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TAUTOLOGY IN THE RESOURCE-BASED VIEW AND THE IMPLICATIONS OF EXTERNALLY DETERMINED RESOURCE VALUE: FURTHER COMMENTS

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We counter Barney's challenges and reaffirm the tautology of the elemental business-level resource-based "view" (RBV). We develop a mathematical representation of the RBV as a first step toward formalizing its statements. We then explore the implications of our assertion (and Barney's agreement) that resource value is indeed determined outside of the RBV.

> Theories are nets cast to catch what we call "the world": to rationalize, to explain, and to master it. We endeavour to make the mesh ever finer and finer (Popper, 1959: 59).

We welcome Professor Barney's response to our article (this issue). Our intent in the article was to spur discussion concerning (1) the degree to which the current resource-based "view" (RBV) meets the requirements of a theoretical system and (2) the promise of the RBV for future strategy research. We are pleased that this discussion has begun so soon and that we have the opportunity to clarify several of our initial points.

Before we begin, however, a comment is necessary. We believe that work from resource-based perspectives has made, and is continuing to make, constructive contributions to strategic management, even if the RBV itself is not yet a theory. Weick's remarks are illustrative. He argues (following Merton, 1967) that "most products that are labeled theories actually approximate theory" (1995: 385) and that the items labeled as "not theory" by Sutton and Staw (1995) could represent valuable intermediate steps in the theorizing process. We agree.

The process toward theory is often a messy one, and "perspectives," "approaches," and "views" that are not theory may still guide research. Nevertheless, holding perspectives such as the RBV up to the requirements for theory can improve our understanding of their limitations and can also provide guidance for their further development. Our identification of the RBV as "not yet theory" simply indicates that further steps are necessary for it, if possible, to become a theory.

In the following sections we readdress the issue of whether the RBV qualifies as theory in light of Barney's comments. We clarify and extend our initial remarks concerning tautology and the external determination of "value" in the RBV. We then focus on areas of admitted agreement between Barney's and our articles while reexamining the RBV's degree of usefulness for strategy research. Finally, we suggest some directions for the future. Space limitations preclude our responding to each of Barney's arguments; we therefore focus on those assertions we deem most salient.

AGAIN, IS THE CURRENT RBV A THEORY?

Barney focuses his remarks concerning the RBV as theory on the issue of whether or not the fundamental, business-level RBV is or is not a tautology. We now do the same, although empirical content is only one of the criteria necessary for a set of statements to be regarded as theory (see our article, this issue). We first introduce Popper's (1959) explanation of tautology and examine Barney's assertions in light of Popper's views. We then address the RBV's potential

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falsifiability via a mathematical formalization of the RBV's fundamental statements.

The Tautology Argument

Popper's well-known dictum—that the empirical content of a theoretical statement increases with its falsifiability—is particularly appropriate to set the stage for the present discussion, since Popper goes on to show that tautologies cannot be falsified. Popper presents the following example of a tautology:

> *p*: All *orbits of heavenly bodies* are *circles*.
>
> *q*: All *orbits of planets* are *circles* (1959: 122).

If "heavenly bodies" and "planets" in this example are defined either in the same way, or in a manner such that planets are a subset of heavenly bodies, then $p \rightarrow q$ is a tautology. As Popper states:

> '$p \rightarrow q$' means, according to this explanation, that the conditional statement with the antecedent *p* and the consequent *q* is *tautological*, or logically true. (At the time of writing of the text, I was not clear on this point; nor did I understand the significance of the fact that an assertion about deducibility was a metalinguistic one . . .) Thus, '$p \rightarrow q$' may be read here: '*p entails q*'" (1959: 120).

A tautology is therefore a statement of relationship that is true by logic, as in Popper's $p \rightarrow q$ example. That is, the relationship '*q* follows *p*' is true based on the definitions of the concepts contained in *p* and *q*. Circular reasoning in a simple "if/then" statement is a subcategory of tautology. There is nothing inherently negative about tautologies—deductive reasoning is through tautology (as Popper notes), and true arithmetic statements are tautologies.[1] The problem occurs when one is offering a tautological statement that is *intended to have empirical content*. In our article we label tautologies "analytic" statements and statements that could be tested via data "synthetic." Our argument is that the RBV statement "if a resource is valuable and rare, then it can be a source of competitive advantage" is necessarily true by logic (i.e., a tautology) if "valuable" and "competitive advantage" are defined in the same terms. For example, if valuable resources are defined as those increasing efficiency and/or effectiveness, and competitive advantage is defined as achieving increases in efficiency and/or effectiveness, a tautology exists.

