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**THE RBV, METHODOLOGICAL INDIVIDUALISM, AND MANAGERIAL
COGNITION: PRACTICING ENTREPRENEURSHIP**

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ABSTRACT

If we consider Schumpeter's methodological individualism and entrepreneurship, the 'managerial cognition' arguments can contribute new insights to the RBV discourse. I open by examining the links between resource inputs and firm outputs, and argue the types of rent implied by the RBV cannot arise or be sustained if these links are logical and explainable. The only rents then available are the Marshallian quasi-rents arising from information asymmetry, or the Ricardian rents from initial allocation i.e. those of Porter's analysis. Today's RBV lacks the components necessary to create and manage the value at the core of Barney's VRIO model. Causal ambiguity or uncertain inimitability might imply sustainable rents but clearly do not explain how they arise, any more than asserting the firm has dynamic capabilities does. To illustrate how value might be created and brought into the analysis, I look at Penrose's model of managerial learning, primarily as an accessible instance of the epistemological approach proposed by Austrian economists such as Hayek, Kirzner, and Schumpeter. This concept of value-creation parallels the sense-making concepts of the managerial cognition literature. I conclude that an alliance of BPS and MOC approaches can complement and so complete the RBV, synthesizing notions of value creation, heterogeneous and immobile resources, and endogenous growth into a dynamic theory of the firm. It balances rational choice and Schumpeterian entrepreneurship. To wrap this argument up, I discuss the theoretical and practical implications of the amended RBV.

(236 words)

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INTRODUCTION

Scanning last year's Managerial and Organizational Cognition (MOC) Division program I noticed how few papers dealt with the strategy-making issues that drew me to the field so many years ago. My interests then were shaped by experience as a senior manager, doing strategy. I experienced managerial sense-making as especially problematic when it came to strategic decisions, so that became my research topic. Much of the MOC activity now seems to be about doing the reverse, putting a managerial spin on mainstream psych theory and lab issues such as how managers perceive, how emotions shape these perceptions, how inter-personal communication works given different perceptions and feelings, and so forth. These are important if we are to understand more about how organizations work, but I still hanker for a sense of what the MOC view might contribute in the other direction, especially to the Academy's dominant discussion – that of the Business Policy and Strategy (BPS) Division. So that is my paper's main agenda.

The Academy and its BPS members, with a little help from journals like SMJ, AMR, JEE, and JOM, more or less put the resource-based view (RBV) into our business discourse (Fahy, 2000; Fahy & Smithee, 1999; Foss & Klein, 2005b; Lopez, 2001; Rouse & Daellenbach, 2002). It is not a controlled experiment, but Googling can give you a sense of what you are dealing with - and if you Google 'resource based view' you get 127,000 hits. That is a lot, especially when compared with 'managerial cognition' which gives

you 12,200 and 'industry recipe' when you get 758 - which includes a lot of commercial cookery. OK, if you Google 'five forces' you get 216,000 hits, but the Porter machine has been working longer than the RBV's and there is still time to catch up. Campaign finance, incidentally, generates 6.4 million hits. No one can know what these numbers really mean but they are enough to show that 'RBV' is a widely accepted term of art. So my question is what, if anything, might the MOC viewpoint bring to the RBV and its huge contribution to the theory, practice, and discourse of strategic management?

We need to consider some of the weaknesses of the RBV to get to my main conclusion that some managerial cognition ideas can usefully complement it. The naïve view is that a firm's strategic opportunities follow from its valuable, rare, costly to imitate or substitute resources - the VRIN or VRIO model (Barney, 2001b; Barney, Wright, & Ketchen Jr., 2001b; Fahy, 2000; Lopez, 2001). These lead to rent streams and perpetuated, to sustainable competitive advantage (SCA). I say naïve because, as we know, important questions are left open e.g. (a) where do these rent-yielding resources come from and at what price? And (b) what happens when the world changes and yesterday's resources lose their relevance and value?

The first shifts the emphasis from resources acquired externally, that lead to rents when strategic factor markets are imperfect (Barney, 1986b; Conner, 1991; Miller, 2003), to those which are generated internally by the organization's learning processes (Grant, 1996a; Helfat & Peteraf, 2003; Peteraf, 1993; Peteraf & Bergen, 2003). Since the latter are more likely to be 'knowledge' and 'knowing' than things tangible, some call this

version the knowledge-based view or KBV (Grant, 1996b). They extend the argument saying know-how is the most strategic of all the firm's internal resources because it is tacit and immobile. The second question shifts the theorizing from inventorying the firm's strategic resources to the processes or 'dynamic capabilities' (DC) that enable it to respond and adapt these as the firm's environment changes (Castanias & Helfat, 1991; Peteraf, 1993). Given this framing many researchers around the world are hunting for strategic resources and DCs (Winter, 2003) and MOC members might be excused for thinking of us as a closed community whose endeavor is not in their bailiwick, and to which they have little to offer. Well, neither the RBV nor dynamic capability are that simple, and strategy theorists may be able to use more help than most of us know.

