

Resource-Advantage Theory: An Evolutionary Theory of Competitive Firm Behavior?

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A new theory of competitive firm behavior—the resource-advantage theory—has recently been formally articulated in the marketing [Hunt and Morgan 1995], management [Hunt 1995], and socioeconomics [Hunt forthcoming] literatures. Robert Morgan and I have developed the premises of resource-advantage theory (hereafter "R-A theory") and contrast them with the premises of its rival, neoclassical perfect competition theory.¹ Though R-A theory's foundations can be traced to a variety of sources, including "Austrian" economics, its proximate genesis is a direct fusing of marketing's heterogeneous demand theory with management's resource-based theory of the firm.

The view that demand is heterogeneous has been a cornerstone of marketing theory for three decades. As developed in the 1950s and 1960s, marketing theory directs firms to focus on techniques for analyzing markets that will identify market segments, with distinct market offerings tailored for each segment. Heterogeneous demand theory, which traces to the works of Edward Chamberlin [1933] and John Maurice Clark [1961], was extensively developed by Wroe Alderson [1957; 1965]. Alderson [1965, 11] acknowledged that his "ecological" approach to theory paralleled that of John R. Commons.

The resource-based theory of the firm in the strategic management literature addresses the problem of "firm diversity" raised by Richard Nelson [1991]. Resource-based theory, which views the firm as a combiner of heterogeneous, imperfectly mobile resources, traces to the works of Edith Penrose [1959], Richard Nelson and Sidney Winter [1982], and Birger Wernerfelt [1984]. Since then, it has been further

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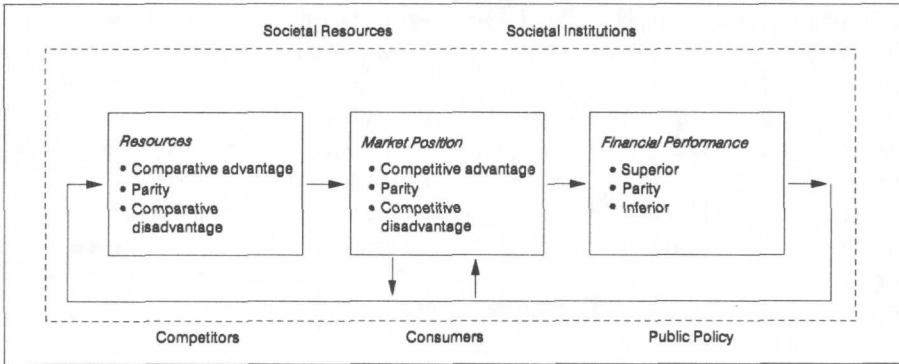
developed by many scholars, including Barney [1986; 1991; 1992], Barney and Hansen [1994], Black and Boal [1994], Brumagim [1994], Collis [1991; 1994], Conner [1991], Dierickx and Cool [1989], Grant [1991], Lado and Wilson [1994], Peteraf [1993], Prahalad and Hamel [1990; 1994], Schendel [1994], and Schoemaker and Amit [1994]. Resource-based theory provides a significant part of the undergirding for what Nicolai Foss [1993] calls the "competence perspective" of the firm.

I ask two questions in this article: (1) Is R-A theory an *evolutionary* theory of competitive firm behavior? (2) How does institutional economic theory relate to R-A theory? Addressing these questions requires that I first provide a brief overview of R-A theory. I then evaluate whether R-A theory is, properly speaking, an evolutionary theory of competitive firm behavior and close by relating R-A theory to institutional economic theory. The following overview summarizes the treatments of R-A theory as put forth in Hunt [1995] and Hunt and Morgan [1995].

An Overview of R-A Theory

In brief, as shown in Figures 1 and 2, R-A is a process theory of competitive firm behavior that stresses the importance of market segments and resources. Market segments are identifiable groups of consumers whose tastes and preferences with regard to an industry's output are relatively homogeneous *within* each group but significantly heterogeneous *across* the groups. Resources are the tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering that has value for some market segment(s). *Competition* among firms is an ongoing process and consists of the struggle among them for a comparative advantage in resources that will yield a marketplace position of competitive advantage and, thereby, superior financial performance. As discussed later, both the specific measure of financial performance and the specific referent used to indicate superiority will vary somewhat from time to time, firm to firm, industry to industry, and culture to culture. Firms learn through competition as a result of the feedback from relative financial performance "signaling" relative market position, which, in turn signals relative resources. Thus, the learning process depends significantly on what the firm uses as a specific measure and referent of superior financial performance. When one firm's comparative advantage in resources enables it to achieve superior performance through a position of competitive advantage in some market segment(s), competitors attempt to neutralize and/or "leapfrog" the advantaged firm by better managing existing resources and/or by acquisition, imitation, substitution, or major innovation, i.e., by acquiring the advantage-producing resource, imitating the resource, finding an equivalent resource, or finding a superior resource. Innovation, then, is endogenous to R-A theory.