Barney offers a series of assertions regarding tautologies in his response to our article. The first is that "at this definitional level, all strategic management theories are tautological in the way Priem and Butler describe" (p. 41). This is a claim that would be very interesting if it were well supported (Davis, 1971). It is not.

Barney provides two examples of tautological theories to support his contention. The first is that

> "Porter's (1980) assertions about the relationship between industry attractiveness and firm performance can be reduced to tautology by observing that *firms in attractive industries will outperform* firms in unattractive industries and by defining industry attractiveness in terms of the ability of firms to perform well" (p. 41).

This is indeed a tautology, but one based on an inaccurate account of Porter's (1980) assertions. Reading Porter's (1980) chapter on the structural analysis of industries shows that he *does not claim that industry attractiveness is related to firm performance*. He never mentions "industry attractiveness" at all. The only place where the term appears in Porter's 1980 book is in the appendix, concerning the GE/McKinsey matrix.

Instead, in his theory on the structural analysis of industries, Porter uses average industry profitability as the concept to be predicted and the well-known "five forces" as the predictors. Thus, for example, ease of entry into an industry is argued to be inversely related to the average profitability of that industry, ceteris paribus, as is the threat of substitutes, and so on. The only risk of tautology (at least in *this* one of Porter's wide-ranging theories) would come if, for example, the force "industry rivalry" were defined as average profitability *instead of* (as Porter actually does) as price competition. This shows how important definitions are in theory building.

Given an accurate account of Porter's (1980) theory, one could identify numerous data patterns that would falsify the theory—for example, data showing that industries with lower barriers to entry are more profitable than those with higher entry barriers, or data showing that industries with more price competition are more profitable than those with less price competition, and so on. Thus, Porter's (1980) theory re-

[1] For example, the symbol 2 represents "" items, and the symbol 4 represents "" items, both by definition. Thus, 2 + 2 4 is a tautology.

garding the structural analysis of industries is falsifiable and not tautological (Popper, 1959). Moreover, these falsifying data patterns can be identified by using the theory's *constructs* and their definitions, rather than via a limited number of special operationalizations or "parameterizations" that are independent of the theory.

Barney's second example is from transaction cost economics—that "hierarchical forms of governance will replace market forms of governance when the costs of market governance are greater than the costs of hierarchical governance" (pp. 41–42; see Figure 1 in Gibbons, 1999: 148, for a pictorial representation). Barney calls this the "Coasian tautology." We may be talking past one another, but this appears to us to be a simple functionalist statement; we have been unable to identify the tautology. A pattern of data wherein market governance persisted in high transaction cost contexts and wherein hierarchical governance occurred in low transaction cost contexts (i.e., in cases when the *other* form was posited to be more efficient) would falsify the statement.

Similarly, Williamson's recent remark—that "more generally, transaction cost economics works out of the discriminating alignment hypothesis, according to which transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to effect an economizing result" (1999: 1090)—is not tautological either (see Figure 1 in Williamson, 1999: 1091, for a nontautological representation). A further discussion of possible interpretations and misinterpretations of Coase's theorem (Stigler, 1966) is beyond our current scope,[2] but the theories Barney gives as examples are *not* tautological.

We can further refute Barney's contention that all strategic management theories are tautological at a high (i.e., general) level of definition by providing other examples of strategy theories that are not tautological. Contingency and configuration theories, for example, are other high-level theories in strategic management that are not tautological. A generalized statement of contingency theory is that "a relationship among two variables . . . predicts a third variable" (Schoonhoven, 1981: 351). The most general statement of configuration theory is that variety in organizational attribute combinations "is limited by the attributes' tendency to fall into coherent patterns. This patterning occurs because attributes are in fact interdependent and often can change only discretely or intermittently" (Meyer, Tsui, & Hinings, 1993: 1176). Further, for both theories a particular alignment of (or multivariate fit among) key organizational characteristics is typically associated with high performance (e.g., Doty, Glick, & Huber, 1993).

