

## THE RESOURCE-BASED VIEW WITHIN THE CONVERSATION OF STRATEGIC MANAGEMENT

JOSEPH T. MAHONEY and J. RAJENDRAN PANDIAN

- College of Commerce and Business Administration, University of Illinois, Champaign, Illinois, U.S.A.

*The resource-based approach is an emerging framework that has stimulated discussion between scholars from three research perspectives. First, the resource-based theory incorporates traditional strategy insights concerning a firm's distinctive competencies and heterogeneous capabilities. The resource-based approach also provides value-added theoretical propositions that are testable within the diversification strategy literature. Second, the resource-based view fits comfortably within the organizational economics paradigm. Third, the resource-based view is complementary to industrial organization research. The resource-based view provides a framework for increasing dialogue between scholars from these important research areas within the conversation of strategic management. Resource-based studies that give simultaneous attention to each of these research programs are suggested.*

McCloskey (1985) persuasively argues that 'good science is good conversation.' The resource-based view is good management science, properly speaking, because it stimulates good conversation within the strategic management field. The resource-based approach (Penrose, 1959; Wernerfelt, 1984) is attracting the attention of a growing number of researchers precisely because the framework encourages a dialogue between scholars from a variety of perspectives. The purpose of this paper is to coalesce and sustain this conversation.

In particular, three major research programs are currently intertwined in the resource-based framework. First, the resource-based view incorporates concepts from mainstream strategy research. Distinctive competencies (Andrews, 1971; Ansoff, 1965; Selznick, 1957) of heterogeneous firms, for example, are a fundamental component of the resource-based view. More-

over, the resource-based theory is concerned with the rate, direction and performance implications of diversification strategy which are areas of considerable focus in the strategy field (Ramanujam and Varadarajan, 1989).

Second, the resource-based approach fits comfortably within the conversation of organizational economics (Barney and Ouchi, 1986). In fact, the resource-based view may arguably be considered a fifth branch of the organizational economics tree of knowledge along with positive agency theory (Eisenhardt, 1989), property rights (Alchian 1984; Coase, 1960), transaction cost economics (Williamson, 1985), and evolutionary economics (Nelson and Winter, 1982).

Third, the resource-based approach is complementary to industrial organization analysis (Caves, 1982; Porter 1980). In particular, we emphasize that the resource-based view contains elements of both the Harvard (Bain, 1968; Mason, 1957) and Chicago (Demsetz, 1982; Stigler, 1968) schools of industrial organization thought. Indeed, Conner (1991) persuasively argues that the resource-based approach both

**Key words:** Resources, rents, diversification, growth, organizational economics

reflects a strong industrial approach and is at the same time unique.

The resource-based view not only stimulates conversation within mainstream strategy research, organizational economics and industrial organization research but it also provides a framework for increased discussion between these research perspectives. In this paper we develop our thesis that the resource-based approach presents an opportunity for dialogue and debate between scholars from different research perspectives. Future resource-based studies that give simultaneous attention to these three research programs are suggested.

## RESOURCE-BASED THEORY WITHIN THE CONVERSATION OF STRATEGY

### Types of rent

Strategy can be viewed as a 'continuing search for rent' (Bowman, 1974: 47), where rent is defined as return in excess of a resource owner's opportunity costs (Tollison, 1982). A resource may be conveniently classified under a few headings—for example, *land* and equipment, *labor* (including workers' capabilities and knowledge), and *capital* (organizational, tangible and intangible)—but the subdivision of resources may proceed as far as is useful for the problem at hand (Penrose, 1959: 74).<sup>1</sup>

The generation of above-normal rates of return (i.e. rents) is the focus of analysis for competitive advantage (Porter, 1985). In contrast to efficient market theorists, most resource-based theorists insist that short-term (if not long-term) economic rents are possible (Schoemaker, 1990). Several types of rents may be usefully distinguished. First, rents may be achieved by owning a valuable resource that is scarce (Ricardo, 1817). Resources

<sup>1</sup> The importance of assessing a firm's *resource profile* has clearly been a traditional focus within strategic management (e.g. Ackoff, 1970, chap. 4; Hofer and Schendel, 1978: 144–153). Hofer and Schendel (1978: 145) suggest that a resource profile combines the following resources and capabilities: (1) Financial resources (e.g. cash flow, debt capacity, new equity availability); (2) Physical resources (e.g. plant & equipment, inventories); (3) Human resources (e.g. scientists, production supervisors, sales personnel); (4) Organizational resources (e.g. quality control systems, corporate culture, relationships); (5) Technological capabilities (e.g. high quality production, low cost plants). Grant (1991) suggests a sixth type of resource, intangible resources (e.g. reputation, brand recognition, goodwill).

yielding *Ricardian rents* include ownership of valuable land, locational advantages, patents and copyrights. Second, *monopoly rents* may be achieved by government protection or by collusive arrangements when barriers to potential competitors are high (Bain, 1968). Third, *entrepreneurial (Schumpeterian) rent* may be achieved by risk-taking and entrepreneurial insight in an uncertain/complex environment (Cooper, Gimeno-Gascon, and Woo, 1991; Rumelt, 1987; Schumpeter, 1934). Entrepreneurial rents are inherently self-destructive due to diffusion of knowledge (Schoemaker, 1990; Schumpeter, 1950).

Finally, the firm may be able to appropriate rents when resources are firm-specific. The difference between the first-best and second-best use value of a resource—the so-called *quasi-rent*<sup>2</sup> (Klein, Crawford and Alchian, 1978)—is precisely the amount that a firm may appropriate to achieve above-normal returns. Quasi-rents are appropriable from idiosyncratic physical capital, human capital and dedicated assets (Williamson, 1979).

### Sources of rent

The existence and maintenance of rents depend upon a lack of competition in either acquiring or developing complementary resources. Rents derived from services of durable resources that are relatively important to customers and are simultaneously superior, imperfectly imitable, and imperfectly substitutable, will not be appropriated if they are nontradeable or traded in imperfect factor-markets (Barney, 1991; Dierickx and Cool, 1989; Peteraf, 1990).

The resource-based view incorporates the insights of the early seminal contributions to strategic management in order to explain how firms generate rents. The traditional concept of strategy (Andrews, 1971; Ansoff, 1965) considers the resource position of the firm. A firm selects its strategy to generate rents based upon their resource capabilities. Organizations with the strategic capability to focus and coordinate human

<sup>2</sup> Quasi-rent as used by Klein, Crawford and Alchian (K-C-A) (1978) is referred to as a Pareto (Marshallian) rent by Rumelt (1987). Note that in the economics literature a quasi-fixed scarce resource that yields rents is sometimes referred to as a 'quasi-rent' where the meaning is 'quasi-Ricardian rent'. In this paper quasi-rent is used in the K-C-A sense of Pareto (Marshallian) rents.

effort and the ability to evaluate effectively the resource position of the firm in terms of strengths and weaknesses have a strong basis for competitive advantage (Andrews, 1971). Rent theory allows us to clarify the SWOT framework by identifying exactly what can be real 'strengths' and firm capabilities for strategic advantage. Differences among firms in terms of *information*, *luck*, and/or *capabilities* enable the firm to generate rents.<sup>3</sup>

The firm's unique capabilities in terms of technical know-how and managerial ability are important sources of heterogeneity that may result in sustained competitive advantage. In particular, distinctive competence and superior organizational routines in one or more of the firm's value-chain functions may enable the firm to generate rents from a resource advantage (Hitt and Ireland, 1985).

### **Distinctive competence is a function of the resources which a firm possesses at any point in time**

Penrose argues that: 'It is the heterogeneity. . . of the productive services available or potentially available from its resources that gives each firm its unique character' (1959: 75). For example, top management in a diversified enterprise can be a significant and distinctive resource if it uniquely contributes to the sustained profitability of the enterprise (Castanias and Helfat, 1991).

A firm may achieve rents not because it has better resources, but rather the firm's distinctive competence involves making better use of its resources (Penrose, 1959: 54).<sup>4</sup> The firm may

<sup>3</sup> In the agency literature, asymmetric information typically refers to articulable knowledge that has not been revealed by an agent and/or principal. Organizational *capabilities*, however, may involve a closely interrelated mix of routines, tacit knowledge and organizational memory (Nelson and Winter, 1982; Polanyi, 1962; Walsh and Ungson, 1991). Thus, differences in capabilities may go far beyond the issue of nondisclosure of relevant information. A firm may 'know more than it can tell' due to causal ambiguity. The upshot is that differences in firm capabilities do *not* reduce to (articulable) information asymmetries.

<sup>4</sup> Penrose's (1959) argument that a firm may achieve competitive advantage by making better use of its resources has been formally modeled in terms of 'dynamic adjustment costs' (Prescott and Visscher, 1980). The firm slowly discovers which tasks suit employees best. The trade-off is between rapid firm growth in which case job assignment errors are large, and slower growth of the firm, in which information about employee's skills have been further processed by managers resulting in improved job assignments.

make better use of human capital by correctly assigning workers to where they have higher productivity in the organization (Tomer, 1987), and the firm may make better allocations of financial capital toward high yield uses (Bower, 1970; Williamson, 1975).