Figure 1. A Schematic of the Resource-Advantage Theory of Competition



Read: Competition is the disequilibrating, ongoing process that consists of the constant struggle among firms for a comparative advantage in resources that will yield a marketplace position of competitive advantage and, thereby, superior financial performance. Firms learn through competition as a result of feedback from relative financial performance "signaling" relative market position, which in turn signals relative resources.

Source: Adapted from Hunt [1995].

Figure 2. Competitive Position Matrix^a

		Relative Resource-Produced Value		
		Lower	Parity	Superior
Relative Resource Costs	Lower	1 Indeterminate Position	2 Competitive Advantage	3 Competitive Advantage
	Parity	4 Competitive Disadvantage	5 Parity Position	6 Competitive Advantage
	Higher	7 Competitive Disadvantage	8 Competitive Disadvantage	9 Indeterminate Position

^aRead: The marketplace position of competitive advantage identified as Cell 3 results from the firm, relative to its competitors, having a resource assortment that enables it to produce an offering for some market segment(s) that (a) is perceived to be of superior value and (b) is produced at lower costs.

Source: Adapted from Hunt and Morgan [1995].

As shown in Table 1, there are significant differences between the assumptions of R-A and neoclassical theory. Whereas neoclassical theory typically assumes that each industry faces a single, static demand curve, R-A theory proposes that *both* inter-industry and intra-industry demand are substantially heterogeneous and dynamic. That is, consumers' tastes and preferences differ greatly within a product category, and such tastes and preferences change significantly through time. The import of this view of intra-industry demand is that there are very few *industry* markets—there are only partial homogeneities, fragments, or segments of demand *within* industries. Therefore, for most industries there exists no industry demand curve. For example, there is neither a market for shoes nor, more narrowly, a market for men's shoes nor, more narrowly yet, a market for men's athletic shoes. For most product categories, demand is at a level of (dis)aggregation that would be too narrow to be meaningfully referred to as an "industry." For example, one would not speak of the men's basketball shoe, or the 4-head stereophonic VHS tape recorder, or the sport-

Table 1. Foundational Propositions of Perfect Competition and Resource-Advantage Theory

	Perfect Competition Theory	Resource-Advantage Theory
P1. Demand is	heterogeneous across industries, homogeneous within industries, and static.	heterogeneous across industries heterogeneous within industries, and dynamic.
P2. Consumer information is	perfect and costless.	imperfect and costly.
P3. Human motivation is	self-interest maximization.	constrained self-interest seeking.
P4. The firm's objective is	profit maximization.	superior financial performance.
P5. The firm's information is	perfect and costless.	imperfect and costly.
P6. The firm's resources are	capital, labor, and land.	financial, physical, legal, human, organizational, informational, and relational.
P7. Resource characteristics are	homogeneous and perfectly mobile.	heterogeneous and imperfectly mobile.
P8. The role of management is	to determine quantity and implement production function.	to recognize, understand, create, select, implement, and modify strategies.
P9. Competitive dynamics are	equilibrium-seeking, with innovation exogenous.	disequilibrium-provoking, with innovation endogenous.

Source: Adapted from Hunt and Morgan [1995].

utility vehicle *industries*. Nonetheless, for R-A theory, such market segments as these (or smaller yet) are absolutely essential for understanding the nature of competition in market-based economies. Furthermore, as discussed later, the heterogeneity of intra-industry demand helps explain why the structure-conduct-performance view of competition fails to explain the extant diversity in the financial performance of firms.

Whereas neoclassical theory typically assumes that consumers have perfect and costless information about the availability, characteristics, benefits, and prices of all products in the marketplace, R-A theory proposes that consumers have imperfect information about goods and services that might match their tastes and preferences. Furthermore, the costs to consumers in terms of effort, time, and money of identifying satisfactory goods and services are often considerable.

For neoclassical theorists, all human behavior is motivated by self-interest or "utility" maximization. Therefore, among other things, all humans will inevitably engage in opportunism, i.e., "self-interest seeking with guile" [Williamson 1975]. Though R-A theory does not deny the overwhelming importance of the pursuit of self-interest in human affairs, it proposes that human behavior is motivated by *constrained* self-interest seeking. Like Etzioni [1988], R-A theory maintains that deontological considerations constrain teleological considerations. Humans, therefore, in their roles as consumers, owners, and managers, are constrained in their self-interest seeking by their moral codes. Because moral codes determine for people what is right, proper, ethical, moral, or appropriate, not only is opportunism not inevitable, but for people who share the same moral code, trust might exist both among people and between them and their respective organizations.