These counterexamples are particularly appropriate, for three reasons. First, neither the "alignments/gestalts" of configuration theory nor the "fits" of contingency theory are defined in terms of performance. Thus, these theoretical approaches are not tautological. Second, the history of these theories shows just how important precise definitions of theoretical constructs are in theory building *and in theory testing*. The specification of "fit" by Schoonhoven (1981) and the conceptualization of fit as moderation, mediation, matching, and so on by Venkatraman (1989) each helped advance strategic management by better aligning constructs with their operationalizations. And third, even for each of these general statements of the theories, it is

[2] See, for example, Canterbery and Marvasti (1992, 1994) and Medema (1994) for an interesting exchange on Coase, and McCloskey (1998) for further comments. See also the recent exchange between Gibbons (1998), who evaluated suboptimal within-organization performance via an economic rational choice model, and responses by Freeman (1999) and Granovetter (1999). Alston and Gillespie (1989) offer a similarly interesting approach to modeling information transaction costs internal to the firm. Freeman notes that efficiency explanations such as Coase's (1937, 1960) are "often teleological and, as a result, very difficult to put to empirical test" (1999: 167). See also Samuels (1989: 1563), who provides a discussion of why there can be no unique, optimal result in efficiency-based models without prior assignment of property rights.

It may be that Barney is referring to the apparent circularity that is often commented on for functionalist approaches in general (i.e., those having the assumption that there is purposive action behind "the state of the world" that results in relatively more efficient outcomes). Kenney and Klein (1983) provide another example of a functionalist approach in the industrial organization economics literature. They examined the practices of "block booking" for movies (by the studios) and for diamonds (by DeBeers), wherein buyers had to accept an entire block of movies or diamonds rather than sort through each to select only the best. Kenney and Klein show that, rather than labeling such outcomes anticompetitive, evaluating them under the assumption that they were functionally efficient indicated that each approach minimized customer sorting costs across all customers and that block booking in these cases represented an efficient outcome.

possible to state precisely what patterns in data would falsify or support the theories. Main effects with no interactions would disconfirm contingency theories. Normally distributed attributes (rather than bi-, tri-, or n-modal distributions) with no relationships to performance would disconfirm configuration theories.

The Testability Argument

Barney's second claim is that *"the ability to restate a theory in ways that make it tautological provides no insights about the empirical testability of the theory whatsoever"* (p. 42). This assertion would be correct if one assumed that any restatement was based on arbitrarily selected renderings of the theory and on definitions that were not those put forth by the theory's developer. Clearly, for example, one should not *arbitrarily change* Porter's (1980) definitions of his concepts (or add concepts) in order to claim that his theory is tautological. Similarly, one should not arbitrarily change Barney's (1991) definitions of RBV concepts in order to make the RBV tautological, and we did not do so.

The statements of the RBV that we used in our article were taken verbatim from the work of the theory developer (Barney, 1991), just as were the definitions that we inserted into those statements. We chose to stick with Barney's (1991) specific and relatively comprehensive statement of the RBV when making our analysis so that we could be assured we were "getting it right" based on precisely what the theory builder had stated. Moreover, any subsequent critics of our work could then specifically cite other RBV work in which the definitions had been modified and the tautology eliminated. This has yet to occur, but we hope it will.

Popper explores in some detail the relationship between tautology and testability (1959, see particularly Chapter VI). He shows that tautologies cannot be falsified; in his terms, the set of "possible falsifiers" is the empty set. This is what he means when he says that such statements lack "empirical content." He concludes: *"In so far as a scientific statement speaks about reality, it must be falsifiable; and in so far as it is not falsifiable, it does not speak about reality"* (1959: 314). His discussion shows Barney's claim that tautology has no relation to testability to be specious.

