level.

industrial organization view (the “IOV”). Table 1 offers an identification of some important differences and similarities between these three approaches.

XXXXXXXXX *Insert Table 1 here* XXXXXXXXX

Although the table reveals crucial differences, in our view both the IOV and the RBV provide crucial insights that help to answer what we have defined as the three fundamental questions in the analysis of competitive strategy. However, we also submit that in neither of these two approaches are processes of creation, capture and protection of value addressed *in their entirety* (see also Bowman and Ambrosini 2000; Boddewyn 2001 for related points). Instead, the main emphasis is on the protection and capture of value,²⁷ and they appear to be much less taken up with the issue of how the “size of the pie” (i.e., value created) is influenced by firms’ capture and protection activities.²⁸ Notably, they are not taken up with increasing created value through the reduction of inefficiencies (Williamson 1994). In fact, whereas we stress the reduction of dissipation and deadweight welfare losses as a key source of value creation and competitive advantage, the IOV sees competitive advantage as unavoidably implying the creation of some welfare loss.²⁹

More specifically, the most fundamental differences between the PRV on the one hand and the RBV and the IOV on the other hand, lie in 1) recognizing that *all* agents may take protective action to avoid capture or engage in capture where property rights are not sufficiently protected, 2) that such behaviors use up resources (i.e., transaction costs) which diminish the *amount* of created value, and 3) that strategizers may gain by influencing the behaviors’ of rivals and cooperators, thereby influencing the inefficiencies caused by property rights not being completely secure, and, in turn,

²⁷ As witnessed by their emphasis on such issues as whether resources can be imitated or substituted (Barney 1991; Peteraf 1993), entry-deterrence, monopolization, etc. (Tirole 1988).

²⁸ See also Kim and Mahoney (2001) for a similar critique of the RBV. It may be true, as Makadok and Coff (2002) that the RBV is taken up with “captured value” in the form of above-normal profits. However, the process of interaction between value creation and value appropriation is given little attention.

²⁹ In contrast, the RBV takes more of an efficiency approach so that the creation of competitive advantage does not necessarily imply a social welfare loss.

the value that they can appropriate. We discuss this in more detail below, and also briefly treat the relation between the PRV and transaction cost economics.

The Resource-based View

The RBV provides important insights into how firms may obtain sustained competitive advantage based on their valuable, rare and costly-to-imitate resources (Barney 1991).³⁰ The basic RBV model (Lippman and Rumelt 1982; Barney 1991; Peteraf 1993) starts from competitive equilibrium, and then explains sustained competitive advantage by invoking imperfect mobility of input factors (e.g., imperfect imitability). The resulting sustainable rent differentials are then identified with sustained competitive advantages. Extensions of the model consider competition in terms of accumulation of asset stocks (Dierickx and Cool 1989) and the associated barriers to imitation (Reed and DeFilippi 1990). Other extensions consider the characteristics of strategic factor markets (Barney 1986; Chi 1994) and the role of the industry (Amit and Schoemaker 1993).

From a PRV perspective, there is a certain lack of generality to the basic RBV model of sustainable rents in competitive equilibrium. This is a somewhat constraining starting point that vaguely corresponds to our analysis of strategizing in a Coasian setting in which capture and protection are ruled out. To be sure, the RBV goes beyond this basic setting by allowing for strategizing in the form of imitative competition, that is, what we classify as one instance of capture. The equilibrium in such imitative competitive games is defined by imitation attempts coming to a halt. This vaguely corresponds to our definition of equilibrium as a situation, where strategizing processes have come to a halt. However, the PRV view considers a much

³⁰ Kim and Mahoney (2001) also discuss the relation between property rights economics and the RBV, arguing that "... property rights theory complements resource-based and dynamic capabilities research because they all deal with appropriating economic rents accruing to resource ownership. Moreover, property rights theory is able to extend these strategic management by relaxing implicit assumptions that resources are secure due to the inherent attributes of the resources as well as being effectively protected by third-party enforcement and self-enforcing agreements" (p.5-6). We concur. However, in contrast to Kim and Mahoney we strongly emphasize the resource costs of capture and protection activities and point out that reducing these costs have important strategic potential.