The beginnings of the RBV lie in the question of heterogeneity, how come firms differ and yet persist? Barney (Barney, 1991b) tell us the RBV's fundamental planks are resource heterogeneity and immobility. Not all economists are interested in firms, most treating them as identical, being more concerned with markets and prices. But some puzzle over questions like 'Why are firms of different sizes?' (Ijiri & Simon, 1977) or 'Are firms unique or merely different implementations of some ideal or perfect firm analogous to a perfect market?' or 'Is there some equifinality that allows a range of viable business model configurations as configuration theory suggested?' (Foss, 1997; Kogut & Zander, 1996; Meyer, Tsui, & Hinings, 1993). When Wernerfelt's article appeared in 1984 the view among strategy theorists was that firms should manipulate their strengths and weaknesses to match the opportunities and threats characterizing their product-market. Since these were independent of the firms, there was a sense firms

might converge on the single business model that most perfectly 'fitted' the situation.

This Chandlerian view was ultimately about comparative efficiencies of competing firms (Chandler, 1966). Efficient markets call for efficient firms and 'fit' is the metaphor.

Getting away from efficiency means stepping back into the 19th century world of robber barons and monopolies. Porter upended the structure-conduct-performance paradigm at the core of Anti-Trust theorizing and shifted from managing efficiency to managing the firm's quasi-monopoly (Porter, 1979, 1980). Harvard, with its institutional economists, allowed every firm was a quasi-monopolist. Porter restructured these ideas and theorized the process of protecting rents in niche markets by preventing others from entering with similar or substitute products, while at the same time ensuring the firm was not held ransom by its suppliers, as is the independent gas station, or its customers as, for instance, Wal-Mart uses its marketing clout to reduce costs. If sustainable rents were to be had in an industry, Porter's attractiveness measure, the actors comprising the value chain from raw resources through production and distribution to final consumption compete to make sure the rents migrate to them rather than to others. Strategy is then about seizing rents rather than about their creation, for they pre-exist the analysis.

The RBV met the conceptual and terminological needs these views raised for theorists and practicing managers alike. What were strategic managers supposed to be doing as they chased after these rents? Could they generate them? Could they acquire them? Not all appreciate the strategy theorists' problematics are not those of micro-economists or organization theorists. Economists wonder why firms exist, given efficient markets,

whether firms are responses to market failures (Alchian & Demsetz, 1972; Cantwell & Fai, 1999; Conner, 1991; Demsetz, 1973; Demsetz, 1991; Williamson, 1975). Org theorists wonder how to organize the production function, with its division of labor, and the resources the firm has available. Strategy theory is not really about why firms exist, that is taken for granted. Their focus is on how to maximize performance both relatively, against the competition, and against what is possible in a given market. Strategy theorists are interested in why firms exist only to the extent that the answer provides insights into how they can be managed towards sustainable advantage. Porter's approach focuses on seizing advantage with monopoly management, i.e. positioning against the four forces, while suppressing rivalry, the fifth, but pays little attention to why firms exist.

The Chandler tradition is broader. Advantage comes from organizing (structuring) to fit the firm to the market's imperatives while choosing markets that provide opportunities for growth. Neither theorist is able to be entirely clear about how managers can or should change their firms in pursuit of performance because neither advances a theory of the firm. Strategic theorists know internal restructuring, image management, and positioning are not their only choices, they can also move their firm from one market to another and, through merger, acquisition, innovation, and alliances, alter the inventory of resources and their market position. Ansoff's (Ansoff, 1965) cautions about resource immobility and un-related diversification, taken up by Wrigley and Rumelt (Rumelt, 1974), balanced these assumptions of resource and organizational mobility. A monopolist's management does not care about resource immobility; it can stay put and manipulate the market with only the government powerful enough to constrain it. A less powerful competitive quasi-

monopoly position suggests managers might collude or otherwise seek the stability of oligopoly, such as arose in the US oil and auto industries, and set up entry barriers and isolating mechanisms (Knott, 2003) - or else see their rents competed away. But ordinary firms, even major ones, can seldom hope for this level of monopoly. Their managers must pursue and protect their modest quasi-monopoly by carefully managing relations with suppliers, customers and potential entrants, and second, through aggressive management of their resource-base - including isolating mechanisms as among these - find and secure their firm's position within the market niche. This is tricky if the resources are immobile, heterogeneous, firm-specific, and idiosyncratic, and how do they know which are mobile and which not, which are merely complementary, and which not? The RBV's appeal lies in its speaking to these issues just as Porter's work speaks to the position-seeking quasi-monopolist.