R-A theory proposes that the firm's primary objective is superior financial performance, which it pursues under conditions of imperfect (and often costly to obtain) information about customers, competitors, suppliers, and production techniques. Because superior financial performance *enables* firms to pursue other objectives, such as contributing to social causes, it is viewed as *primary*. Financial performance is indicated by such measures as profits, earnings per share, return on investment, and capital appreciation. Here, "superior" equates with both "more than" and "better than." It implies that firms seek a level of financial performance *exceeding* that of some referent. For example, the referent can be the firm's own performance in a previous time period, the performance of a rival firm, an industry average, or a stock market average, among others. Both the specific measure and referent will vary somewhat from time to time, firm to firm, industry to industry, and culture to culture. For example, in Germany and Switzerland, where banks and other shareholders rarely trade their shares, superior long-term capital appreciation is pursued more frequently than it is in the United States [Porter 1990].

Although firms seek superior financial performance, they do not maximize such performance because of three factors: (1) managers lack the capability and informa-

tion to maximize [Simon 1979], (2) managers' self-interests may diverge from those of owners, i.e., the "agency problem," and (3) financial performance is constrained by managers' views of morality. Some versions of neoclassical theory acknowledge factors one and two, but factor three remains unacknowledged. In contrast, R-A theory recognizes that, at times, some managers resist cheating or opportunistically exploiting their customers, suppliers, and others because they believe that such self-interest maximizing behaviors would violate their duties or responsibilities, their sense of rightness or wrongness.

Firms pursue *superior* financial performance because superior rewards—both financial and nonfinancial—will flow to owners, managers, and employees when they do so. R-A theory abandons the abstract neoclassical concepts of "abnormal profits" or "rents" (i.e., profits differing from the average firm in a purely competitive industry in long-term equilibrium) because it denies that long-term equilibrium is something that commonly exists, or something that groups of rivals are "tending toward," or something that if achieved would be perfect. Indeed, R-A theory maintains that the very innovative activities that are often cast as dysfunctional "market imperfections" in neoclassical theory are the engine of economic growth.

R-A theory defines resources as the tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering that has value for some market segment(s). As such, resources are not restricted to a firm's tangible assets, but are anything available to the firm that has an enabling capacity. Therefore, resources can be financial (e.g., cash reserves and access to financial markets), physical (e.g., plant, raw materials, and equipment), legal (e.g., trademarks and licenses), human (e.g., the skills and knowledge of *individual* employees), organizational (e.g., competencies, controls, routines, and cultures), informational (e.g., knowledge about consumers, competitors, and technology), and relational (e.g., relationships with competitors, suppliers, and customers). Because all these entities have, potentially, an enabling capacity for organizations, they all can be resources.

R-A theory proposes that resources are both significantly heterogeneous across firms and imperfectly mobile, i.e., many firm resources, to varying degrees, are not commonly, easily, or readily bought and sold in the marketplace. For example, an organizational competency for building high-quality automobile engines is not something that an organization can purchase in the marketplace. When a firm has a resource—or, more often, a specific resource assortment—that is rare among competitors, it has the potential for producing a comparative advantage for that firm. A comparative advantage in resources exists when a firm's resource assortment enables it to produce a market offering that, relative to extant offerings by competitors, (1) is perceived by some market segment(s) to have superior value and/or (2) can be produced at lower cost. Relative to its rivals in a market segment, a firm's resource assortment can at any point in time be at a state of comparative advantage,

parity, or comparative disadvantage. Although a comparative advantage in resources can result in a marketplace *position* of competitive advantage (and, thereby, superior financial performance), such a favorable outcome is not assured.

Figure 2 shows nine possible competitive positions for the various combinations of a firm's relative resource-produced value for some segment(s) and relative resource costs for producing such value. As used here, "value" refers to the sum total of all benefits that consumers perceive they will receive if they accept the market offering. "Relative superior value" therefore equates with "perceived to be worth more."

Ideally, of course, a firm would prefer the competitive position of cell 3, where its comparative advantage in resources produces superior value at lower cost. For example, the Japanese automobile companies had this position in the United States throughout the 1970s and into the 1980s because their more efficient and more effective manufacturing processes produced higher quality products at lower cost. Whereas positions identified as cells 2 and 6 also bring competitive advantage and superior financial returns, firms occupying position 1 may or may not have superior returns. This would depend on the extent to which firms in this cell must offer price reductions that are less than, equal to, or in excess of their relative advantage in resource costs (consider the disaster that befell the Yugo automobile).