A rich connection among the firm's resources, distinctive competencies and the mental models or 'dominant logic' (Prahalad and Bettis, 1986) of the managerial team drives the diversification process (Ginsberg, 1990; Grant, 1988). Penrose argues that unused productive services of resources 'shape the scope and direction of the search for knowledge' (1959: 77). The services and rents that resources will yield depend upon the dominant logic of the top management team, but the development of the dominant logic of the top managerial team is partly shaped by the resources with which they deal. This notion that the firm's current resources influence managerial perceptions and hence the direction of growth is a cognitive proposition that reinforces the economic rationale that a firm's resource profile will influence the direction of diversification (Wernerfelt, 1984).

### **Diversification strategy and resources**

The resource-based view contributes to the large stream of research on diversification strategy (Ramanujam and Varadarajan, 1989) in four areas: First, the resource-based approach considers the limitations of diversified growth (via internal development and mergers and acquisitions). Second, the resource-based view considers important motivations for diversification. Third, the resource-based approach provides a theoretical perspective for predicting the *direction* of diversification. Fourth, the resource-based view provides a theoretical rationale for predicting superior performance for certain categories of related diversification.

### **Limits to growth**

Penrose (1959) provides a seminal contribution in the resource-based tradition. Fundamentally, it is the resources of the firm which limit the choice of markets it may enter, and the levels of profits it may expect (Wernerfelt, 1989). Key resource constraints include: (1) shortage of labor or physical inputs, (2) shortage of finance, (3) lack of suitable investment opportunities, and (4)

lack of sufficient managerial services that a firm requires at a point in time are partly constrained by the necessity to run the firm at its current size, and is partly required to carry out expansionary ventures with respect to new products and expansion generally (Gort, 1962; Hay and Morris, 1979; Marris, 1964). New managerial recruits increase the growth potential of the firm. However, the training of new managers and their integration into the work-force occupy some of the time and effort of existing managers, and thus reduce the managerial services available for expansion. In Penrose's theory 'management (is) both the accelerator and the brake for the growth process' (Starbuck, 1965: 490).

This managerial constraint on the growth rate of the firm, the so-called 'Penrose effect' (Marris, 1963), suggests that fast-growing firms in one period tend to experience slower growth in the next period (Penrose, 1959: 49). Hence, the Penrose effect suggests a negative correlation between growth rates in successive periods (Slater, 1980b). Case studies (Edwards and Townsend, 1961; Penrose, 1960; Richardson, 1964), formal models (Slater, 1980a; Uzawa, 1969), and econometric tests (Shen, 1970) provide support for the Penrose effect. A corollary to the Penrose effect is that a higher interdependence among resources will lower the firm's growth rate (Robinson, 1932).

In addition to analyzing the limits of the rate of a firm's growth, Penrose (1955, 1959) also examines the motives for expansion. It is rare for all units to be operating at the same speed and capacity, and this phenomenon creates an internal inducement for firm growth. Penrose (1985: 13) presents a *resource approach* arguing that firms are administrative organizations and collections of physical, human and intangible assets. Unused productive services from existing resources present a 'jig-saw puzzle' for balancing processes (Penrose, 1959: 70). Excess capacity due to indivisibilities, and cyclical demand, to a

#### *A resource-based motivation for growth*

In addition to providing insights on the rate of the growth of the firm, the resource-based approach provides value-added theoretical explanation

large extent drives the diversification process (Caves, 1980; Chandler, 1962).<sup>5</sup> The resource of unused human expertise, in particular, may drive diversification (Farjoun, 1991).

The firm's capability<sup>6</sup> lies upstream from the end-product—it resides in skills, capacities, and a dynamic resource fit which may find a variety of end uses (Caves, 1984; Teece, 1982; Ulrich and Lake, 1990). Excess physical capacity leads to related diversification if the capacity is end-product specific (Chatterjee and Wernerfelt, 1988).

At all times there exist within every firm, pools of unused productive services, and these, together with the changing knowledge of management, create unique productive opportunities for each firm (Chandler, 1977, 1990; Teece, 1980). Penrose argues that there is a 'virtuous circle' (1959: 73) in which the process of growth necessitates specialization but specialization necessitates growth and diversification to fully utilize unused productive services. Thus, *specialization induces diversification*.

Rubin (1973) formally models firms' diversification decisions according to Penrose's theory. Rubin's (1973) dynamic programming model illustrates Penrose's thesis that there is an optimal growth rate for the firm. An optimal growth of the firm involves a balance between exploitation of existing resources and development of new resources (Penrose, 1959; Rubin, 1973; Wernerfelt, 1984).

#### *The direction of growth*

In addition to providing insights on the rate of the growth of the firm, the resource-based approach provides value-added theoretical explanation

<sup>5</sup> Indeed Chandler thought highly of Penrose (1959); see Chandler (1962: 453, footnote 1).

<sup>6</sup> Penrose (1959: 25) makes a crucial distinction between resource and capabilities (services of resources): 'resources consist of a bundle of potential services and can, for the most part, be defined independently of their use, while services cannot be so defined, the very word 'service' implying a function, an activity.' In more modern terms, Penrose (1959) is suggesting that resources are stocks and capabilities (services) are flows. Dynamic capabilities are created over time and may depend on the history of the use of resources in an extremely complex (path dependent) process. Path-dependent capabilities provide the building blocks for the firm's strategic architecture of strategic complexity.

direction of a firm's diversification. The direction of a firm's diversification is due to the nature of its available resources and the market opportunities in the environment.

Several econometric studies support the resource-based theory that an enterprise's firm-specific resources serve as the driving force for its diversification strategy. Lemelin (1982) finds that industries assigned to categories of producer goods, consumer convenience goods and consumer nonconvenience goods are more likely to diversify into other industries assigned to the same category. Lemelin (1982) argues that this pattern is consistent with the resource-based hypothesis that firms attempt to transfer intangible capital among related activities.

MacDonald (1985) finds that firms are more likely to enter industries that are related to their primary activities. R&D intensive firms channel their diversification toward R&D intensive industries. R&D expenditure is a reasonably effective proxy for capturing an enterprise's endowment of unique knowledge possessed by individuals and teams within the organization (Caves, 1982). Thus, the diversification pattern that MacDonald (1985) finds may reflect the transfer of shareable idiosyncratic organizational and intangible capital among related activities (Prescott and Visscher, 1980; Williamson, 1985).

Similarly, Stewart, Harris and Carleton (1984) find a very strong positive relationship between the advertising intensity of the acquiring firm's primary industry and the advertising intensity of the acquired firm's primary industry. Advertising expenditure is a reasonably effective proxy for capturing a firm's intangible assets (such as brand name and reputation).

Montgomery and Hariharan (1991) supply further support for the resource-based view that the resource profile of the diversifying firm is critical in predicting the resource characteristics of the destination industry. While previous empirical research, discussed above, assigned firms to their primary industry and studied the relationship between these primary (origin) industries and destination industries, Montgomery and Hariharan (1991) provide a significant contribution by using the FTC Line-of-Business (LB) data to consider the resource profile of diversifying firms. Montgomery and Hariharan (1991) find strong empirical evidence to reject

the hypothesis that the direction of diversification occurs at random. They find that a firm's competencies and intangible assets in advertising and R&D explain the direction of diversification strategy. The productive services of these resources are a selective force in determining the direction of diversification (Penrose, 1959: 87) and the pattern of reconfigurations, in general (Singh and Chang, 1991).<sup>7</sup>

These empirical studies suggest that firm-specific resources and relatedness of activities are important variables in the diversification process. Companies grow in the directions set by their capabilities and these capabilities slowly expand and change (Penrose, 1959; Richardson, 1972).

### *Diversification and performance*

It is not our intention to review the vast literature on diversification and performance. Our objective here is simply to state the resource-based logic for the possible association between firm diversification and performance.

The resource-based discussion of the diversification—performance linkage is embedded within the more general question of whether any strategy that the firm utilizes makes a difference. There still is an important debate concerning the significance of firm effects as opposed to industry attractiveness effects on performance. While Schmalensee (1985) does not find support for the existence of firm effects, several other studies find significant firm effects (Cubbin and Geroski, 1987; Duhaime and Stimpert, 1991; Hansen and Wernerfelt, 1989; Jacobson, 1988; Mueller, 1977, 1986; Rumelt, 1987, 1991; Scott and Pascoe, 1986; Vasconcellos and Hambrick, 1989; Wernerfelt and Montgomery, 1988). A focus on specific resources rather than strategy types in the merger and acquisition research may better explain firm performance (Harrison, Hitt, Hoskisson and Ireland, 1991).

The preponderance of empirical evidence suggests that firms' strategies may influence their rent stream. The next question is: What is the

<sup>7</sup> While the resource-based view has developed a viable approach for explaining and predicting growth and diversification, a 'resource-based theory of divestment' is clearly lacking.

nature of these firm effects? Two important empirical studies (Montgomery and Wernerfelt, 1988; Wernerfelt and Montgomery, 1988) suggest that the resource-based theory of the firm provides a theoretical underpinning for explaining and predicting significant firm effects. A resource-based theory of diversification suggests that firm effects might exist in the form of *focus* effects. These authors investigate the proposition that widely diversified (less-focused) firms are unable to transfer their competencies to a host of different markets. They argue that the resource-based theory of diversification is helpful in explaining the absolute performance of related diversifiers relative to unrelated diversifiers. They make two points to support this argument: (1) wider diversification suggests the presence of less firm-specific resources that normally yield lower rents; (2) a given resource will lose more value when transferred to markets that are less similar to that in which it originated.