THE RBV AS A THEORY OF THE FIRM

Numerous authors offer lists of the firm's strategic resources (Amit & Schoemaker, 1993; Barney, 1991a; Collis & Montgomery, 1995; Fahy, 2000; Grant, 1991). We see three categories: tangible, intangible, and organizational. The first are tradable and so need to be secured in some way, as patents, property, or contracts, or with other isolating mechanisms (Knott, 2003), and can then provide Ricardian rents (Castanias et al., 1991; Mahoney, 2001). The second are less tradable, often firm-specific, difficult to identify and bring under title and contract, and so generate economic rents (Foss & Foss, 2005a). Often they are mobile, such as information which can be readily communicated to others; sometimes sticky, such as production or research skills (Szulanski, 2003) or reputation

(Michalisin, Smith, & Kline, 1997). Organizational resources are the skills required to integrate the tangible and intangible resources into the firm. These are generally firm-specific, idiosyncratic, and immobile, yet might be tangible, such as operating procedures, or intangible, such as an organization's culture. Organizational routines, as proposed by Nelson and Winter (Nelson & Winter, 1982), might be an amalgam of all three. But here we mimic accounting - armed with suitable terminology and metrics we 'go in', prepare the firm's resource inventory, and analyze the strategic impact of each. Perhaps we find core competences like 'optics technology' or 'electronics' (Prahalad & Hamel, 1990) or dynamic capabilities (Eisenhardt & Martin, 2000; Tallman, 2003; Winter, 2003). Barney suggests including the organization's culture if that appears to be crucial to a particular firm's ability to respond to strategic competition (Barney, 2001a). But the question in the background is 'Where do these resources come from, and at what price?' (Godfrey & Gregersen, 1999; Helfat & Lieberman, 2002).

There have been brisk debates over the RBV's theoretical substance, especially whether it is mere tautology - that we can only detect VRINs *ex post* by their effects and there is no distinguishing them *ex ante* (Priem, 2001a; Priem, 2001b). Most RBV supporters take its concepts as self-evident, though some, such as Barney (Barney, 2001a) and Schendel (Schendel, 1994), feel obliged to respond to the attacks. Some suggest operationalizing the RBV (Hansen, Perry, & Reese, 2004), others for combining it with theories of marketing (Hooley, Broderick, & Moller, 1998; Hooley, Greenley, Fahy, & Cadogan, 2001; Makhija, 2003; Peteraf et al., 2003) or IT (Grant, 2002; Kearns & Lederer, 2003). A persistent thread brings the RBV together with evolutionary approaches (Levinthal &

Myatt, 1994; Mathews, 2002, 2003; Murmann, Aldrich, Levinthal, & Winter, 2003).

Rouse and Daellenbach call for better methodologies to identify the resources (Rouse et al., 2002). Many call for more empirical research e.g. (Menguc & Barker, 2005). RBV boosters, such as Lockett and Thompson (Hoopes, Madsen, & Walker, 2003; Kay, 1993; Lockett & Thompson, 2001), dismiss the critiques as failures to appreciate its real power. Schendel (Schendel, 1994) clearly brings up the right issues, and interesting ideas emerge in Barney's responses to Priem and Butler's attacks (Barney, 2001a) and his subsequent reviews (Barney, 2001b; Barney et al., 2001b; Makadok et al., 2001).

The most serious of these many challenges center around the RBV's concept of 'value' and how that might be determined *ex ante*. Dealing with this would break the tautology. Barney (Barney, 2001a) suggests the RBV is new and 'parameterization' is still required, and inclines to the resource market as an external source of data and arbiter of value. Such value might be based on I/O arguments specifying the quasi-monopolistic market's 'conditions' that can then help clarify which of the firm's resource inventory items are valuable, like small engine design skills in the chain-saw industry (Porter, 1983), or quoting Conner's (Conner, 1991) work, using market imperfections of other unspecified types (Barney, 2001a: 42).