broader set of capture and protection activities than simply imitative competition. For example, the PRV directs attention to both those “internal” capture and protection activities that would be understood in RBV terms as “resources,” such as well-working TQM systems, and to those of an “external” nature, such as influencing rivals’ possibilities of entering into contracts with buyers and sellers. In contrast, the RBV it is not much concerned with issues of contractual structure and how contracting influences strategizing and competitive advantage — a manifestation of its general lack of a detailed analysis of the firm as a strategizer in a rivalrous environment. Expectations only seem to enter the analysis in the context of strategic factor markets (Barney 1986), whereas they are central in the PRV.

In the PRV, strategizing may consist in the reduction of dissipation of value. On the one hand, this is *consistent* with the efficiency view of the RBV. For example, the PRV explains in a precise manner why, for example, a TQM system or a credit control system may be valuable (Barney 1991) resources to a firm, namely because these resources reduce dissipation. On the other hand, the RBV does not consider how capture and protection activities lead to dissipation of value. For example, Barney’s (1986) treatment of strategic factor markets does not include dissipation from haggling over prices. This means that opportunities for strategizing are not identified in the perspective.

The Industrial Organization View

IO approaches have a long history in the strategy field (Porter 1980; Shapiro 1989; Ghemawat 1991, 1997).³¹ These approaches are certainly taken up with bargaining processes between, for example, firms and their suppliers and buyers (Porter 1980), and, in some versions, also emphasize the contractual commitments and expectational dynamics that we have focused on (Tirole 1988; Shapiro 1989; Ghemawat 1991, 1997; Brandenburger and Nalebuff 1996; Brandenburger and Stuart 2000). In these respects, the IOV is closer to our PRV than the RBV is. However, even

³¹ Admittedly, we somewhat indiscriminately lump together different approaches to industrial organization economics under the “IOV” label.

the IOV may not consider all strategically relevant capture and protection activities and the attendant tradeoffs.

For example, in the Porterian five forces framework most of the emphasis is on protection strategies in the form of positioning in an industry and shielding against the five competitive forces through the creation of entry and mobility barriers.³² Capture is represented through the five competitive forces. Much of this is entirely consistent with the PRV. However, there is very little attention in the Porter framework to dissipation in the form of resources spent on capture and protection.³³ Moreover, although the interaction between protection and capture that we have stressed is mirrored, for example, in the emphasis on positioning relative to the competitive forces, all of the ramifications of this interaction are not analyzed. Thus, a PRV analysis suggests that the five forces are more intimately connected than portrayed in Porter (1980). For example, the contractual structure between firms and their sellers and buyers strongly influences the possibilities of strategizing in the form of changing internal rivalry. In sum, the complex interaction in the creation of value between protection and capture activities is not fully brought out in the Porter framework.

More recent industrial organization and game theory-based approaches to strategy (e.g., Nalebuff and Brandenburger 1996) may be less vulnerable to this critique. However, even these approaches do not fully capture the complex interaction between the creation, capture and protection of value. One reason for this is that they only consider inefficiencies in the form of transaction costs in a very selective manner (Furubotn 1991), and do not see transaction costs as fundamentally involved in virtually all economic activities, as the PRV does. Another reason lies in

³² Ghemawat's (1991, 1998) explicitly game theoretic IO view of competitive extends the protection focus to commitment strategies. This is akin to our focus on contracting as a key consideration in the strategizing process.

³³ For example, Porter's (1980: 24-28) discussion of the bargaining power of suppliers does not touch on the possibility of dissipation of value through costly haggling. More recent versions of the IOV (e.g., Shapiro 1989) fare better here; for example, investments in excess capacity to deter entry are seen as socially wasteful protection activities (in our terminology).

the equilibrium orientation of these theories which leads them to disregard resources used in disequilibrium (notably, what we call “strategizing”).