If no firm has a resource assortment that can produce either superior value for a particular market segment or has a cost advantage, then all firms will have parity market positions. The parity position prevails only when all innovation ceases, whether as a result of collusion, complacency, institutional restrictions, or governmental fiat. For R-A theory, the persistent absence of innovation constitutes a market failure. In the unlikely event that this situation persists through time, then an equilibrating theory, such as neoclassical theory, might apply.

R-A theory proposes that the role of management in a firm is to recognize and understand current strategies, create new strategies, select preferred strategies, implement (or *manage*) the strategies selected, and modify strategies through time. Strategies that yield a position of competitive advantage and superior financial performance will do so when they rely on those resources in which the firm has a comparative advantage over its rivals. *Sustained*, superior financial performance occurs when a firm's comparative advantage in resources continues to yield a position of competitive advantage despite the competitive actions of rivals.

R-A theory proposes that the analysis of competition should focus on groups of rivals competing for the patronage of consumers in specific market segments. For each market segment, firms will be distributed at any particular time throughout the nine positions in Figure 2. Those firms having a comparative advantage (disadvantage) in resources will occupy positions of competitive advantage (disadvantage) and will enjoy (suffer) financial returns that are superior (inferior). Because all firms seek superior financial performance, when a firm has a comparative advantage in

resources, rivals will attempt to neutralize that advantage by better managing their existing resources, by obtaining the same or equivalent value-producing resource, and/or by seeking a new resource that is less costly or produces superior value. To the extent that firms in the favored marketplace positions are relying on resources that are relatively immobile, then resource heterogeneity and superior financial performance can persist through time despite attempts by competitors to acquire the same (or equivalent or superior) value-producing resources.

R-A Theory and Evolutionary Economics

Although Morgan and I neither mention adopting the biological metaphor nor argue for R-A theory using biological analogies, this does not imply that R-A theory is not, strictly speaking, an *evolutionary* theory. Whether R-A theory is an evolutionary theory of competition can only be determined by comparing it with the characteristics that make a theory evolutionary. For Giovanni Dosi and Richard Nelson [1994, 154], evolutionary theories in economics should explain the movement of economic variables over time by means of "both random elements which generate or renew some variation of the variables in question, and mechanisms that systematically winnow on extant variation." They identify (1) units of selection, (2) mechanisms that do the selecting, and (3) the criteria of selection, adaptation, and variation as the "building blocks" of evolutionary economic theories.

Hodgson [1993, 39-51] provides the most detailed analysis yet of the characteristics of the various kinds of evolutionary theories possible in economics. His taxonomy distinguishes developmental theories that focus on "stages" from genetic theories that concentrate on a "set of fairly durable human entities" and a "detailed causal explanation" of their interactions. Within genetic theories, he distinguishes ontogenetic theories that focus on "a set of given and unchanging" entities from phylogenetic theories that focus on the "complete and ongoing evolution of the population, including changes in its composition." He then distinguishes phylogenetic consummatory theories that have end stages of "finality or consummation" from phylogenetic, non-consummatory theories that permit never-ending evolution. Although not all phylogenetic theories sort through natural selection, the key requirements for those that do so, he maintains, are that they must have units of selection that are "fairly durable" and "heritable" and there must be a selection process that involves a "struggle for existence" that "encompasses a renewable source of variety and change," where the struggle results in the survival of the "fitter," not necessarily the "fittest."

The thesis defended here is that R-A theory is a phylogenetic, non-consummatory, evolutionary theory of competitive firm behavior. Both firms and resources are claimed as being the heritable, durable units of selection, and competition

among firms is claimed to be the selection process that results in the survival of the "locally fitter," not the "universally fittest."

Units of Selection and Their Heritability

There are two units of selection in R-A theory: firms and resources. *Firms* are viewed as combiners of heterogeneous and imperfectly mobile resources, under conditions of imperfect and costly to obtain information, toward the primary objective of superior financial performance. *Resources* are the tangible and intangible entities available to the firm that enable it to produce efficiently and/or effectively a market offering that has value for some market segment(s). Note that both resources and firms satisfy the requirement of heritability, for the ownership of firms can be passed on to heirs, and resources constitute the entities being inherited. Because firms can acquire resources, using firms and resources as units of selection means that R-A theory is Lamarckian, which "differs from strict Darwinism mainly because it admits the possibility of the inheritance of acquired characters" [Hodgson 1993, 40].

Durability

For Hodgson, as well for Philip Mirowski [1983], phylogenetic evolution involving natural selection must have units of selection that are relatively durable through time. For R-A theory, though many firms "die" each year, many others are extremely durable, with lives exceeding a century in some cases. Similarly, though some resources lose their efficiency/effectiveness potential, many resources are significantly durable.