Using the concentric index of diversification (Caves, Porter and Spence, 1980) as a proxy for relatedness, Wernerfelt and Montgomery (1988) find that narrowly diversified firms receive higher rents (using Tobin's  $q$  as a proxy) than widely diversified firms. This result supports the resource-based hypothesis that expansion by firms into activities in which they have comparative advantages is most likely to yield rents (Penrose, 1959).

Chatterjee and Wernerfelt (1991) note that the vast majority (but by no means all) of the empirical studies to date indicate performance advantages for related diversification over unrelated diversification (Bettis, 1981; Lubatkin and Rogers, 1989; Montgomery, 1985; Montgomery and Wernerfelt, 1988; Palepu, 1985; Rumelt, 1974, 1982; Singh and Montgomery, 1987; Varadarajan and Ramanujam, 1987). However, even granting the resource-based premise that related diversification yields higher rents, the bidding firm will be unable to appropriate these rents in a perfectly competitive market for mergers and acquisitions (Barney, 1988). On the other hand, the bidding firm will achieve rents if the bidding firm has private information, luck, or private synergy which is not easily imitable or substitutable (Barney 1986c).

It is unlikely that private information and luck vary systematically between unrelated and related diversification. Related diversification results in

higher rents to the acquiring firm relative to unrelated diversification because of the greater likelihood of *synergy* (efficiency or market power) (Chatterjee, 1990a). Put simply, unrelated diversification is unlikely to enhance technological complementarities (i.e. economies of scope) or increase market power relative to related diversification.

It is important, however, to distinguish between two types of synergy, which we call *contestable synergy* and *idiosyncratic bilateral synergy*. Contestable synergy involves a combination of resources that create value but are competitively available. Contestable synergy corresponds to Barney's (1986c) perfectly competitive factor markets. Idiosyncratic bilateral synergy is defined as the enhanced value that is idiosyncratic to the combined resources of the acquiring and target firm. Only in the case of idiosyncratic bilateral synergy is the achievement of rents theoretically possible through synergy. Our argument is that financial synergy to be achieved with unrelated diversification is more likely to be contestable synergy while related diversification offers greater potential for idiosyncratic bilateral synergy.

How much value does the bidding firm receive from this idiosyncratic bilateral synergy? Here, we have a classical example of bilateral monopoly. As Scherer notes: 'The theory of bilateral monopoly is indeterminate with a vengeance' (1980: 299). Depending on the bargaining power of the bidding and target firm, the bidder may receive anywhere from nothing to the full value of the idiosyncratic bilateral synergy. Firms, of course, will try to make commitments to influence their relative bargaining power. For example, antitakeover amendments may be implemented by managers of the target firms in the target shareholders' interest in order to increase the target firm's bargaining leverage to receive a greater share of idiosyncratic bilateral synergy (Grossman and Hart, 1980).

In the case where the synergy is not idiosyncratic, the bidding process will enable the target firm to appropriate the entire value-created (Barney, 1988). There must exist some type of 'market imperfection' in order for the diversified firm to achieve rents via acquisition or internal development. Market imperfection is an area of considerable focus within the organizational economic paradigm and is critical for developing a resource-based theory of the firm.

## RESOURCE-BASED THEORY WITHIN THE CONVERSATION OF ORGANIZATIONAL ECONOMICS

The organizational economics paradigm (Barney and Ouchi, 1986) includes evolutionary economics (Barney 1986b; Nelson and Winter, 1982; Schumpeter, 1950), transaction cost economics (Coase, 1937; Ouchi, 1980; Williamson, 1975); property rights theory (Alchian, 1984; Jones, 1983) and positive agency theory (Eisenhardt, 1989; Jensen and Meckling, 1976). Theorists from these perspectives share the resource-based theorists dissatisfaction with the neoclassical theory of the firm.

Barney and Ouchi (1986) note that positive microeconomics has been dominated by a research program that emphasizes supply and demand, equilibria, optimization analyses and industry structure. The task of strategic management is to contribute insight concerning the structure-strategy-performance paradigm (Bain, 1968; Porter, 1981; Scherer, 1980) and to get 'inside the black box' by analyzing the 'strategic firm'<sup>8</sup> (Rumelt, 1984). While industrial organization analysis attempts to characterize the behavior of a 'representative firm', the resource-based approach focuses on the key success factors of individual firm behavior to achieve firm-specific advantages by a portfolio of differential core skills and routines, coherence across skills, and unique proprietary know-how (Aharoni and Sticht, 1990; Dosi, Teece and Winter, 1990; Prahalad and Hamel, 1990).

The fundamental paradox of the neoclassical theory of the firm is that the firm need not exist. The neoclassical theory assumes away transaction costs (Williamson, 1975); limits on rationality (Simon, 1976); technological uncertainty (Schumpeter, 1950); consumer or producer learning (Lieberman and Montgomery, 1988) and prices as signals of quality (Spence, 1974). The removal of these 'frictions' leads to the conclusion that prices are no longer sufficient statistics (Koopmans, 1957).<sup>9</sup>

<sup>8</sup> The strategic firm is 'characterized by a bundle of linked and idiosyncratic resources and resource conversion activities' (Rumelt, 1984: 561). In this paper, the firm's potential resource conversion activities are designated firm *capabilities*.

<sup>9</sup> The so-called First Fundamental Welfare Theorem of economics articulates a perfectly competitive equilibrium (i.e. zero rents) of price-taking, complete markets, no

This static equilibrium approach consequently does not address the competitive *process* which is of central concern in strategy (Teece and Winter, 1984). The view of corporate behavior is most closely associated with Schumpeter's vision of competition as a process of 'creative destruction' rather than as a static equilibrium condition (Barney, 1986b; Ippman and Rumelt, 1982; Nelson and Winter, 1982; Phillips, 1971).

The resource-based approach may be framed in a dynamic context. Schumpeterian competition involves carrying out 'new combinations' including new methods of production as well as organizational innovation (Iwai, 1984). This Schumpeterian competition may be translated into the resource-based framework by considering the firm's 'new combinations of resources' (Penrose, 1959: 85) as a means of achieving the goal of sustained competitive advantage (Ghemawat, 1986). Penrose (1959), following Schumpeter (1950), views the competitive process as dynamic involving uncertainty, struggle and disequilibrium. Firms accumulate knowledge as a strategic asset (Winter, 1987) through R&D and learning, some of it incidental to the production process. Indeed, Rumelt combines the Schumpeterian perspective with the resource-based view by suggesting that strategy formulation concerns: 'the constant search for ways in which the firm's unique resources can be redeployed in changing circumstances' (1984: 569).

The resource-based view on distinctive competencies may also be analyzed in an evolutionary context. The firm's distinctive competencies may be defined by the set of substantive rules and routines used by top management. Managers' past decisions and decision rules are the basic genetics which firms' possess. Sustainable advan-

interdependence of consumer's utilities, no interdependence in production, and perfect information. Organizational economics in general, and the resource-based approach in particular, departs from this stylized world. Economies of scale and asset specificity (sunk costs) violate the price-taking assumption; positive transaction costs result in less than complete markets; externalities violate the assumptions of zero interdependence in consumption and production; and asymmetric information (entrepreneurship and first-mover advantages) violates the assumption of perfect information. To put it economically, one of the assumptions of the 'Theorem' must be violated for a firm to generate (and sustain) positive rents. In fact, one of the assumptions must be violated for the firm to exist. A detailed analysis of the implications of these real-world imperfections for strategy research can be found in Yao (1984).

age is thus a history (path) dependent process (Arthur, 1988; Barney, 1991; Nelson and Winter, 1982).

The resource-based approach is also closely aligned with other theories composing the organizational economics paradigm (Barney and Ouchi, 1986). The resource-based view is linked to agency theory because the resource deployment of the firm is influenced by (minimizing) agency costs (Castanias and Helfat, 1991). The resource-based view is linked to property rights since delineated property rights make resources valuable and as resources become more valuable, property rights become more precise (Libecap, 1989). Finally, the resource-based theory is linked to transaction cost theory because resource combinations are influenced by transaction cost economizing (Tece, 1982; Williamson, 1991b).

In the translation of the transaction cost approach into the resource-based approach, a firm is considered both an administrative organization and a pool of productive resources (Penrose, 1959). In planning expansion, the firm considers the active juxtaposition of its own 'inherited' endowment of resources and those that it must obtain from the market in order to carry out its program of activities (Barney, 1991; Caves, 1980).<sup>10</sup> These resource endowments factors are assumed to be semipermanently tied ('sticky') to the firm due to recontracting costs and market imperfections (Tece, 1990; Yao, 1988). Firm-specific resources may result in sustainable performance differences (Hill and Jones, 1989; Oster, 1990; Robins, 1992; Williamson, 1985). The analysis of these resources extends quite naturally to international business competition and cooperation (Collis, 1991; Tallman, 1991).

The resource-based framework views diversification as a response to indivisibilities and market failure (Tece, 1982). The transaction cost, property rights, and positive agency theory literatures provide the theoretical underpinnings for the resource-based approach by analyzing the nature of market failure. Market failure occurs when: there exists private synergy and sunk cost

(Baumol, 1982; Panzar and Willig, 1982); property rights are ill-defined (Alchian, 1984); externalities are present (Dahlman, 1979); imperfect (asymmetric) information exists (Eisenhardt, 1989; Yao, 1988); and transaction costs are positive (Williamson, 1991a). The result of these market imperfections is that recognition, disclosure, team organization, monitoring and dissipation costs are incurred in contractual exchange (Caves, 1982; Teece, 1982).