Transaction Cost Economics

There is clearly a close family relation between the PRV and transaction cost economics (Williamson 1996).³⁴ Both focus on transaction costs, the dissipation caused by these, and the contractual means of reducing dissipation. We completely agree with Williamson (1994, 1999) and Nickerson (2000) that “economizing” has been given too little attention in the strategy field; indeed, this paper is an attempt to take the economizing perspective as far as we think is possible.³⁵ There are also important differences (Williamson 1985; Eggertson 1990; Barzel 1997; Foss and Foss 2000). We argue that in some respects, the PRV is more microanalytic and more general than transaction cost economics (see also Eggertson 1990; Foss and Foss 2000). For example, whereas transaction costs economics is very much taken up with the hold-up problem, in the PRV this is just a single instance (albeit important) of a wider class of capture activities. Moreover, transaction cost economics are, at its present stage, not very well developed with understanding the main issues of competitive strategy, as admitted by Williamson (1999). For example, virtually no attention is paid to competitive interaction and to the role of contracting and expectations in this process. Indeed, while transaction cost economics has often successfully been applied to corporate strategy issues (e.g., Teece 1982; Collis and Montgomery 1996), it has been much less often applied to competitive strategy issues — the primary concern of this paper.³⁶ In contrast, the PRV can naturally be used for the analysis of firms’ external strategizing behavior *vis-à-vis* rival firms in their attempt to capture and protect value. Nevertheless, we would stress that the PRV and transaction cost economics are

³⁴ Other intellectual allies to the PRV are the economic approach to conflict developed by Hirshleifer (1989) and the ambitious reconstruction of competitive theory developed by Makowski and Ostroy (1995, 2001).

³⁵ However, in contrast to Williamson’s (1994) distinction between “economizing” and “strategizing” a main point of our view is that these are close connected .

³⁶ The exceptions are Williamson (1999), Nickerson and van den Bergh (1999), and Nickerson (2000).

natural allies and that the insights of both approaches should be integrated rather than separated.

The PRV Within the Conversation of Strategic Management³⁷

Because of its generality, the PRV is eminently suited to further conversation within strategic management. That it is general may be seen in a number of ways. (See also Table 1). First, the PRV is not dependent on very constraining assumptions. The PRV is not committed to a specific level of analysis, such as the resource (the RBV) or the industry (the IO view). It is not committed to any particular interaction structures, such as perfect competition (the RBV) or imperfect competition (the IO view), but can subsume both. The PRV can be applied to the analysis of disequilibrium situations (although little work exists on this), whereas at least the RBV conceptualizes sustained competitive advantage as an equilibrium phenomenon solely (Barney 1991). Second, the PRV is general in the sense that a number of phenomena that are treated in the RBV and the IO presuppose the existence of certain transaction cost. Thus, certain strategies towards entrants, buyers, imitators, etc. will only work if certain transaction costs are present. This is straightforward in the case of imitative competition, where imitation will only succeed if the costs of establishing the relevant property rights to efficient resources are costly. However, as we have argued, strategies towards rivals and strategies towards buyers and sellers also depend on the presence of specific transaction costs for their success. In this connection, one may say that the PRV identifies the transaction cost conditions for the exercise of market power, and, more generally, for strategizing. The PRV furthers conversation by linking otherwise different basic perspectives in this way. Third, the PRV can not only reformulate and extend a number of insights of the IO view and the RBV; it adds new insights of its own, that is, its own voice in the conversation. We have given a number of examples of this, centering on the role of contracting and (avoiding) dissipation as key concerns in the process of strategizing.

³⁷ Apologies to Mahoney and Pandian (1992).

Conclusion

The PRV adds both research heuristics, particularly the principles of comparative contracting and the duality of capture and protection, and new substantial insights to the study of competitive strategy. At the most basic level, the PRV adds new insights into strategizing, because of its consistent and thoroughgoing emphasis on “... the way individuals enhance the value of their resources and avert losses to others” (Barzel 1994: 408). An important implication of following this fundamental heuristic is that attention is systematically directed to how contracting influences both opportunities for capture and protection of value. Novel, yet basic, insights also derive from systematically exploring the implications of the notion that an importance source of value creation lies in reducing deadweight welfare losses. Among other things, this suggests that signaling may be interpreted in a novel way, namely as a means of reducing dissipation (and not just of protecting value). Finally, the PRV directs attention to protection and capture technologies as intertwined with the issue of value creation. We are confident that future work on the PRV will prove fruitful. In particular, future work on the PRV should concentrate on empirically testing the theory as well as formalizing the basic ideas (e.g., building on Hirshleifer 1989 and Skaperdas 1992).