A key issue for R-A theory is the durability, or sustainability, of a firm's comparative advantage in resources. As might be expected, given the normative nature of the strategic management literature, many studies have investigated the factors associated with the life span of resources that provide a comparative advantage.² Briefly, these works point out that the durability of a particular comparative advantage in resources is determined by factors both internal and external to the firm.

Mirowski [1983, 764] stresses that evolutionary theories in economics must allow for "bankruptcy/death" because this is what "gives selection mechanisms their bite." For R-A theory, a firm's comparative advantage in resources can "die" as a result of three factors internal to its own operation. First, a firm can fail to reinvest in a resource. For example, if a firm has a reputation for superior quality that consumers rely on, then instances of low-quality products could erode the value-producing capability of reputation as a resource. Second, a firm may allow a comparative advantage in resources to dissipate because managers do not fully un-

understand the relationship between those resources and their competitive advantage in the marketplace. That is, because of "causal ambiguity" [Reed and DeFillippi 1990], firms may not fully comprehend the source of their success.

Third, a firm may fail to modify, sell, or abandon a resource in response to a changed environment. R-A theory specifically recognizes that an entity that is a resource in one environment can become a nonresource in another or, indeed, even a "contra-resource." That is, an entity that formerly had the capability of contributing to the efficiency/effectiveness of the firm in serving a particular market segment might actually *inhibit* the firm should the environment change. This might happen, for example, if consumers' tastes and preferences within the market segment change. Indeed, different firms have differing *capabilities* for adapting to environmental changes. For R-A theory, therefore, such a capability would be a resource that would contribute to efficiency/effectiveness in turbulent environments.

R-A theory emphasizes the importance of three external factors that can affect the life span of a particular comparative advantage in resources. First, as previously noted, there can be changes in consumers tastes and preferences in the market segment(s) for which the resource provided a comparative advantage. Second, governmental actions, such as changes in laws and regulations, can destroy the efficiency/effectiveness potential of a resource. Third, the actions of competitors can neutralize a resource's comparative advantage by successfully purchasing the same resource, imitating the resource, or acquiring a strategically equivalent (or superior) resource. R-A theory stresses that such complex, interconnected resources as organizational competencies, which have "tacit knowledge" dimensions [Polanyi 1967], are likely to be much more successful in creating a long-lived competitive advantage in the marketplace than such physical resources as machinery. Machines can be purchased; organizational competencies, however, ordinarily cannot.³

Selection Process

For Hodgson, a phylogenetic evolutionary theory involving natural selection must contain a causal selection process that involves a struggle for existence. For R-A theory, it is *competition* that is the selection process. Specifically, firms and resources are selected as a result of the constant struggle among firms for a comparative advantage in resources that will yield a marketplace position of competitive advantage and, thereby, superior financial performance. Through time, firms survive, prosper, and grow when they have resource assortments that enable them to occupy marketplace positions of competitive advantage. They suffer, shrink, and eventually die when they continually occupy positions of competitive disadvantage.

Recall that firms seek to occupy marketplace positions identified as cells 2, 3, and 6 in Figure 2 because these positions yield superior financial performance. It is

only by virtue of firms occupying specific competitive positions in the marketplace that they can *know* whether they are producing efficiently and/or effectively. Having referents is key here. Knowledge about efficiency and effectiveness comes after competing, not before. It is through the process of competition that firms *learn*. As does "Austrian" economics, R-A theory maintains that knowledge discovery is an indispensable part of competition. Thus, there are evolutionary "feedback loops" in competition, as shown in Figure 1.

When firms occupy marketplace positions of competitive *disadvantage*, i.e., cells 4, 7, and 8 in Figure 2, they *learn* that their existing resources are relatively inefficient and/or ineffective. Such firms are then motivated to neutralize and/or "leapfrog" their advantaged competitors by better managing existing resources and/or by acquisition, imitation, substitution, or major innovation. Should these efforts at innovation succeed, then such firms survive by becoming *more* efficient and/or effective. Should these efforts fail, such firms can seek market segments for which their resource assortments might provide comparative advantage. Such resource redeployment will promote efficiency/effectiveness in other market segments. Should these efforts also fail and financial performance fall below minimum acceptable standards, firms or parts of firms are dissolved or sold, and their salvageable resources redeployed by other firms.

Diversity

For Hodgson, a phylogenetic evolutionary theory involving natural selection should encompass a renewable source of variety and change. For R-A theory, the impetus for change is the pursuit of superior financial performance through a comparative advantage in resources that leads to marketplace positions of competitive advantage. Because not all firms can have superior performance at the same time, the source of change is *renewable*—competition is ongoing.