Again, it may be that we and Barney are talking past one another because of different training and involvement in different research traditions (Kuhn, 1970). In order to reduce such unproductive discussion, we offer an attempt at mathematical representation of the elemental statements of the RBV. This is a first step in theory formalization, and it could help to clarify the issues in dispute. In our article, we first note the RBV's assumptions of resource heterogeneity and costly transfer, and we then summarize the RBV in two elemental statements:

> First, resources that are both rare (i.e., not widely held) and valuable (i.e., contribute to firm efficiency or effectiveness) can produce competitive advantage. Second, when such resources are also simultaneously not imitable (i.e., they cannot easily be replicated by competitors), not substitutable (i.e., other resources cannot fulfill the same function), and not transferable (i.e., they cannot be purchased in resource markets; Dierickx & Cool, 1989), those resources may produce a competitive advantage that is long lived (sustainable). Thus, rarity and value are each necessary but not sufficient conditions for competitive advantage, whereas nonimitability, nonsubstitutability, and nontransferability are each necessary but not sufficient conditions for sustainability of an existing competitive advantage (Priem & Butler, this issue: 25)

These RBV statements can be summarized in two mathematical expressions, as follows:

$$a\text{: Prob } (\mathbf{CA}) = f^{+}(\mathbf{v} \cap \mathbf{r})$$

$$b\text{: Prob } (\mathbf{S}) = f^{+}(\mathbf{CA} \cap \mathbf{i}_n \cap \mathbf{s}_n \cap \mathbf{t}_n)$$

where **CA** is competitive advantage, **v** is resource value, **r** is resource rarity, **S** is sustainability, $\mathbf{i}_n$ is nonimitability, $\mathbf{s}_n$ is nonsubstitutability, and $\mathbf{t}_n$ is nontransferability.

Statement *a* shows that the probability of achieving competitive advantage is a positive function of the joint occurrence of resource value and rarity. Statement *b* shows that the probability of sustainability of an existing competitive advantage is a positive function of the joint occurrence of competitive advantage, nonimitability, nonsubstitutability, and nontransferability. Statement *a* is the tautology, because both **CA** and **v** are defined in the RBV in terms of increasing efficiency and effectiveness. This is easier to see in the mathematical statement than in the prose discussion in our article. We hope that our

attempt at formalization will help to focus and clarify the discussion.

In his third claim Barney addresses the testability issue most directly. He argues that

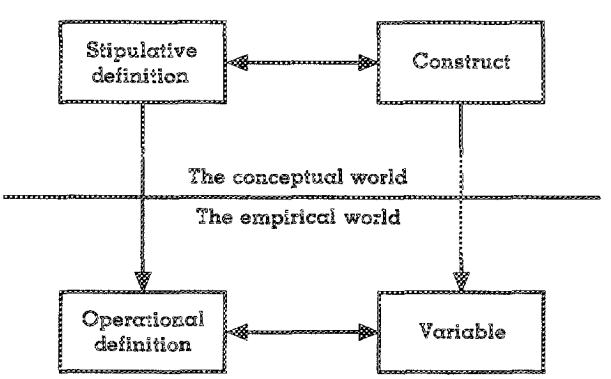
> the critical issue is not whether a theory can be restated in such a way as to make it tautological—since this can always be done—but whether at least some of the elements of that theory have been parameterized in a way that makes it possible to generate testable empirical assertions (p. 42).

He then proceeds to suggest some "parameterizations" for the RBV concepts of value, rarity, and imitability, and he provides examples of how, even with just these partial parameterizations, the RBV is testable.

In this portion of his remarks, Barney appears to be mixing constructs and variables, and definitions and operationalizations. Theory development involves "stipulative" definitions of constructs. That is, the developer stipulates, "This is the construct I mean when I say resource" (or "motivation," or "goal," or whatever). Ultimately, researchers in an area either agree with (i.e., stipulate to) the definition, or they propose modifications until agreement is reached and work can move forward. Testing, however, involves operational definitions represented by variables. That is, "This is the way I measure in the world to reflect accurately the theoretical construct I've defined." Figure 1 provides a basic representation of these relationships.

The argument we use in our article is a logical one that takes place around theoretical constructs and their definitions—the upper portion of Figure 1. This is what Popper (1959) means when he says that tautology is an issue of deducibility and metalanguage—that is, that tautology is a conceptual problem. Barney's "parameterization" arguments and his example "tests" of the RBV, however, take place around operational definitions and associated variables (parameters)—the lower portion of Figure 1. He is trying to address a logical issue empirically. That is neither fruitful nor responsive to our argument.