References

- Aghion, Philippe and Patrick Bolton. 1987. "Contracts as Barriers to Entry," *American Economic Review* 77: 388-401.
- Akerlof, George. 1970. "The Market for Lemons," in idem. 1984. *An Economic Theorist's Book of Tales*. Cambridge: Cambridge University Press.
- Alchian, Armen A. 1965. "Some Economics of Property Rights," in idem. 1977. *Economics Analysis of Property Rights*. Indianapolis: Liberty Press.
- Alchian, Armen A. 1977. *Economic Forces at Work*. Indianapolis: Liberty Press.
- Amit, Raphael and Paul J. H. Schoemaker. 1993. "Strategic Assets and Organizational Rent," *Strategic Management Journal* 14: 33-46.
- Barney, Jay B. 1986. "Strategic Factor Markets", *Management Science* 32: 1231-1241.
- Barney, Jay B. 1991. "Firm Resources and Sustained Competitive Advantage", *Journal of Management* 17: 99-120.
- Barzel, Yoram. 1982. "Measurement Costs and the Organization of Markets," *Journal of Law and Economics*
- Barzel, Yoram. 1994. "The Capture of Wealth by Monopolists and the Protection of Property Rights," *International Review of Law and Economics* 14: 393-409.
- Barzel, Yoram. 1997. *Economic Analysis of Property Rights*, 2nd ed., Cambridge: Cambridge University Press.
- Boddewyn, J.J. 2001. "What Happens to Rents: A Rent-Oriented View of Strategic Behavior," *unpublished manuscript*.
- Bowman, Cliff and Veronique Ambrosini. 2000. "Value Creation versus Value Capture: Towards a Coherent Definition of Value in Strategy," *British Journal of Management* 11: 1-16.
- Brandenburger, Adam M. and Harborne W. Stuart, Jr. 1996. "Value-Based Business Strategy," *Journal of Economics and Management Strategy* 5: 5-24.
- Brandenburger, Adam M. and Harborne W. Stuart, Jr. 2000. "Biform Games," *Working Paper, Harvard Business School*.

- Cheung, Stephen S.N. 1969. "The Structure of a Contract and the Theory of a Non-Exclusive Ressource," *Journal of Law and Economics* 10: 49-70.
- Chi, Tailan. 1994. "Trading in Strategic Resources: Necessary Conditions, Transaction Cost Problems, and Choice of Exchange Structure," *Strategic Management Journal* 15: 271-290.
- Coase, Ronald H. 1937. "The Nature of the Firm," in idem. 1988. *The Firm, the Market and the Law*. Chicago: University of Chicago Press.
- Coase, Ronald H. 1960. "The Problem of Social Cost," in idem. 1988. *The Firm, the Market and the Law*. Chicago: University of Chicago Press.
- Coase, Ronald H. 1988. "Notes on the Problem of Social Cost," in idem. 1988. *The Firm, The Market and the Law*. Chicago: University of Chicago Press.
- Davis, Evan and John Kay. 1990. "Assessing Corporate Performance," *Business Strategy Review* : 1-16.
- De Alessi, Louis. 1990. "Form, Substance, and Welfare Comparisons in the Analysis of Institutions," *Journal of Institutional and Theoretical Economics* 146: 5-23.
- Demsetz, Harold. 1967. "Toward a Theory of Property Rights," originally published in 1967, reprinted in Harold Demsetz. 1988. *Ownership, Control, and the Firm*. Oxford: Basil Blackwell.
- Demsetz, Harold. 1982. "Barriers to Entry," *American Economic Review* 72: 47-57.
- Dierickx, Ingemar and Karel Cool. 1989. "Asset Stock Accumulation and the Sustainability of Competitive Advantage", *Management Science* 35: 1504-1511.
- Eggertson, Thrainn. 1990. *Economic Behavior and Institutions*. Cambridge: Cambridge University Press.
- Foss, Kirsten. 1996. "Transaction Costs and Technological Development," *Research Policy* 25: 531-547
- Foss, Kirsten and Nicolai J. Foss. 2000. "Competence and Governance Perspectives: How Much Do They Differ? And How Does It Matter?" In Nicolai J Foss and