R-A's selection process also results in significant firm diversity. First, R-A theory acknowledges that every firm is a unique entity in time and space as a result of its history. Because of this unique history in obtaining and deploying resources, firms will differ from their rivals. Second, different assortments of resources may be equally efficient or effective in serving some market segments. These different assortments therefore lead to firms of varying sizes and scopes. Third, because of heterogeneous demand, servicing different market segments in the same industry will lead to firms with different sizes and scopes, e.g., "niche" marketers. Fourth, firms tend to conduct activities in-house, rather than contract them out, when they constitute or are part of an assortment of resources that constitutes a competency. Therefore, such firms will be more "hierarchical" on those dimensions that constitute competencies, which promotes diversity. Fifth, if one or more firms servicing some market segment have a comparative advantage in resources that competitors

cannot imitate, find substitutes for, or leapfrog with an entirely new resource, then these circumstances will produce firm diversity in the very important area of financial performance.

Firm diversity in financial performance provides an area for directly testing the relative merits of R-A theory versus neoclassical theory. If firms are best viewed as combiners of homogeneous, mobile resources by means of a standard production function and intra-industry demand best viewed as homogeneous, then most of the variance in financial performance across firms and their business units should be explainable by the neoclassical structure-conduct-performance model. Empirically, therefore, "industry effects" should explain most of the variance in firms' performance, and "firm effects" should explain very little. In contrast, if firms are best viewed as combiners of heterogeneous, imperfectly mobile resources, and intra-industry demand is best viewed as heterogeneous, then "firm effects" should dominate "industry effects."

Robert Schmalensee [1985] investigated the industry effects versus firm effects issue using Federal Trade Commission line-of-business data for 1975. His results showed industry effects accounting for 20 percent of the variance in business unit return on assets and corporate effects to be not significant. Richard Rumelt [1991] pointed out that Schmalensee's use of only one year's data not only confounded stable industry effects with transient annual fluctuations but also made it impossible to separate overall corporation from business unit effects. When Rumelt supplemented Schmalensee's 1975 data with FTC data for 1974, 1976, and 1977, he found that, whereas industry effects explained only 8 percent of the variance, corporate and business unit effects explained 2 percent and 44 percent, respectively. Supporting Rumelt, a recent study by Jaime Roquebert, Robert Phillips, and Peter Westfall [1996] found industry, corporate, and business unit effects to be 10 percent, 18 percent, and 37 percent, respectively (resulting in "total firm" effects of $18 + 37 = 55$ percent). Notably, their sample was much larger (more than 6,800 corporations), had a broader base (more than 940 SIC, four-digit categories), and (unlike FTC data) included both small and large corporations. Because these large-scale studies consistently find that firm effects dominate industry effects, they strongly support R-A theory's view that firms should be viewed as combiners of heterogeneous, imperfectly mobile resources, and intra-industry demand be viewed as significantly heterogeneous. Furthermore, because industry structure explains so little variance in financial performance, it implies that the structure-conduct-performance view of competition is misguided. In short, industry is the "tail" of competition; the firm is the "dog."

Locally Fitter

For Hodgson, there are powerful and persuasive arguments that economics, like biology, should reject the notion of "fittest" and focus instead on "fitter." First, he points out that Darwinian evolution emphasizes the importance of differential rates in *both* deaths and births. That is, Darwinian evolution "operates either because better-adapted organisms leave increased numbers of offspring, or because the variations or gene combinations that are preserved are those bestowing advantage in struggling to survive. . . . It is a matter of procreation as well as destruction" [Hodgson 1993, 46]. "Survival of the fittest," a phrase coined by Herbert Spencer, wrongly focuses only on differential rates of death. Second, fitness in biology is always relative to a given environment. Therefore, "fitter" is preferred because "the selection of some entities and the extinction of others does not necessarily imply that the favored entities are morally just, or that they are superior in an absolute sense" [Hodgson 1993, 49]. Third, modern biology specifically acknowledges that initial starting conditions or "accidents" along the way may set in motion an evolutionary path that has no likelihood of reaching an optimal position. (In economics, of course, the most famous example is the QWERTY keyboard [David 1985].)⁴ Therefore, path dependency implies that there can be no guarantee that economic systems evolve toward some optimal state of efficiency, as in long-term general equilibrium. For these reasons, Hodgson argues for "fitter," not "fittest."

For R-A theory, survival and success are specifically based on the "locally fitter." First, it is important to note that competition encourages firms to acquire, imitate, and "leapfrog" the resources of particular rivals who *currently* occupy marketplace positions of competitive advantage—not rivals that are superior in some absolute sense. Second, R-A theory's selection mechanism, competition, brings about differential rates of both births and deaths—not just deaths. That is, the existence of firms enjoying superior financial performance as a result of having access to resources that place them in marketplace positions of competitive advantage will encourage disadvantaged firms to give "birth" to new resources. Thus, necessity in market-based economies is, indeed, the mother of invention.