While market failure explains the existence of the firm (Coase, 1937), the resource-based view posits *heterogeneous* firms as the outcome of certain types of market failure. Transaction cost analysis (Tece, 1984; Williamson, 1975) suggests that idiosyncratic capital is an important source of market failure and heterogeneity. Unique assets may take the form of human capital (Becker, 1964), physical capital (Klein, Crawford and Alchian, 1978), legal capital (Alchian, 1984; Barzel, 1989), organizational capital and experience (Huff, 1982; Prahalad and Bettis, 1986; Spender, 1989), and intangible capital (Caves, 1982).

The diversification literature, discussed above, emphasizes the role of intangible assets in explaining heterogeneity. Successful firms in most industries possess one or more types of intangible assets—technological know-how, patented process or design, know-how shared among employees, and marketing assets. Intangible assets are often subject to market (transaction cost) failure. Even if the firm can market its intangible assets effectively, it could not disentangle them from the skills and knowledge of the managerial team (Nelson and Winter, 1982). In summary, idiosyncratic physical, human, and intangible resources supply the genetics of firm heterogeneity.

Not only are there substantive areas of overlap between organizational economics and the resource-based view of the firm but there are methodological similarities as well. Fundamentally, the organizational economics paradigm of evolutionary economics, transaction cost theory, positive agency theory and property rights theory attempt to explain the origin, function, evolution, and sustainability of our 'institutions of capitalism' (Williamson, 1985). The resource-based view is expressly concerned with a specific institution, namely, the rent-generating heterogeneous firm and its origin, function, evolution, and sus-

<sup>10</sup> Richardson (1990: 231) notes that: 'we cannot hope to... answer our question about the division of labor between firm and market unless the elements of organization, knowledge, experience, and skills are brought back to the foreground of our vision.'



sustainability (Barney, 1991; Lippman and Rumelt, 1982; Rumelt, 1984). Debates concerning the validity of the organizational economics methodology (Barney and Ouchi, 1986) need to be seriously analyzed by resource-based scholars.

While the resource-based view is intertwined with the organizational economics literature, a case can be made that the resource-based view is also complementary to the industrial organization structure-conduct-performance paradigm. Valuable resources are often imperfectly imitable and imperfectly substitutable enabling the heterogeneous firm to generate and sustain rents. The *sustainability* of rents is a function of 'barriers to imitation,' which have been a major focus of the industrial organization paradigm considered below.

## RESOURCE-BASED THEORY WITHIN THE CONVERSATION OF INDUSTRIAL ORGANIZATION

The resource-based view is complementary to the analytic (Hill, 1988; Karnani, 1984; Schmalensee, 1978) and empirical literature (Dess and Davis, 1984; Grinyer, McKiernan and Yasai-Ardekani, 1988) based on the Bain-Porter framework (Bain, 1968; Porter, 1985). Peteraf (1990) provides a contribution to the resource-based literature by systematically contrasting the classical 'Harvard-school' Porter framework (1980), and the resource-based view of the firm. Peteraf (1990) also contrasts the revisionist 'Chicago-school' (Stigler, 1968) industrial organization view to the resource-based view. The emphasis in this section is on the common ground shared between these 'two systems of belief' (Demsetz, 1974) in industrial organization and the resource-based approach.

While the industrial organization literature focuses externally on the industry and product markets (Phillips and Stevenson, 1974; Tirole, 1988) and the resource-based view focuses internally on the firm and its resources, there is nonetheless a *duality* between the economist's constrained maximization problem of maximizing production given resource constraints and the constrained minimization problem of minimizing resource costs given a desired production level. Wernerfelt (1984) reminds us of this fundamental principle: specifying the enterprise's product mix

enables the researcher to specify the minimum necessary resource commitments. Conversely, by specifying a resource profile, for the enterprise, an optimal product-mix profile can be developed. Indeed, the product market and resource market are 'two sides of the same coin' (Wernerfelt, 1984: 171).

The resource-based view correctly suggests that focusing on firm effects is important in developing and combining resources to achieve competitive advantage, but this does not imply that industry product analysis merely yields normal returns. On the contrary, analysis of the environment is still critical since environmental change 'may change the significance of resources to the firm' (Penrose, 1959: 79).

The essential theoretical concept for explaining the *sustainability* of rents in the resource-based framework is 'isolating mechanisms' (Rumelt, 1984). The notion of isolating mechanism (at the firm level of analysis) is an analogue of entry barriers (at the industry level) and mobility barriers at the strategic group level (Caves and Porter, 1977; McGee and Thomas, 1986).<sup>11</sup> In this sense, the resource-based view utilizes a central concept of the structure-strategy-performance paradigm, albeit at a different level of analysis. These isolating mechanisms (barriers to imitation) explain (*ex post*) a stable stream of rents and provide a rationale for intraindustry differences among firms.

Examples of isolating mechanisms (both efficiency and market power) are derived from the resource-based theory, mainstream strategy research, organizational economics and the industrial organization literature (Table 1). It is no exaggeration to claim that the concept of isolating mechanisms (Rumelt, 1984) is an insightful and unifying concept. The crucial aspect for competitive advantage involves the productive services of rent-generating resources and resource combinations which cannot be easily imitated or substituted.

Although the list of isolating mechanisms is impressive, what is the generalizable insight? A careful examination of the list of isolating

<sup>11</sup> A major distinction, however, is that entry (mobility) barriers are a private *collective* asset of an industry's (strategic groups's) incumbents, and investments to augment these assets are subject to free-riding and underprovision. Isolating mechanisms involve firm-level investments in resources and capabilities.

Table 1. Isolating mechanisms

|  | <u>Resource-based view/strategy literature</u>   | <u>Reference</u>   |
|--|--|--|
| <u>Mechanism</u>   |  |  |
| Resource position barriers   | Unique or rare resources which are not perfectly mobile  | Wernerfelt, 1984<br>Barney, 1991   |
| Unique managerial talent that is inimitable  | Resources with limited strategic substitutability by equivalent assets   | Penrose, 1959<br>Dierickx and Cool, 1989   |
| Valuable, nontradeable or imperfectly tradeable resources  |  | Barney, 1991<br>Dierickx and Cool, 1989  |
| Distinctive competencies and core competencies that are difficult to replicate   | Unique combinations of business experience   | Andrews, 1971<br>Dosi, Teece, and Winter, 1990<br>Huff, 1982; Prahalad and Bettis, 1986; Spender, 1989         |
| Corporate culture that is valuable, rare and imperfectly imitable due to social complexity, tacit dimensions and path dependency | Culture that is the result of human action but not of human design   | Barney, 1986a<br>Fiol, 1991<br>Arrow, 1974; Camerer and Vepsäläinen, 1988; Hayek, 1978                         |
| Invisible assets that by their nature are difficult to imitate   | Valuable heuristics and processes that are not easily imitated   | Itami, 1987<br>Schoemaker, 1990  |
| Time compression diseconomies  | Response lags  | Dierickx and Cool, 1989<br>Lippman and Rumelt, 1982  |
|  | <u>Organizational economics literature</u>   | <u>Reference</u>   |
| <u>Mechanism</u>   |  |  |
| Schumpeter's resource combinations   | Management skills and team embodied capabilities   | Schumpeter, 1934<br>Nelson and Winter, 1982  |
| Organizational innovation that is characterized by a slow diffusion process  | Unique historical conditions in which firm-specific skills and resource combinations result in path dependencies and heterogeneity over time | Armour and Teece, 1978<br>Mahajan, Sharma and Bettis, 1988<br>Arthur, 1989<br>Barney, 1991<br>De Gregori, 1987 |
| Uncertain imitability due to bounded rationality and causal ambiguity  | Enacted complexity   | Lippman and Rumelt, 1982<br>Schoemaker, 1990   |
| Idiosyncratic assets   | The rich connections between ambiguity and uniqueness  | Williamson, 1979<br>Demsetz, 1973<br>Reed and DeFillippi, 1990   |
| Co-specialized assets (high interconnectedness)  | Organizational capital   | Teece, 1986, 1987<br>Dierickx and Cool, 1989<br>Tomer, 1987  |
| Reputation and image   | Consumer trust   | Klein and Leffler, 1981<br>Kreps and Wilson, 1982; Kreps, 1990<br>Itami, 1987                                  |
| Private or asymmetric information and knowledge as strategic resources   | Resource commitments   | Barney, 1986c<br>Eisenhardt, 1989; Holmstrom, 1979<br>Winter, 1988   |
| First-mover advantages in acquiring information and other valuable resources that inhibit imitation                              | Firm-specific knowledge of buyers, sellers and worker's capabilities   | Caves, 1984; Ghemawat, 1991<br>Lieberman and Montgomery, 1988<br>Prescott and Visscher, 1980                   |
| Imperfect factor markets   | Ill-defined property rights that result in imperfect mobility of resources   | Barney, 1986c<br>Wernerfelt and Montgomery, 1986<br>Alchian and Demsetz, 1972                                  |
| Patents, trademarks, and copyrights  |  | Alchian, 1984  |

Continued on next page

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

| Mechanism   | Industrial organization literature | Reference   |
|---|------------------------------------|---|
| Investments that entail high exit barriers and high switching costs<br>High sunk cost investments<br>Learning and experience curve advantages that are kept proprietary |                                    | Porter, 1980<br>Baumol, Panzar and Willig, 1982<br>Lieberman, 1987<br>Spence, 1981<br>Stigler, 1968<br>Bain, 1968 |
| Legal restrictions on entry<br>Economies of scale combined with imperfect capital markets   |                                    |   |

mechanisms suggest that absent government intervention, isolating mechanisms exist because of *asset specificity* and *bounded rationality* (Williamson, 1979). Or, put differently, isolating mechanisms are the result of the rich connections between *uniqueness* and *causal ambiguity* (Lippman and Rumelt, 1982). A reasonably comprehensive review of the strategy, organizational economics and industrial organization literature on 'barriers to imitation' reveals the powerful generalizable insights of these two seminal articles.<sup>12</sup>

The resource-based view is closer to the 'Harvard School' Mason-Bain-Porter framework in believing in the *effectiveness* of these isolating mechanisms. The 'Chicago School' view questions whether economies of scale, advertising and R&D expenditure can ever be a barrier to entry or isolating mechanism (Demsetz, 1974, 1982; Kitch, 1983; Stigler, 1968). Many industrial economists take an eclectic view between the two camps (Mancke, 1974; Phillips, 1976; Williamson, 1985).