- Volker Mahnke, eds. *Competence, Governance, and Entrepreneurship*. Oxford: Oxford University Press.
- Foss, Nicolai J. 2002. "Transaction Costs Are the Foundation of Strategy," *unpublished manuscript*.
- Furubotn, Eirik. 1991. "General Equilibrium Models, Transaction Costs and the Concept of Efficient Allocation in a Capitalist Economy," *Journal of Institutional and Theoretical Economics* 147: 662-686.
- Ghemawat, Pankaj. 1991. *Commitment*. New York: Free Press.
- Ghemawat, Pankaj. 1997. *Games Businesses Play*. Cambridge, MA: MIT Press.
- Hart, Oliver. 1995. *Firms, Contracts and Financial Structure*. Oxford: Oxford University Press.
- Hirshleifer, Jack. 1989. "Conflict and the Rent-Seeking Success Functions," *Public Choice* 63: 101-112.
- Holmström, Bengt. 1982. "Moral Hazard in Teams," *Bell Journal of Economics* 13: 324-340.
- Hubbard, Thomas N. 2000. "The Demand for Monitoring Technologies: The Case of Trucking," *Quarterly Journal of Economics*: 533-560.
- Jones, Gareth R. 1983. "Transaction Costs, Property Rights, and Organizational Culture: An Exchange Perspective," *Administrative Science Quarterly* 28: 454-467.
- Kim, Jongwook and Joseph T. Mahoney. 2001. "Resource-based and Property Rights Perspectives on Value Creation: the Case of Oil Field Unitization," University of Illinois at Urbana-Champaign, *Working No. 01-0130*.
- Kirzner, Israel M. 1997. "Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach," *Journal of Economic Literature* 35: 60-85.
- Kreps, David M. 1990. *A Course in Microeconomic Theory*. Princeton: Princeton University Press.
- Lengnick-Hall, Cynthia A. 1992. "Innovation and Competitive Advantage: What We Know and What We Need to Learn," *Journal of Management* 18: 399-429.

- Lippman, Steven A. and Richard P. Rumelt. 1982. "Uncertain Imitability: An Analysis of Interfirm Differences Under Competition," *Bell Journal of Economics* 13: 418-438.
- Mahoney, Joseph and J. Rajendran Pandian. 1992. "The Resource-based View Within the Conversation of Strategic Management," *Strategic Management Journal* 13: 363-380.
- Makadok, R. 2001. "A Pointed Commentary on Priem and Butler," *Academy of Management Review* 26: 498-499.
- Makadok, R. and R. Coff. 2002. "The Theory of Value and the Value of Theory: Breaking New Ground Versus Reinventing the Wheel," *Academy of Management Review* 27: 10-13.
- Makowski, Louis and Joseph M. Ostroy. 1995. "Appropriation and Efficiency: A Revision of the First Theorem of Welfare Economics," *American Economic Review* 85: 808-827.
- Makowski, Louis and Joseph M. Ostroy. 2001. "Perfect Competition and the Creativity of the Market," *Journal of Economic Literature* 39: 479-535.
- Michael, Steven C. 2000. "Investments to Create Bargaining Power: the Case of Franchising," *Strategic Management Journal* 21: 497-514.
- Milgrom, Paul and John Roberts. 1990. "Bargaining Costs, Influence Costs, and the Organization of Economic Activity," in James E. Alt and Kenneth A. Shepsle, eds. *Perspectives on Positive Political Economy*. Cambridge: Cambridge University Press.
- Nalebuff, Barry J. and Adam M. Brandenburger. 1996. *Co-opetition*. London: Harper-Collins Business.
- Nickerson, Jackson. 2000. "Towards an Economizing Theory of Strategy," forthcoming, *Strategic Management Journal*
- Nickerson, Jackson and Roger van den Bergh. 1999. "Economizing in a Context of Strategizing: Governance Mode Choice in Cournot Competition," *Journal of Economic Behavior and Organization* 40: 1-15.