Third, R-A theory acknowledges competition's dependence on specific environments by focusing on rivals competing for a particular market segment. The fact that some firms are enjoying superior financial performance because they occupy marketplace positions of competitive advantage for a particular market segment does not imply that such firms would be equally advantaged (1) in other segments or (2) should the environment change. For example, should the tastes and preferences of the market segment change, there is no guarantee that previously advantaged firms will stay in the same marketplace positions. Therefore, not only does R-A theory specifically reject the notion of "absolute fittest," but it shows precisely why one would not expect competition to evolve toward any specific endpoint. In Hodgson's

terms, an evolutionary theory that evolves toward a specific endpoint, e.g., general equilibrium, is "consummatory." Thus, R-A theory is non-consummatory.

Fourth, R-A theory specifically provides for path dependence effects. Suppose a rival has a resource that enables it to secure a position of competitive advantage. Suppose further that other rivals are successful in imitating the resource. Now suppose that a rival discovers a new resource that is marginally superior. If adopting the new resource requires it to abandon a resource in which it has much invested, then the innovative resource is unlikely to be adopted. In such circumstances, Schumpeter's "creative destruction" will occur only if a new rival, one who does not have heavy fixed investment at risk in the old resource, starts competing for the market segment. Therefore, R-A theory helps us understand why it is the case that creative destruction often comes from the outside. Indeed, because of the "heavy fixed investment" in neoclassical theory, neoclassical economics may be unable to reform itself from within. Reform may require creative destruction from the outside.

R-A Theory and Institutional Economic Theory

How does R-A's view of resources comport with institutionalist theory? As documented by Baldwin Ranson [1987], institutionalist theory has long decried the tendency of neoclassical theory to equate "capital" with, and *only* with, tangible, physical resources. He discusses Thorstein Veblen's [1961] argument that physical resources have no "autonomous productive potency." Rather, Veblen "argued that the productivity of capital goods (the 'material equipment of industry') depended on the level of technology (the 'immaterial equipment of industry, especially as embodied in skilled workers')." [Ranson 1987, 1267-8]. Therefore, "the institutionalist theory of capital formation asserts that a community accumulates the agents possessing productive potency by all activities that raise its level of technology and its effectiveness in coordinating behaviors that apply technology" [1987, 1271].

Similarly, Thomas R. DeGregori's institutionalist theory of resources, which draws on the works of Clarence Ayres and Erich Zimmermann, maintains: "Resources are not things or stuff or materials; they are a set of capabilities. These capabilities use the stuff of the material and the non-material universe in a life-sustaining manner" [1987, 243]. DeGregori argues against the view that resources are "natural" and "given"; rather, they are created by humans. Indeed, "the term 'resources' essentially has no meaning apart from a relationship to human beings" [1987, 1242]. Because resources are not fixed or finite, DeGregori argues that historical concerns about resource depletion are misguided. Contrasting the institutional approach with "the idea of scarcity, which some conceive to be the fundamental organizing principle of economics" [1987, 1259], he concludes: "The liberating

idea of technology and resource creation is the human potential that is there, if we are aware of it and if we frame our policies accordingly" [1987, 1260].

It would seem that R-A theory conceptualizes resources and pushes resource creation to center stage in ways that are congruent with current institutional theory. Indeed, R-A theory is, in DeGregori's terms, "liberating." Nevertheless, to prevent any potential misunderstanding, it should be emphasized that, though a firm's comparative advantage in resources stems from their being *rare*, a rare resource need not be *scarce*. For example, when a firm successfully imitates the competency that gave another firm its comparative advantage the imitated firm's competence does not decrease (as would a *scarce* resource). Similarly, when two firms innovate by forming a strategic alliance, if the alliance assists them in efficiently and/or effectively serving a market segment, the resource of an organizational form is *created*, not *allocated*.

How does institutional economic theory relate to other aspects of R-A theory? Previous work and the analysis in this article warrant the following conclusions: R-A theory can contribute to explaining firm diversity in market-based economies. The theory is genuinely dynamic, for organizational learning, innovation, and other forms of change are endogenous. In its first empirical test, which compares it with the structure-conduct-performance model of neoclassical competition, the predictions of R-A theory are affirmed. R-A theory appears to be a genuinely evolutionary theory of competition, for it has all the requisite "building blocks" and all the attributes of a phylogenetic, non-consumeratory evolutionary theory. Nonetheless, R-A theory is still very much "work in progress." Much needs to be done.