There may be some sleight of hand here, for if the explanation of the firm's rent-yielding resources depends on understanding imperfections in the firm's market, the theoretical emphasis shifts back from whence it came, to a theory of what creates the imperfections, quasi-monopolistic potentials, and industry attractiveness attributes Porter assumes rather

than explains. The tautology is then not broken, rather its loop is lengthened to include the imperfect market. But as we know from the strategic factor market argument (Barney, 1986b), if the resource markets are perfect there can be no rents for the firm buying those resources. The same point applies to imperfect markets, for if all players understand the imperfections the rents will be competed away before any firm can acquire them (Barney, 2001a).

To argue rents arise from information asymmetries does not break the loop either, for now we are obliged to explain how these arise just as we were before obliged to explain the market's imperfections. This looping is not clarified by appeals to 'firm-specific' resources, for this is but a different terminology. The presumption is that such resources have value, so the valuation problem remains, and it is even more obvious that value turns on the specifics of the context in which the firm is operating. In short, the apparatus for theorizing market imperfections is much the same as that required to understand firm-specific resources. So, given the axioms of the VRIN model, it is clear the RBV folks have a serious problem with explaining their concept of resource value. There is no sign of this being reducing the RBV's popularity, nor of related insights circulating within the RBV discourse. In fact we might say the opposite, given the conceptual breakthrough being claimed by some (Kay, 1999). Yet Lockett and Thompson (Lockett et al., 2001) may tell us more than they know when they report, after searching 167 economics journals, the RBV is all but un-cited by mainstream economists.

HOW MOC CAN HELP BPS

Lockett and Thompson also report the truism - that most economists, and managers too, assume the firm's competitive advantage accrues from something special about its bundle of resources, especially when this defines the firm and is expanded to include its history and ways of working, such as organizational routines, and external relations, such as alliances and customer and supplier relations. So the question is not really about whether resources are the source of SCA, for they are by definition, but whether RBV's insights add materially to this commonplace, which is inherently tautological and maybe more a way of talking than theorizing. Does the RBV really help practicing strategists?

The idea that the firm comprises a bundle of heterogeneous resources is not new; it re-articulates the Smithian notion of combining land, labor, and capital in the production of goods and services. Thus economists treat the firm as an unproblematic black box, unworthy of close attention because competitive firms seek the level of production at which they transform resources into outputs most efficiently, leaving only questions about the management's choices in the firm's markets. Strategists, on the other hand, see more complexity inside the box and seek explanations beyond market manipulation. Since management acts both within the firm and without, and is able to vary both its production level and market engagements, strategy theorists are interested in the fundamental differences, if any, between firms and markets. If there is no difference, beyond the firm being a special kind of market of non-enforceable contracts, there is little to be found. Most strategists assume otherwise, as Schendel argues repeatedly (Schendel, 1994) and seek the managerial, entrepreneurial, and leadership attributes they believe

have significant influence over the firm's performance. In practice the production function is far from transparent, and terms like 'causal ambiguity', 'uncertain inimitability' or 'tacitness' appear as metaphors of its opaqueness - even though, surprisingly, they are sometimes used to explain rents. But if, as Barney (Barney, 1994) or Lippman and Rumelt (Lippman & Rumelt, 1982) suggest, even those within the firm do not fully understand how its resources impact the bottom line, what hope is there of any compelling and managerially-useful theory?

That resources are necessary inputs to the firm and that there is some kind of connection between inputs and outputs is not contested, but we have no clarification of these opaque links. The lacuna is the theory of the firm in the RBV discourse - absent except when assumed into place. To put this differently, if the production function is transparent, and the connection between the inputs and the outputs is plain to see, there are only the quasi-monopoly and Ricardian rents that I/O analysis considers. The endogenous rents sought by the RBV and DC theorists only arise if the production function is opaque, when causal ambiguity and so forth apply. Without a theory of how opacity or uncertainty is resolved, we have no theory of the firm. It is not a matter of mere bias (Busenitz & Barney, 1997). Grant insists it all comes down to coordination and integration, not the resources themselves, and so raises the critique in different language (Grant, 1996a, b, 2003). If an RBV enthusiast argues, well, you have missed the point, because we include coordinative capabilities among the organizational resources (Castanias et al., 1991) we are no better off. The tautology is now viciously tight - there is a firm because someone has the skills to create firms, but we have nothing to say about these skills beyond observing them

being used to create firms. Or entrepreneurship is what entrepreneurs do, just as IQ is whatever IQ tests measure.