- North, Douglass C. 1990. *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press.
- Oster, Sharon. 1990. *Modern Competitive Analysis*. Oxford: Oxford University Press.
- Parolini, Cinzia. 1999. *The Value Net: A Tool for Competitive Strategy*. Chichester: John Wiley Books.
- Penrose, Edith T. 1959. *The Theory of the Growth of the Firm*. Oxford: Oxford University Press.
- Peteraf, Margaret A. 1993. "The Cornerstones of Competitive Advantage: A Resource-Based View", *Strategic Management Journal* 14: 179-191.
- Poppo, Laura and Todd Zenger. 1998. "Testing Alternative Theories of the Firm: Transaction Cost, Knowledge-based and Measurement Explanations for Make-or-Buy Decisions in Information Services," *Strategic Management Journal* 19: 853-877.
- Porter, Michael E. 1980. *Competitive Strategy*. New York: Free Press.
- Porter, Michael E. 1985. *Competitive Advantage*. New York: Free Press.
- Priem, R.L. 2001. "The 'Business-level RBV: Great Wall or Berlin Wall?," *Academy of Management Review* 26: 499-501.
- Priem, R.L. and J. E. Butler. 2001. "Is the Resource-based 'View' a Useful Perspective for Strategic Management Research?," *Academy of Management Review* 26: 22-40.
- Reed, R. and R. DeFilippi. 1990. "Causal Ambiguity, Barriers to Imitation and Sustainable Competitive Advantage," *Academy of Management Review* 15: 88-102.
- Rumelt, Richard P. 1987. "Theory, Strategy, and Entrepreneurship," in David J Teece, ed. 1987. *The Competitive Challenge*. New York: Harper and Row.
- Salop, Stephen and David Scheffman. 1983. "Raising Rivals' Costs," *American Economic Review, Papers and Proceedings* 73: 267-271.
- Schumpeter, Joseph A. 1934. *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.

- Shapiro, Carl. 1989. "The Theory of Business Strategy," *RAND Journal of Economics* 20: 125-137.
- Shapiro, Carl and Hal Varian. 1999. *Information Rules*. Boston: Harvard Business School Press.
- Skaperdas, Stergios. 1992. "Cooperation, Conflict and Power in the Absence of Property Rights," *American Economic Review* 82: 720-739.
- Teece, David J. 1982. "Towards an Economic Theory of the Multiproduct Firm," *Journal of Economic Behavior and Organization* 3: 39-63.
- Teece, David J. 1987. "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy," in idem. 1987. *The Competitive Challenge*. Cambridge: Ballinger Publ. Comp.
- Tirole, Jean. 1988. *The Theory of Industrial Organization*. Cambridge: MIT Press.
- Varian, Hal. 1989. "Price Discrimination," in Richard D. Schmalensee and Robert D. Willig, eds. *Handbook of Industrial Organization*. New Holland: Elsevier.
- Wernerfelt, Birger. 1984. "A Resource-based View of the Firm," *Strategic Management Journal* 5: 171-180.
- Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: Free Press.
- Williamson, Oliver E. 1994. "Strategizing, Economizing, and Economic Organization," in Richard P. Rumelt, Dan E. Schendel and David J. Teece, eds. *Fundamental Issues in Strategy*. Boston: Harvard Business School Press.
- Williamson, Oliver E. 1996. *The Mechanisms of Governance*. Oxford: Oxford University Press.
- Williamson, Oliver E. 1999. "Strategy Research: Governance and Competence Perspectives," *Strategic Management Journal* 20: 1087-1108.