Peteraf (1990) argues that the resource-based view is closer to the 'Chicago school' in emphasizing efficiency rents rather than monopoly rents. However, this distinction should not be taken too far. As Demsetz notes, there is no reason to suppose that competitive behavior never yields monopoly rents (1973: 3). The resource-based view is closer to the 'Harvard-School' in terms of positing *sustainable* rents. This difference is due to the divergent premises of the 'Harvard-School' and 'Chicago-School' on the effectiveness

of isolating mechanisms, as noted above. In short, we argue here that the resource-based approach appears to be generating new intellectual combinations of thought (Conner, 1991). Suggestions for sustaining the conversation are considered below.

## DISCUSSION AND CONCLUSIONS

A fully developed theory of the expansion of the firm is a formidable challenge for strategic management research. The theory would involve production theory (Hayes and Wheelwright, 1984), investment theory (Hirshleifer, 1970), portfolio theory (Sharpe, 1970), organizational economics (Barney and Ouchi, 1986; Williamson, 1985), the theory of oligopoly (Friedman, 1983), the theory of international finance (Sodersten, 1980), and so forth. While not claiming to be a comprehensive theory of expansion, the resource-based approach provides an illuminating generalizable theory of the growth of the firm.

As we reflect back on the full set of articles published on, or related to, the resource-based view of the firm, a few value-added areas for research are suggested.

### Integrating the diversification literature with the organizational economics literature

To be a fruitful comprehensive theory of diversification, the resource-based view must also aid management practice on the choice of *governance structure* (i.e. mergers and acquisitions, internal development, and intermediate modes such as joint ventures). The choice of organizational form is of primary concern in organizational economics (Williamson, 1985). Integration of the emerging resource-based view with organizational

<sup>12</sup> Itami's (1987) notion that invisible (intangible) assets are often the only source of competitive edge that can be sustained over time suggests that invisible assets are the most likely candidates for resources that are unique and causally ambiguous.

economic may provide value-added insights on the implementation of diversification strategy (Chatterjee, 1990b; Lamont and Anderson, 1985; Simmonds, 1990; Yip, 1982).<sup>13</sup> Hybrids and networks involve the coordination of resources across firm boundaries (Borys and Jemison, 1989). Can these hybrids and resources be matched in a discriminating way?

### The development of an endogenous theory of heterogeneity

A fundamental premise that distinguishes industrial organization from strategic management is the strategy field's assumption of heterogeneous firms. It seems legitimate to require that the strategy field provide a base for its theoretical foundations. A major advancement in the strategy field is the development of models where firm heterogeneity is an endogenous creation of economic actors.

One approach is to integrate the resource-based view with the organizational economics and dynamic capabilities approach (Teece, Pisano and Shuen, 1990), in which heterogeneity is explained as an outcome of a *disequilibrium process* of Schumpeterian competition (Iwai, 1984), path dependencies (Arthur, 1989), first-mover advantages, irreversible commitments and complementary or co-specialized (Ghemawat, 1991; Grant, 1990; Teece, 1987; Williamson and Winter, 1991).

A second approach utilizes the equilibrium models (Shapiro, 1989) of industrial organization to explain the nature of the heterogeneous firm. Lippman and Rumelt (1982), for example, generate an equilibrium in which firm heterogeneity is an endogenous outcome due to isolating mechanisms and uncertain imitability. Their model provides a persuasive argument that firm heterogeneity may be sustained in equilibrium without invoking *ad hoc* entry barriers. A second type of model stresses 'the heterogeneity (of managerial services), their uniqueness for every individual firm' (Penrose, 1959: 199). Oi (1983) models the heterogeneous firm as the equilibrium

outcome of an underlying distribution of entrepreneurial abilities. The resource-based literature is a framework within which an integrated analytical model may be constructed.

An advantage of the disequilibrium approach is that *time* may be viewed as the fourth dimension of resources (along with land, labor, and capital, broadly defined). Time and attention are scarce resources (Becker, 1965; Simon, 1976) and are sources of competitive advantage that are neglected in single-period equilibrium analysis. The approach of organizational economics (Barney and Ouchi, 1986) of real heterogeneous firms, competing in real (calendar) time appears more relevant (and no less rigorous) than orthodox equilibrium models.<sup>14</sup> Nevertheless, contributions to the field may be achieved on both fronts. Amit and Schoemaker (1990), for example, analyze the sustainability of heterogeneous firms both in, and outside of, equilibrium.

### Integration of the resource-based view with strategic group analysis

While a morality play of the virtuous resource-based theorists doing battle against the misguided strategic group theorists and industrial organization analysts may provide a crusading faith for the young and naive, a more balanced view, in our estimation, is needed. Intellectual isolating mechanisms which artificially reduce the trading of ideas are not best for the strategy field as a whole.

Albeit at different units of analysis, strategic group research is by no means inconsistent with a resource-based view. In fact, as McGee and Thomas have noted: 'strategic group analysis has interesting parallels with the theory of growth of the firm as first articulated by Downie, Penrose and Marris more than 20 years ago' (1986: 157). Can rare, inimitable resources be a source of sustained strategic group advantages?

<sup>13</sup> Caves (1982: 4) notes that intangible resources 'are subject to a daunting list of infirmities for being put to efficient use by conventional markets.' Thus, intangible resources are posited as being positively related to the internal development mode of diversification.

<sup>14</sup> Penrose (1959) denied the concept of long-run equilibrium analysis in the resource approach. Penrose (1959) suggests that firms are operating in a never-ending state of flux with 'lumpy' resources and excess capacity.

Competitive advantage is a function of industry analysis, organizational governance and firm effects (in the form of resource advantages and strategies). The resource-based model has the potential to coalesce these research streams to provide a rich and rigorous theory of the strategic firm (Conner, 1991; Rumelt, 1984). Indeed, Montgomery and Wernerfelt (1988) give simultaneous attention to the resource-based view, organizational economics and the industrial organization paradigm (see also, Wernerfelt and Montgomery, 1986, 1988). Simultaneous attention to these research streams is precisely the approach that warrants future research.

## REFERENCES

Ackoff, R. L. *A Concept of Corporate Planning*, John Wiley, New York, 1970.

Aharoni, Y. and J. P. Sticht. 'In search for the unique: Can firm-specific advantages be evaluated?' Working paper, Leon Recanati Graduate School of Business Administration, Tel Aviv University, 1990.

Alchian, A. A. 'Specificity, specialization, and coalitions', *Journal of Institutional and Theoretical Economics*, **140**, 1984, pp. 34-49.

Alchian, A. A. and H. Demsetz. 'Production, information costs, and economic organization', *American Economic Review*, **62**, 1972, pp. 777-795.

Amit, R. and P. J. Schoemaker. 'Key success factors: Their foundation and application'. Working paper, Northwestern University, 1990.

Andrews, K. *The Concept of Corporate Strategy*, Dow Jones-Irwin, Homewood, IL, 1971.

Ansoff, H. I. *Corporate Strategy: An Analytical Approach to Business Policy for Growth and Expansion*, McGraw-Hill, New York, 1965.

Armour, H. O. and D. J. Teece. 'Organizational structure and economic performance: A test of the multidivisional hypothesis', *Bell Journal of Economics*, **9**, 1978, pp. 106-122.

Arrow, K. *The Limits of Organization*, W.W. Norton & Company, New York, 1974.

Arthur, W. B. 'Self-reinforcing mechanisms in economics'. In P. W. Anderson, K. J. Arrow and D. Pines (eds), *The Economy as an Evolving Complex System*. Addison-Wesley Publishing, Redwood City, CA, 1988, pp. 9-31.

Arthur, W. B. 'Competing technologies, increasing returns, and lock-in by historical events', *Economic Journal*, **99**, 1989, pp. 116-131.

Bain, J. S. *Industrial Organization*, John Wiley, New York, 1968.

Barney, J.B. 'Organizational culture: Can it be a source of sustained competitive advantage?'

*Academy of Management Review*, **11**, 1986a, pp. 656-665.

Barney, J. B. 'Types of competition and the theory of strategy: Toward an integrative framework', *Academy of Management Review*, **11**, 1986b, pp. 791-800.