FIGURE 1
Stipulative and Operational Definitions



Nevertheless, the examples are revealing. Barney puts forth a statement about organizational culture, for example, and one about cost leadership strategy, each of which, he argues, is empirically testable. To restate, for readers' convenience, one of these assertions:

> *If only one competing firm possesses a valuable organizational culture (where the value of that culture is determined in ways that are exogenous to the theory developed in the 1991 article), then that firm can gain a competitive advantage (i.e., it can improve its efficiency and effectiveness in ways that competing firms cannot)* (p. 44).

The fundamental question raised by this statement (and the other) is whether this is an assertion *concerning the RBV* or an assertion concerning an unstated theory of organizational culture antecedents (i.e., what makes a culture work) and competitive advantage. We view it as the latter. Indeed, the parameterizations Barney sketches all are proposals concerning antecedents to (and their theoretical relationships with) the constructs of interest (e.g., his "rarity theory"). This can easily be seen because each of Barney's testability examples reaches down one level of analysis from the RBV itself to test a *particular* resource's antecedents/characteristics across firms, rather than to test multiple resources (with value independently determined) within and between firms. Thus, what Barney labels "parameterizations" of the RBV actually would be, if developed fully, midrange theories of rarity, cost leadership, or culture.

Regarding the organizational culture statement above, for example, Barney argues that "if a firm uniquely possesses a valuable resource and cannot improve its efficiency and effectiveness in ways that generate competitive advantages, then these assertions are contradicted" (p. 44). The question is *which* assertions? A finding that what is labeled a "valuable" culture is not associated with competitive advantage *would not disconfirm the RBV*. Instead, it would disconfirm the unstated, midrange "theory of culture's value" (i.e., the theory that relates some particular characteristics of culture to increased efficiency and effectiveness)

that is hidden in the labeling of cultures with such particular characteristics as "valuable." The disconfirmed theory actually is one level of analysis below the RBV. The only RBV-related conclusion that could be drawn would be that the particular resource labeled as valuable "wasn't actually valuable after all." This is an excellent example of the tautology of the RBV: an organizational culture, which cannot be transferred and thus has no inherent market value, only "gets value" if it is used properly to create profits. Thus, valuable cultures, by definition, increase effectiveness.[3]

Given the lack of empirical content in the RBV, any tests will be weak. More work on definitions of constructs will be required before strong empirical tests are possible. Popper is right that deducibility (deductive reasoning) depends on metalinguistics (the theory of language). One cannot simply acknowledge weak/incomplete stipulative definitions and then selectively parameterize for testing without destroying construct validity (e.g., Cook & Campbell, 1979; Venkatraman & Grant, 1986). Such tests are simply examining "something" and, thus, carry an unacceptable risk of misinterpreting fortuitous or spurious findings. Constructs and their definitions are important in building *and in testing* theory!

Barney's response does show that one can test many midrange strategic management theories (see, for example, Harrigan, 1983) about particular resources by moving down one level of analysis from the RBV. The RBV could give some guidance regarding salient constructs for these midrange theories. In sum, however, Barney's conclusions concerning tautology, testability, and the RBV are incorrect. The only way to effectively combat assertions of tautology in the RBV would be to show, under particular conditions, what specific pattern in the data would conclusively refute the theory. This has not occurred.[4]

BUILDING ON AREAS OF AGREEMENT

Barney identifies several points made in our article with which he agrees. These areas of agreement may provide another basis for improved understanding of the RBV. The areas include (1) that many of the attributes that make a resource a possible source of sustainable advantage "are not amenable to managerial manipulation" (p. 49), (2) that some RBV research is "clearly tautological" (p. 51), (3) that implementation deserves more attention, and (4) that dynamic research on resources may be particularly beneficial. The area of agreement between us that is most consequential for the RBV itself, however, might be that associated with the exogenous nature of value in the RBV.

Externally Determined Value

Barney notes early in his response that "as Priem and Butler correctly observe, the determination of the value of a firm's resources is exogenous to the resource-based theory presented in the 1991 article" (p. 42). Later, when he provides a series of statements of the RBV, he adds to each one the caveat "*(where the value of that culture is determined in ways that are exogenous to the theory developed in the 1991 article)*" (p. 44). This is a notable stipulation of agreement between us. Because of this stipulation, it is possible to move directly to examining the implications for the RBV of the external determination of its value construct. We begin by modifying our earlier statement a to a_1, as follows:

$$a_1: \quad \text{Prob}(\mathbf{CA}) = f'(\mathbf{v_{ed}} \cap \mathbf{r})$$

$$b: \quad \text{Prob}(\mathbf{S}) = f'(\mathbf{CA} \cap \mathbf{i_n} \cap \mathbf{s_n} \cap \mathbf{t_n})$$

where $\mathbf{v_{ed}}$ is value (externally determined—that is, the level of which is determined in ways that are exogenous to the theory).