Table 1
*Differences and Similarities Between Three Economics-based
Approaches to Competitive Strategy*

	The IOV	The RBV	The PRV
Pedigree	Structure-conduct-performance theory; game theory (Shapiro 1989)	Penrose (1959), Chicago industrial organization economics.	Property rights economics (Coase 1960; Demsetz 1967; Barzel 1997)
Unit of analysis	Firms	Resources	Property rights
Level of analysis	Industries	Firms	Can be applied to any level of analysis.
Assumptions about agents	Maximizing	Rent-seeking, but not necessarily maximizing	Maximizing
Power or efficiency focus	Power	Efficiency	Mostly efficiency; however, can accommodate power perspectives by identifying the transaction cost conditions for the exercise of market power.
Assumptions about market structure	Oligopolistic	Base model (e.g., Lippman & Rumelt 1982): Competitive structures	Consistent with any market structure
Sources of competitive advantage	Superior positioning relative to the five competitive forces based on a generic strategy (Porter 1980); exploiting market power and protecting a favorable position by means of, e.g., credible entry deterrence (Tirole 1988; Ghemawat 1991, 1998).	Resources that are valuable, rare, and hard to imitate (Barney 1991)	Discovering superior ways of reducing dissipation, as well as capturing and protecting value by means of contracting, signaling and innovation.

Danish Research Unit for Industrial Dynamics

The Research Programme

The DRUID-research programme is organised in 3 different research themes:

- *The firm as a learning organisation*
- *Competence building and inter-firm dynamics*
- *The learning economy and the competitiveness of systems of innovation*

In each of the three areas there is one strategic theoretical and one central empirical and policy oriented orientation.

Theme A: The firm as a learning organisation

The theoretical perspective confronts and combines the resource-based view (Penrose, 1959) with recent approaches where the focus is on learning and the dynamic capabilities of the firm (Dosi, Teece and Winter, 1992). The aim of this theoretical work is to develop an analytical understanding of the firm as a learning organisation.

The empirical and policy issues relate to the nexus technology, productivity, organisational change and human resources. More insight in the dynamic interplay between these factors at the level of the firm is crucial to understand international differences in performance at the macro level in terms of economic growth and employment.

Theme B: Competence building and inter-firm dynamics

The theoretical perspective relates to the dynamics of the inter-firm division of labour and the formation of network relationships between firms. An attempt will be made to develop evolutionary models with Schumpeterian innovations as the motor driving a Marshallian evolution of the division of labour.

The empirical and policy issues relate the formation of knowledge-intensive regional and sectoral networks of firms to competitiveness and structural change. Data on the structure of production will be combined with indicators of knowledge and learning. IO-matrixes which include flows of knowledge and new technologies will be developed and supplemented by data from case-studies and questionnaires.

Theme C: The learning economy and the competitiveness of systems of innovation.

The third theme aims at a stronger conceptual and theoretical base for new concepts such as 'systems of innovation' and 'the learning economy' and to link these concepts to the ecological dimension. The focus is on the interaction between institutional and technical change in a specified geographical space. An attempt will be made to synthesise theories of economic development emphasising the role of science based-sectors with those emphasising learning-by-producing and the growing knowledge-intensity of all economic activities.

The main empirical and policy issues are related to changes in the local dimensions of innovation and learning. What remains of the relative autonomy of national systems of innovation? Is there a tendency towards convergence or divergence in the specialisation in trade, production, innovation and in the knowledge base itself when we compare regions and nations?

The Ph.D.-programme

There are at present more than 10 Ph.D.-students working in close connection to the DRUID research programme. DRUID organises regularly specific Ph.D.-activities such as workshops, seminars and courses, often in a co-operation with other Danish or international institutes. Also important is the role of DRUID as an environment which stimulates the Ph.D.-students to become creative and effective. This involves several elements:

- access to the international network in the form of visiting fellows and visits at the sister institutions
- participation in research projects
- access to supervision of theses
- access to databases

Each year DRUID welcomes a limited number of foreign Ph.D.-students who want to work on subjects and project close to the core of the DRUID-research programme.

External projects

DRUID-members are involved in projects with external support. One major project which covers several of the elements of the research programme is DISKO; a comparative analysis of the Danish Innovation System; and there are several projects involving international co-operation within EU's 4th Framework Programme. DRUID is open to host other projects as far as they fall within its research profile. Special attention is given to the communication of research results from such projects to a wide set of social actors and policy makers.

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