Barney, J. B. 'Strategic factor markets: Expectations, luck and business strategy', *Management Science*, **32**, 1986c, pp. 1231-1241.

Barney, J. B. 'Returns to bidding firms in mergers and acquisitions: Reconsidering the relatedness hypothesis', *Strategic Management Journal*, **9** (Summer), 1988, pp. 71-78.

Barney, J. B. 'Asset stocks and sustained competitive advantage: A comment', *Management Science*, **35**, 1989, pp. 1511-1513.

Barney, J.B. 'Firm resources and sustained competitive advantage', *Journal of Management*, **17**, 1991, pp. 99-120.

Barney, J. B. and W. Ouchi (eds.) *Organizational Economics: Toward a New Paradigm for Studying and Understanding Organizations*, Jossey-Bass, San Francisco, CA, 1986.

Barzel, Y. *Economic Analysis of Property Rights*, Cambridge University Press, Cambridge, 1989.

Baumol, W. J., J. C. Panzar, and R. D. Willig. *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich, New York, 1982.

Becker, G. S. *Human Capital*, National Bureau of Economic Research, New York, 1964.

Becker, G. S. 'A theory of the allocation of time', *Economic Journal*, **75**, 1965, pp. 493-517.

Bettis, R. A. 'Performance differences in related and unrelated diversified firms', *Strategic Management Journal*, **2**, 1981, pp. 379-393.

Borys, B. and D. B. Jemison. 'Hybrid arrangements as strategic alliances: Theoretical issues in organizational combinations', *Academy of Management Review*, **14**, 1989, pp. 234-249.

Bower, J. L. *Managing the Resource Allocation Process: A Study of Corporate Planning and Investment*, Harvard Business School Press, Boston, MA, 1970.

Bowman, E. H. 'Epistemology, corporate strategy, and academe', *Sloan Management Review*, **15**, 1974, pp. 35-50.

Camerer, C. and A. Vepsäläinen. 'The economic efficiency of corporate culture', *Strategic Management Journal*, **9** (Summer), 1988, pp. 115-126.

Castanias, R. P. and C. E. Helfat. 'Managerial resources and rents', *Journal of Management*, **17**, 1991, pp. 155-171.

Caves, R. E. 'Industrial organization, corporate strategy and structure', *Journal of Economic Literature*, **58**, 1980, pp. 64-92.

Caves, R. E. *Multinational Enterprise and Economic Analysis*, Harvard University Press, Cambridge, MA, 1982.

Caves, R. E. 'Economic analysis and the quest for competitive advantage', *American Economic Review*, **74**, 1984, pp. 127-142.

- Caves, R. E. and M. E. Porter. 'From entry barriers to mobility barriers: Conjunctural decisions and contrived deterrence to new competition', *Quarterly Journal of Economics*, **91**, 1977, pp. 241-261.
- Caves, R., M. E. Porter and A. M. Spence. *Competition in the Open Economy*, Harvard University Press, Cambridge, MA, 1980.
- Chandler, A. D. *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*, MIT Press, Cambridge, MA, 1962.
- Chandler, A. D. *The Visible Hand: The Managerial Revolution in American Business*. Harvard University Press, Cambridge, MA, 1977.
- Chandler, A. D. *Scale and Scope: The Dynamics of Industrial Capitalism*, Harvard University Press, Cambridge, MA, 1990.
- Chatterjee, S. 'The gains to acquiring firms: The related principle revisited', *Academy of Management Best Papers Proceedings*, 1990a, pp. 12-16.
- Chatterjee, S. 'Excess resources, utilization costs, and mode of entry', *Academy of Management*, **33**, 1990b, pp. 780-800.
- Chatterjee, S. and B. Wernerfelt. 'Related or unrelated diversification: A resource based approach', *Academy of Management Proceedings*, 1988, pp. 7-16.
- Chatterjee, S. and B. Wernerfelt. 'The link between resources and type of diversification: Theory and evidence', *Strategic Management Journal*, **12**, 1991, pp. 33-48.
- Coase, R. H. 'The nature of the firm', *Economica*, **4**, 1937, pp. 386-405.
- Coase, R. H. 'The problem of social cost', *Journal of Law and Economics*, **3**, 1960, pp. 1-44.
- Collis, D. J. 'A resource-based analysis of global competition: The case of the bearings industry', *Strategic Management Journal*, **12** (Summer), 1991, pp. 49-68.
- Conner, K. R. 'An historical comparison of resource-based theory and five schools of thought within industrial organization economics: Do we have a new theory of the firm', *Journal of Management*, **17**, 1991, pp. 121-154.
- Cooper, A. C., F. J. Gimeno-Gascon and C. Y. Woo. 'A resource-based prediction of new venture survival and growth', *Academy of Management Proceedings*, 1991, pp. 68-72.
- Cubbin, J. and P. Geroski. 'The convergence of profits in the long run: Inter-firm and inter-industry comparisons', *Journal of Industrial Economics*, **36**, 1987, pp. 427-442.
- Dahlman, C. J. 'The problem of externality', *Journal of Law and Economics*, **22**, 1979, pp. 141-162.
- De Gregori, T. R. 'Resources are not; they become: An institutional theory', *Journal of Economic Issues*, **21**, 1987, pp. 1241-1263.
- Demsetz, H. 'Industry structure, market rivalry, and public policy', *Journal of Law and Economics*, **16**, 1973, pp. 1-9.
- Demsetz, H. 'Two systems of belief about monopoly'. In H. J. Goldschmid, H. Mann, and J. F. Weston (eds), *Industrial Concentration: The New Learning*, Little, Brown, Boston, MA, 1974, pp. 164-184.
- Demsetz, H. 'Barriers to entry', *American Economic Review*, **72**, 1982, pp. 47-57.
- Dess, G. G. and P.S. Davis. 'Porter's generic strategies as determinants of strategic group membership and organizational performance', *Academy of Management Journal*, **27**, 1984, pp. 467-488.
- Dierckx, I. and K. Cool. 'Asset stock accumulation and sustainability of competitive advantage', *Management Science*, **35**, 1989, pp. 1504-1511.
- Dosi, G., D. Teece and S. Winter. 'Toward a theory of corporate coherence: Preliminary remarks', Working paper, University of California, Berkeley, 1990.
- Downie, J. *The Competitive Process*, Duckworth, London, 1958.
- Duhaime, I. M. and J. L. Stimpert. 'One more time: A look at the factors influencing firm performance', Working Paper, University of Illinois, 1991.
- Edwards, R. S. and H. Townsend. *Business Enterprise: Its Growth and Organization*, Macmillan, London, 1961.
- Eisenhardt, K. M. 'Agency theory: An assessment and review', *Academy of Management Review*, **14**, 1989, pp. 57-74.
- Farjoun, M. 'Beyond industry boundaries: Human expertise, diversification and resource-related industry groups', Working paper, University of Illinois, 1991.
- Fiol, C. M. 'Managing culture as a competitive resource: An identity-based view of sustainable competitive advantage', *Journal of Management*, **17**, 1991, pp. 191-211.
- Friedman, J. W. *Oligopoly Theory*, Cambridge University Press, New York, 1983.
- Ghemawat, P. 'Sustainable advantage', *Harvard Business Review*, **64**, 1986, pp. 53-58.
- Ghemawat, P. *Commitment: The Dynamic of Strategy*, Free Press, New York, 1991.
- Ginsberg, A. 'Connecting diversification to performance: A sociocognitive approach', *Academy of Management Review*, **15**, 1990, pp. 514-535.
- Gort, M. *Diversification and Integration in American Industry*, Princeton University Press, Princeton, NY, 1962.
- Grant, R. M. 'On dominant logic' and the link between diversity and performance', *Strategic Management Journal*, **9**, 1988, pp. 639-642.
- Grant, R. M. 'The competitive process and the basis of competitive advantage', Working paper, Anderson Graduate School of Management, UCLA, 1990.
- Grant, R. M. *Contemporary Strategy Analysis: Concepts, Techniques, Application*. Basil Blackwell, Cambridge, MA, 1991.
- Grinyer, P. H., P. McKiernan and M. Yasai-Ardekani. 'Market, organizational, and managerial correlates of economic performance in the U.K. electrical engineering industry', *Strategic Management Journal*, **9**, 1988, pp. 297-318.
- Grossman, S. and O. Hart. 'Takeover bids, the free-rider problem and the theory of the corporation', *Bell Journal of Economics*, **11**, 1980, pp. 42-64.