As yet, R-A theory has not been subjected to the kind of close, critical evaluation that science requires. As Sir Karl Popper [1959, 16] put it, "whenever we propose a solution to a problem, we ought to try as hard as we can to overthrow our solution, rather than defend it. Few of us, unfortunately, practice this precept; but other people, fortunately, will supply the criticism for us if we fail to supply it ourselves." It would seem that institutional theory would be perhaps uniquely qualified to critically evaluate R-A theory. For one thing, R-A theory specifically adopts the epistemology of scientific realism. Likewise, Foss [1994] and Tony Lawson [1995] argue for Roy Bhaskar's [1978] transcendental realism, which Hunt [1990] identifies as one version of scientific realism. For example, Foss [1994] argues that theories in evolutionary economics will postulate open economic systems in which novelties are produced by the "generative mechanisms" of competition. Similarly, Lawson argues that "science is the illumination and elaboration of the structures and mechanisms that govern the events of experience. . . . Explanation, in its pure or most basic form at least, is then the providing of an account of those structures and mechanisms that are jointly responsible for producing or conditioning some identified phenomenon of interest" [1995, 13]. This article shows that it is precisely the

structures and generative mechanisms of competition in open, nondeterministic economic systems that R-A theory purports to provide.

R-A theory's adoption of scientific realism implies that its foundational propositions are meant to be interpreted realistically. That is, each premise is offered as a proposition that can and should be subjected to empirical testing. Thus, unlike the epistemology of perfect competition, if any foundational premise is found to be false, then it should be replaced with a premise that better describes the real world of competition in market-based economies. R-A theory does not shield its foundational premises from critical scrutiny, refutation, and changes. Unlike neoclassical theory, there is no Lakatosian "hard core" that must be defended at all costs. R-A theory only requires that foundational premises considered to be lacking must be replaced by *superior* foundational premises. As Richard Chase [1994, 864] suggests, R-A theory aims for being "approximately right," rather than "precisely wrong." Therefore, institutional theory could play a valuable role in critically evaluating and, perhaps better articulating, R-A theory's foundational premises.

The public policy implications of R-A theory are as yet unexplored.⁵ R-A theory focuses on firms striving for superior financial performance by means of marketplace positions resulting from the tangible and intangible entities available to them that enable them to produce efficiently and/or effectively market offerings that have value for some market segment(s). Note that it is possible for an entity to produce superior financial performance by means other than efficiency/effectiveness. Therefore, not all entities that produce superior financial performance are resources or serve the best interests of the general public. For example, a price conspiracy among rivals, though potentially leading to high profits, is not a resource and, hence, is anticompetitive. At the same time, a high market share in a market segment resulting from superior resources is consistent with R-A competition and not a *prima facie* "market imperfection," as in neoclassical theory. Indeed, instead of an ideal state that public policy should vigorously pursue, R-A theory views the total economic stagnation implied by long-term general equilibrium as a ghastly market failure to be guarded against. Using R-A theory as a starting point for public policy would, therefore, neither lead to a recommendation of *laissez faire* nor, most certainly, point toward a set of policies guided by perfect competition, structure-conduct-performance, general equilibrium, and Pareto optimality as the ideal state for an economy. Institutional theory could help develop R-A theory's policy implications.

The preceding issues and topics are meant to be suggestive, not exhaustive. R-A theory is offered in the belief that it represents a genuine opportunity for interdisciplinary collaboration. Recently, John Adams [1992] discussed the remarkable similarity between certain views of the institutionalist Karl Polanyi and the neoclassicist Ronald Coase. Adams concluded with:

When the corporation is construed as a complex, multimodal nonmarket exchange system, combining workers, technicians, and managers in a common enterprise, then there is a large research agenda ahead for paleoinstitutionalists. My guess is that as it matures, there will be considerable overlap with work being done on the frontiers of industrial economics and organizational theory [1992, 405].

R-A theory is not only at the frontiers of industrial economics and organization theory, but marketing as well. R-A theory's future is path dependent. Institutional theory can help determine the path it takes.

Notes

1. Because of the importance of the comparative advantage in resources, the marketing literature has referred to the theory as the "comparative advantage theory of competition" [Hunt and Morgan 1995]. Here, however, I use the "resource-advantage" label adopted in the management literature [Hunt 1995].
2. See references in introductory section.
3. I say "ordinarily" because, obviously, one firm can acquire another firm in order to "purchase" a competency. However, firms that have distinctive, highly valuable competencies are not always available for sale. Furthermore, purchasing a company to acquire a competency requires much more time than simply purchasing machinery.
4. The view that QWERTY is genuine example of path dependence is contested by Liebowitz and Margolis [1994].
5. One policy implication concerns the economic collapse of almost all of the command economies of the twentieth century. This issue is explored, at least in part, in Hunt [1995] and Hunt and Morgan [1995].

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