Since $\mathbf{v_{ed}}$ is determined *outside of* the RBV, a_1 becomes a simple statement: when resource

[3] We thank Phil Bromiley for suggesting this.

[4] Barney's additional arguments about the difficulties in defining an industry, and the problems those difficulties may cause for operationalizing performance, are just not on point. As Porter notes:

> Any definition of industry is essentially a choice of where to draw the line between established competitors and substitute products, between existing firms and potential entrants, and between existing firms and suppliers and buyers. Drawing these lines is inherently a matter of degree that has little to do with the choice of strategy (1980: 32).

Similarly, Barney's argument for a definition of competitive advantage that is not dependent on defining a firm's industry is curious. Our sample definition (actually Schoemaker's, 1990) is industry average profitability, which does require defining the industry. Barney's preferred definition is "a firm improving its efficiency and effectiveness in ways that competing firms are not" (p. 48). This begs the question "How does one determine which are the competing firms?"

value for some unexplained reason is present, rarity of that resource is positively associated with the probability of competitive advantage. The "joint occurrence" requirement is still there, but half (we believe the important half) of that joint occurrence is neither independently defined nor determinable within the theory-like statement. Thus, if some undetermined external factors fortuitously combine to make a firm's strategy, structure, or culture the "right" one(s) to produce value (v_{ed}), when rarity exists, advantage can occur; without rarity, the best outcome is parity. Firms with resources that somehow create value will be better off if those resources are rare.

This may not be a particularly novel idea; the potential wealth advantages of "cornering the market" for a valuable commodity have been known in history from at least the Roman Empire through OPEC. In the original screenplay for the 1933 movie *King Kong*, for example, after Kong was subdued on Skull Island, the entrepreneurial movie director Denham exulted, "The whole world will pay to see this .... We're millionaires, boys, I'll share it all with you. Why, in a few months, it'll be up in lights on Broadway: 'Kong—the Eighth Wonder of the World!'" (quoted by Dirks, 1996). Denham clearly understood the effects of rarity when it occurred jointly with an exogenous, "big gorilla" theory of value.[5] Top managers, who each have succeeded throughout a long and rigorous managerial selection process, also are likely to understand quite well the effects of rarity. Ultimately, the external determination of resource value in the RBV leads one toward evaluating the rarity of and value added by the ideas in the RBV itself.

How Useful Is the RBV?

Barney argues:

> Thus, although the resources identified by resource-based logic as being most likely to generate sustained strategic advantages frequently are not amenable to managerial manipulation, it certainly does not follow that there are no prescriptive implications of that resource-based logic (p. 50).

We agree completely. In retrospect, we should have used the title "How Useful Is the RBV . . . ," rather than "Is the RBV a Useful . . . " for our article. This was our error—we never intended to (or actually did) declare the RBV "useless." The more interesting question is the one of *how useful* the RBV is now and is likely to be in the future for strategy scholars and practitioners.

One way to analyze the usefulness of the RBV is by comparing its benefits to those of alternative approaches, its achievements to scholarly goals, its prescriptions to practitioner needs, and the ratio of its insights to the attention it has been paid (e.g., in research efforts and in journal space). This method might be particularly apt, because by using it, researchers attempt to consider the opportunity costs of alternative research efforts that have been foregone.

Three accepted alternatives for internal analysis have included the strengths and weaknesses portion (SW) of SWOT analysis, Porter's (1985) value chain, and the RBV. In SW analyses researchers consider a variety of internal factors—ranging from physical assets to complex routines—and typically report on how easily competitors can copy any identified strengths. With the value chain researchers introduce explicit comparison of the costs of an internal activity to the customer value added by that activity. The ease of copying value chain activities is also considered. The cost comparison is an advantage of value chain analysis, although customer value determination remains underspecified. SW analyses and value chain analyses are similar in some ways to analyses under the RBV. The RBV's relative advantage, however, is that it provides a more structured and detailed conceptualization of how and why any advantage, once achieved, may be sustained.