- Hansen, G. S. and B. Wernerfelt. 'Determinants of firm performance: The relative importance of economic and organizational factors', *Strategic Management Journal*, 10, 1989, pp. 399-411.
- Harrison, J. S., M. A. Hitt, R. E. Hoskisson and R. D. Ireland. 'Synergies and post-acquisition performance: Differences versus similarities in resource allocation', *Journal of Management*, 17, 1991, pp. 173-190.
- Hay, D. A. and D. J. Morris. *Industrial Economics*, Oxford University Press, Oxford, 1979.
- Hayek, F. A. *New Studies in Philosophy, Politics, Economics and the History of Ideas*, Routledge & Kegan Paul, London, 1978.
- Hays, R. H. and S. C. Wheelwright. *Restoring our Competitive Edge: Competing Through Manufacturing*, John Wiley, New York, 1984.
- Hill, C. W. L. 'Differentiation versus low cost or differentiation and low cost: A contingency framework', *Academy of Management Review*, 13, 1988, pp. 401-412.
- Hill, C. W. L. and G. R. Jones. *Strategic Management: An Integrated Approach*, Houghton Mifflin, Boston, MA, 1989.
- Hirshleifer, J. *Investment, Interest and Capital*, Prentice-Hall, Englewood Cliffs, NJ, 1970.
- Hitt, M. A. and R. D. Ireland. 'Corporate distinctive competence, strategy, industry and performance', *Strategic Management Journal*, 6, 1985, pp. 273-293.
- Hofer, C. W. and D. Schendel. *Strategy Formulation: Analytical Concepts*, West Publishing, St. Paul, MN, 1978.
- Holmstrom, B. 'Moral hazard and observability', *Bell Journal of Economics*, 10, 1979, pp. 74-91.
- Huff, A. S. 'Industry influence on strategy reformulation', *Strategic Management Journal*, 3, 1982, pp. 119-131.
- Itami, H. *Mobilizing Invisible Assets*, Harvard University Press, Cambridge, MA, 1987.
- Iwai, K. 'Schumpeterian dynamics: An evolutionary model of innovation and imitation', *Journal of Economic Behavior and Organization*, 5, 1984, pp. 159-190.
- Jacobson, R. 'The persistence of abnormal returns', *Strategic Management Journal*, 9, 1988, pp. 415-430.
- Jensen, M. C. and W. H. Meckling. 'Theory of the firm: Managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, 3, 1976, pp. 305-360.
- Jones, G. R. 'Transaction costs, property rights, and organizational culture: An exchange perspective', *Administrative Science Quarterly*, 28, 1983, pp. 454-467.
- Karnani, A. 'Generic competitive strategies—An analytical approach', *Strategic Management Journal*, 4, 1984, pp. 357-380.
- Kitch, E. W. (ed.) 'The fire of truth: A remembrance of law and economics at Chicago, 1932-1970', *Journal of Law and Economics*, 26, 1983, pp. 163-233.
- Klein, B., R. G. Crawford and A. A. Alchian. 'Vertical integration, appropriable rents and the competitive contracting process', *Journal of Law and Economics*, 21, 1978, pp. 297-326.
- Klein, B. and K. B. Leffler. 'The role of market forces in assuring contractual performance', *Journal of Political Economy*, 89, 1981, pp. 615-641.
- Koopmans, T. *Three Essays on the State of Economic Science*, McGraw-Hill, New York, 1957.
- Kreps, D. M. 'Corporate culture and economic theory'. In J. E. Alt and K. A. Sheple, (eds.), *Perspectives on Positive Political Economy*, Cambridge University Press, Cambridge, 1990, pp. 90-143.
- Kreps, D. M. and R. Wilson. 'Reputation and imperfect information', *Journal of Economic Theory*, 27, 1982, pp. 253-279.
- Lamont, B. T. and C. R. Anderson. 'Mode of corporate diversification and economic performance', *Academy of Management Journal*, 28, 1985, pp. 926-934.
- Lemelin, A. 'Relatedness in the patterns of interindustry diversification', *Review of Economics and Statistics*, 64, 1982, pp. 646-657.
- Libecap, G. D. *Contracting for Property Rights*, Cambridge University Press, New York, 1989.
- Lieberman, M. B. 'The learning curve, diffusion, and competitive strategy', *Strategic Management Journal*, 8, 1987, pp. 441-452.
- Lieberman, M. B. and D. B. Montgomery. 'First-mover advantages', *Strategic Management Journal*, 9, 1988, pp. 41-58.
- Lippman, S. and R. P. Rumelt. 'Uncertain imitability: An analysis of interfirm differences in efficiency under competition', *Bell Journal of Economics*, 13, 1982, pp. 418-453.
- Lubatkin, M. and R. C. Rogers. 'Diversification, systematic risk and shareholder return: The capital market extension of Rumelt's study', *Academy of Management Journal*, 32, 1989, pp. 454-465.
- MacDonald, J. M. 'R&D and the directions of diversification', *Review of Economics and Statistics*, 67, 1985, pp. 583-590.
- Mahajan, V., S. Sharma and R. A. Bettis. 'The adoption of the M-form organizational structure: A test of imitation hypothesis', *Management Science*, 34, 1988, pp. 1188-1201.
- Mancke, R. 'Causes of interfirm profitability differences: A new interpretation of the evidence', *Quarterly Journal of Economics*, 88, 1974, pp. 181-193.
- Marris, R. L. 'A model of the 'managerial' enterprise', *Quarterly Journal of Economics*, 77, 1963, pp. 185-209.
- Marris, R. *The Economic Theory of 'Managerial' Capitalism*, Macmillan, New York, 1964.
- Mason, E. S. *Economic Concentration and the Monopoly Problem*, Harvard University Press, Cambridge, MA, 1957.
- McCloskey, D. N. *The Rhetoric of Economics*, University of Wisconsin Press, Madison, WI, 1985.
- McGee, J. and H. Thomas. 'Strategic groups: Theory of research and analysis', *Strategic Management Journal*, 7, 1986, pp. 141-160.
- Montgomery, C. A. 'Product-market diversification

- and market power', *Academy of Management Journal*, **28**, 1985, pp. 789-798.
- Montgomery, C. A. and S. Hariharan. 'Diversified entry by established firms', *Journal of Economic Behavior and Organization*, **15**, 1991, pp. 71-89.
- Montgomery, C. A. and B. Wernerfelt. 'Diversification, Ricardian rents, and Tobin's q', *Rand Journal of Economics*, **19**, 1988, pp. 623-632.
- Mueller, D. C. 'The persistence of profits above the norm', *Economica*, **44**, 1977, pp. 369-380.
- Mueller, D. C. 'Persistent profits among large corporations'. In L. G. Thomas (ed.), *The Economics of Strategic Planning*, Lexington Books: Lexington, MA, 1986, pp. 31-61.
- Nelson, R. and S. Winter. *An Evolutionary Theory of Economic Change*. Belknap Press, Cambridge, MA, 1982.
- Oi, W. Y. 'Heterogeneous firms and the organization of production', *Economic Inquiry*, **21**, 1983, pp. 147-171.
- Oster, S. M. *Modern Competitive Analysis*, Oxford University Press, New York, 1990.
- Ouchi, W. 'Markets, bureaucracies, and clans', *Administrative Science Quarterly*, **25**, 1980, pp. 120-142.
- Palepu, K. 'Diversification strategy, profit performance and the entropy measure', *Strategic Management Journal*, **6**, 1985, pp. 239-255.
- Penrose, E. T. 'Limits to the growth and size of firms', *American Economic Review*, **45**, 1955, pp. 531-543.
- Penrose, E. T. *The Theory of the Growth of the Firm*, John Wiley, New York, 1959.
- Penrose, E. T. 'The growth of the firm. A case study: The Hercules Powder Company', *Business History Review*, **34**, 1960, pp. 1-23.
- Penrose, E. T. *The Theory of the Growth of the Firm: Twenty-five Years Later*. Acta Universitatis Upsaliensis, Uppsala, 1985.
- Peteraf, M. A. 'The cornerstones of competitive advantage: A resource-based view'. Discussion Paper No. 90-29, J. L. Kellogg Graduate School of Management, Northwestern University, 1990.
- Phillips, A. *Technological Change and Market Structure: A Case Study of the Market for Commercial Aircraft*. D. C. Heath, Boston, MA, 1971.
- Phillips, A. 'A critique of empirical studies of relations between market structure and profitability', *Journal of Industrial Economics*, **24**, 1976, 241-249.
- Phillips, A. and R. E. Stevenson. 'The historical development of industrial organization', *History of Political Economy*, **6**, 1974, pp. 324-342.
- Polanyi, M. *Personal Knowledge: Towards a Post-critical Philosophy*, University of Chicago Press, Chicago, IL, 1962.
- Porter, M. E. *Competitive Strategy*, Free Press, New York, 1980.
- Porter, M. E. 'The contributions of industrial organization to strategic management', *Academy of Management Review*, **6**, 1981, pp. 609-620.
- Porter, M. E. *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York, 1985.
- Prahalad, C. K. and R. Bettis. 'The dominant logic: A new linkage between diversity and performance', *Strategic Management Journal*, **7**, 1986, pp. 485-501.
- Prahalad, C. K. and G. Hamel. 'The core competence of the corporation', *Harvard Business Review*, **90**(3), 1990, pp. 79-91.
- Prescott, E. and M. Vissscher. 'Organizational capital', *Journal of Political Economy*, **89**, 1980, pp. 446-461.
- Ramanujam, V. and P. Varadarajan. 'Research on corporate diversification: A synthesis', *Strategic Management Journal*, **10**, 1989, pp. 523-551.
- Reed, R. and R. J. DeFillippi. 'Causal ambiguity, barriers to imitation, and sustainable competitive advantage', *Academy of Management Review*, **15**, 1990, pp. 88-102.
- Ricardo, D. *Principles of Political Economy and Taxation*, J. Murray, London, 1817.
- Richardson, G. B. 'The limits to a firm's rate of growth', *Oxford Economic Papers*, **16**, 1964, pp. 9-23.
- Richardson, G. B. 'The organization of industry', *Economic Journal*, **82**, 1972, pp. 883-896.
- Richardson, G. B. *Information and Investment*, (2nd ed.) Clarendon Press, Oxford, 1990.
- Robins, J. G. 'Organizational considerations in the evaluation of capital assets: Toward a resource-based view of strategic investments by firms', *Organization Science*, forthcoming.
- Robinson, E. A. G. *The Structure of Competitive Industry*, Harcourt Brace, New York, 1932.
- Rubin, P. H. 'The expansion of firms', *Journal of Political Economy*, **81**, 1973, pp. 936-949.
- Rumelt, R. P. *Strategy, Structure and Economic Performance*, Harvard University Press, Cambridge, MA, 1974.
- Rumelt, R. P. 'Diversification strategy and profitability', *Strategic Management Journal*, **3**, 1982, pp. 359-369.
- Rumelt, R. P. 'Toward a strategic theory of the firm'. In R. Lamb (ed.), *Competitive Strategic Management*, Prentice-Hall, Englewood Cliffs, NJ, 1984, pp. 556-570.
- Rumelt, R. P. 'Theory, strategy, and entrepreneurship'. In D. J. Teece (ed.), *The Competitive Challenge*, Ballinger Publishing, Cambridge, MA, 1987, pp. 137-158.
- Rumelt, R. P. 'How much does industry matter?', *Strategic Management Journal*, **12**, 1991, pp. 167-185.
- Scherer, F. M. *Industrial Market Structure and Economic Performance*, Houghton Mifflin Company, Boston, MA, 1980.
- Schmalensee, R. 'Entry deterrence in the ready-to-eat breakfast cereal industry', *Bell Journal of Economics*, **9**, 1978, pp. 305-327.
- Schmalensee, R. 'Do markets differ much?' *American Economic Review*, **75**, 1985, pp. 341-351.
- Schoemaker, P. J. H. 'Strategy, complexity and economic rent', *Management Science*, **36**, 1990, pp. 1178-1192.
- Schumpeter, J. A. *The Theory of Economic Development*, Harvard University Press, Cambridge, MA, 1934.



- Schumpeter, J. A. *Capitalism, Socialism, and Democracy*, Harper & Brothers, New York, 1950.
- Scott, J. and G. Pascoe. 'Beyond firm and industry effects on profitability in imperfect markets', *Review of Economics and Statistics*, 68, 1986, pp. 284-292.
- Selznick, P. *Leadership in Administration: A Sociological Perspective*, Harper & Row, New York, 1957.
- Shapiro, C. 'The theory of business strategy', *Rand Journal of Economics*, 20, 1989, pp. 125-137.
- Sharpe, W. F. *Portfolio Theory and Capital Markets*, McGraw-Hill, New York, 1970.
- Shen, T. Y. 'Economics of scale, Penrose-effect, growth of plants and their size distribution', *Journal of Political Economy*, 78, 1970, pp. 702-716.
- Simmonds, P. G. 'The combined diversification breadth and mode dimensions and the performance of large diversified firms', *Strategic Management Journal*, 11, 1990, pp. 399-410.
- Simon, H. *Administrative Behavior*. (3rd ed.) Free Press, New York, 1976.
- Singh, H. and S. J. Chang. 'Corporate reconfiguration: A resource perspective'. Working paper, University of Pennsylvania, The Wharton School, Management Department, 1991.
- Singh, H. and C. Montgomery. 'Corporate acquisition strategies and economic performance', *Strategic Management Journal*, 8, 1987, pp. 377-386.
- Slater, M. 'The managerial limitations to the growth of firms', *Economic Journal*, 90, 1980a, pp. 520-528.
- Slater, M. 'Forward' (2nd ed.) In E. T. Penrose. *The Theory of the Growth of the Firm*, Basil Blackwell, Oxford, 1980b, pp. vii-xxx.
- Sodersten, B. *International Economics*, St. Martin's Press, New York, 1980.
- Spence, A. M. *Market Signaling, Informational Transfer in Hiring and Related Screening Processes* Harvard University Press, Cambridge, MA, 1974.
- Spence, A. M. 'The learning curve and competition', *Bell Journal of Economics*, 12, 1981, pp. 49-70.
- Spender, J.-C. *Industry Recipes: An Enquiry into the Nature and Sources of Managerial Judgement*, Blackwell, Oxford, 1989.
- Starbuck, W. H. 'Organizational growth and development'. In J. March (ed.), *Handbook of Organizations*, Rand McNally, Chicago, IL, 1965, pp. 451-533.
- Stewart, J. F., R. S. Harris and W. T. Carleton. 'The role of market structure in merger behavior', *Journal of Industrial Economics*, 32, 1984, pp. 293-312.
- Stigler, G. *The Organization of Industry*. University of Chicago Press, Chicago, IL, 1968.
- Tallman, S. B. 'Strategic management models and resource-based strategies among MNEs in a host market', *Strategic Management Journal*, 12 (Summer), 1991, pp. 69-82.
- Tece, D. J. 'Economies of scope and the scope of the enterprise', *Journal of Economic Behavior and Organization*, 1, 1980, pp. 223-247.
- Tece, D. J. 'Towards an economic theory of the multi-product firm', *Journal of Economic Behavior and Organization*, 3, 1982, pp. 39-63.
- Tece, D. J. 'Economic analysis and strategic management', *California Management Review*, 25, 1984, pp. 87-110.
- Tece, D. J. 'Firm boundaries, technological innovation and strategic planning'. In G. L. Thomas, (ed.), *The Economics of Strategic Planning*, D. C. Heath, Lexington, MA, 1986, pp. 187-199.
- Tece, D. J. 'Profiting from technological innovation: Implications for integration, collaboration, licensing, and public policy'. In D. J. Tece (ed.), *The Competitive Challenge*, Ballinger, New York, 1987, pp. 185-219.
- Tece, D. J. 'Contributions and impediments of economic analysis to the study of strategic management'. In J. Fredrickson (ed.), *Perspectives on Strategic Management*, Harper & Row, New York, 1990, pp. 39-80.
- Tece, D. J., G. Pisano and A. Shuen. 'Firm capabilities, resources and the concept of strategy'. Working paper, University of California at Berkeley, 1990.
- Tece, D. J. and S. G. Winter. 'The limits of neoclassical theory in management education', *American Economic Review*, 74, 1984, pp. 116-121.
- Tirole, J. *The Theory of Industrial Organization*, MIT Press, Cambridge, MA, 1988.
- Tollison, R. D. 'Rent seeking: A survey', *Kyklos*, 35, 1982, pp. 575-602.
- Tomer, J. F. *Organizational Capital: The Path to Higher Productivity and Well-being*, Praeger, New York, 1987.
- Ulrich, D. and D. Lake. *Organizational Capability: Competing from the Inside Out*, John Wiley, New York, 1990.
- Uzawa, H. 'Time preference and the Penrose effect in a two-class model of economic growth', *Journal of Political Economy*, 77, 1969, pp. 628-652.
- Varadarajan, P. R. and V. Ramanujam. 'Diversification and performance: A reexamination using a new two dimensional conceptualization of diversity in firms', *Academy of Management Journal*, 30, 1987, pp. 380-393.
- Vasconcellos, J. A. and D. C. Hambrick. 'Key success factors: Test of a general framework in the mature industrial-product sector', *Strategic Management Journal*, 10, 1989, pp. 367-382.
- Walsh, J. P. and C. R. Ungson. 'Organizational memory', *Academy of Management Review*, 16, 1991, pp. 57-91.
- Wernerfelt, B. 'A resource-based view of the firm', *Strategic Management Journal*, 5, 1984, pp. 171-180.
- Wernerfelt, B. 'From critical resources to corporate strategy', *Journal of General Management*, 14, 1989, pp. 4-12.
- Wernerfelt, B. and C. A. Montgomery. 'What is an attractive industry?' *Management Science*, 32, 1986, pp. 1223-1229.
- Wernerfelt, B. and C. A. Montgomery. 'Tobin's q and the importance of focus in firm performance', *American Economic Review*, 78, 1988, pp. 246-250.
- Williamson, O. E. *Markets and Hierarchies: Analysis and Antitrust Implications*. Free Press, New York, 1975.

- Williamson, O. E. 'Transaction cost economics: The governance of contractual relations', *Journal of Law and Economics*, 22, 1979, pp. 233-261.
- Williamson, O.E. *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*, Free Press, New York, 1985.
- Williamson, O. E. 'Comparative economic organization: The analysis of discrete structural alternatives', *Administrative Science Quarterly*, 36, 1991a, pp. 269-296.
- Williamson, O. E. 'Strategizing, economizing, and economic organization', *Strategic Management Journal*, 12 (Winter) 1991b, pp. 75-94.
- Williamson, O. E. and S. G. Winter (eds.) *The Nature of the Firm: Origins, Evolution, and Development*, Oxford University Press, New York, 1991.
- Winter, S. 'Knowledge and competence as strategic assets'. In D. J. Teece (ed.), *The Competitive Challenge*. Ballinger, Cambridge, MA, 1987, pp. 159-184.
- Winter, S. 'On Coase, competence, and the corporation', *Journal of Law, Economics, and Organization*, 4, 1988, pp. 163-180.
- Yao, D. 'Beyond the reach of the invisible hand: Impediments to economic activity, market failures, and profitability', *Strategic Management Journal*, 9, 1988, pp. 59-70.
- Yip, G. S. 'Diversification entry: Internal development versus acquisition', *Strategic Management Journal*, 3, 1982, pp. 331-345.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.