Two elemental goals of scholarship are to explain and predict phenomena. The RBV has contributed to the explanation and prediction of sustainability, as shown by statement *b* above. Because of its tautology (statement *a*) and its external determination of value (statement a_1), however, the RBV has had little to contribute to the explanation or prediction of competitive advantage. That is, advantage can be identified

[5] The sequel to *King Kong—Mighty Joe Young* (RKO Pictures, 1949)—is even more direct about the benefits of a giant ape's uniqueness (i.e., rarity, nonimitability, nonsubstitutability, and nontransferability). Nontransferability is particularly important to the story. Because only Joe's young mistress Jill can control him, he cannot simply be stolen by (i.e., transferred to) his potential exploiters.

once it has been achieved, but it cannot be explained or predicted with the RBV. Yet, the ability to explain and predict a phenomenon is basic to theory.

Either one of these fundamental problems—tautology or the external determination of value—is enough by itself to limit the RBV's prescriptive ability for practitioners. Barney has outlined the prescriptive implications of the RBV well. His work shows that the RBV is mute on *how* to create value—a key area of practitioner interest. Barney notes that "after managers ascertain whether or not a particular resource is valuable, they can then use resource-based logic to anticipate strategic advantages that a resource might create" (this issue p. 51). We agree. We also have shown, however, that "ascertaining value"—an essential function of the strategist—remains indeterminate in the current version of the RBV.

Much excellent research that focuses on organizational resources has been conducted over the past decade. The RBV has helped to provide the impetus for that research. Yet, researchers generally have evaluated midrange theories, each involving a specific resource and its potential contribution to competitive advantage. Each of these midrange theories might make an important contribution to strategic management in its own right, but the unique insights *obtained directly from the RBV* seem few to us relative to the extensive attention the RBV has garnered as a general perspective for strategic management.

CONCLUSION

We have enjoyed this opportunity for debate with Professor Barney, and we hope that our remarks may in some way contribute to clarifying the RBV. Our mathematical representations of elemental RBV assertions could be a first step. We have shown that the RBV, as currently constituted, contains a theory of sustainability but *not* a theory of competitive advantage (i.e., value creation). Further conceptual development is required if the RBV is to address this essential element of strategic management and thereby increase its contribution to our field.

We believe that the necessary conceptual work might be accelerated if strategy scholars drop Wernerfelt's (1984) coin metaphor, wherein one side of a coin represents firm resources and the other represents the competitive environment (i.e., the demand side). This "two sides of the coin" conceptualization has come to represent, surely in a way unintended by Wernerfelt, the separate consideration of firm resources and the competitive environment. Such mutual exclusion may reflect the state of the academic field, but it is not an accurate reflection of the practice of strategic management. This artificial separation, and even the resulting terminology, may be restricting our ability to fully conceptualize strategy making.

Resources, representing what *can* be done by the firm, and the competitive environment, representing what *must* be done to compete effectively in satisfying customer needs, are both essential in the strategy-making process. Practicing strategists have no choice but to deal simultaneously with resource-side issues (while even the strategists may not fully understand their firms' current and future capabilities) and potential demand-side issues (while even the demanders may not be aware of their future needs). This requires an elaborative, evolving, and emergent process that works toward solutions by addressing core *connections* between resources and the environment. Scholars must once again openly acknowledge and accept the resource-environment connection (not separation) that is elemental to strategy. We then will no longer have to deal with the pretenses of either assuming that firm resources are givens (as in "environment only" models) or that consumer demands/valuations are givens (as in "resource only" models).

We absolutely agree with Professor Barney that "resource-based models of strategic advantage may need to be augmented by theories of the creative and entrepreneurial process" (p. 53). Decision making in the strategy process demands sound judgment, and perhaps even wisdom. Attention to organizational decision processes that are directly related to value creation—advocated by Eisenhardt and Martin (in press) concerning "dynamic capabilities" and by Priem and Cycyota (in press) concerning "strategic judgment"—could prove fruitful for researchers. We hope that value creation decisions will garner more research attention and that, simultaneously, a better

elaborated RBV will make a heightened contribution to strategic management. Ultimately, our wish is that the creative/entrepreneurial strategic decision process *and* the RBV each receives its deserved level of scholarly attention.

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