The story of P. Roy Vagelos, Merck's one-time CEO and by all accounts a capable and honest man, is illustrative (Castanias et al., 1991: 158). That senior managers might do something important for their firms is not contested. But to imply Dr. Vagelos, a ex SVP of Research at Merck, changed the way Merck's drugs are generated to a research-based one, and so caused Merck's rent-run, is to insult Merck's other managers and disregard Merck's complexity. It needs a great many managers to make it work who wish it was as simple as the story tells, for they know commands, on their own, do not a company make. A better question is 'What did Vagelos and his colleagues do to ready the company for his initiative?' and a complete list of resources necessary for this is probably unknowable.

Here I am suggesting the RBV - as thus far understood - is simply a re-articulation of the truism that outputs depend on inputs. But absent a theory of the firm we know neither which inputs are crucial nor the sensitivity of the business model to this magic ingredient. Without an explanation, we observe rents and confidently assert a crucial input - without knowing it. To call this a strategic resource, or core competence, or dynamic capability does not make for useful theory any more than the strange vocabulary medics use leads to our being cured. There are urban myths that you need New York water to make a real bagel, or Pennine weather to make real worsted woolens, and if you visit any production facility, research unit, or hotel you will hear like stories of what makes their activity special. But is this a theory? The list of imaginable critical factors is endless, so any

theory of the firm, such as the RBV offers, must begin by eliminating the irrelevant. Uncritically admitting so many types of resource, how can the RBV do this? In short, the RBV notion of a knowable rent-yielding relationship between inputs and outputs does no more than re-present the economists' black box in the language of quasi-monopoly. Of course, the huge interest in the RBV reveals our desire to look inside the firm and comprehend its creative transformational processes, but as yet it adds little to our understanding because it does not, in fact, ever get into that box.

FROM THE RBV TO PENROSE AND MOC

There is some irony in the RBV supporters' claim that Penrose's "Theory of the Growth of the Firm" (often dubbed TGF) is god-mother to their work. Wernerfelt cites her in his seminal 1984 SMJ piece, as do Barney and Conner in their 1991 JOM articles, but none makes more than cursory reference. Likewise it is true that Penrose frequently describes the firm as a bundle of resources e.g. (Penrose, 1995: 77) and Wernerfelt notes this (Wernerfelt, 1984: 171). But Penrose presents us with many puzzles. We are helped by a cottage industry of folks telling us what Penrose 'really said' (Foss, 1999; Loasby, 1999; Lockett, 2005; Pitelis, 2002, 2004; Rugman & Verbeke, 2002). She is also worth reading closely, especially when we realize there is a serious disconnect between the TGF and the RBV. To get to the heart of this, and the opportunity it opens up for MOC members, we need only quote her famous sentence: "Strictly speaking, it is never resources themselves that are the inputs to the production process, but only the services that the resources can render" (Penrose, 1995 p.25). With this she completely denies any simple link between inputs and outputs. Whatever it is, the real link is 'complex', by

which we mean something deeper than ‘complicated’ as used above about Merck. This complexity, of course, is the theory of the firm absent from the RBV.

Grant gets as close as anyone to an RBV-shaped theory of the firm (Grant, 1996a, 1997, 2002, 2003). He sees resources - and integrating capabilities too - but argues the core of a theory of the firm must be knowledge-based. The challenge is to reconcile specialized knowledge, the consequence of the learning processes illustrated by Smith’s pin-makers, with coordinating knowledge; the latter comprising rules, operating procedures, and the routines people learn as they interlock their activities. But effective coordination also requires ‘common knowledge’, a complex of shared language and culture. Grant quotes Kogut and Zander, "firms are “social communities in which individual and social expertise is transferred into economically-useful products and services by the application of a set of higher-order organizing principles. Firms exist because they provide a social community of voluntaristic action structured by organizing principles that are not reducible to individuals." (Kogut & Zander, 1992: 389). The examples Grant offers – Dow Chemical, McKinsey, McDonald’s Restaurants, and the Army’s National Training Center - emphasize collective activity, (Grant, 2002), and the same should be said of Merck. His notions are widely cited but we still miss the way these relationships work. What is this proto-theory of the firm? What is management’s role? Whence the firm’s rules, routines, and common knowledge, and how do they interact? Can their acquisition or generation be managed in a way that provides us with a theory of strategy?

Penrose shows us the way forward by introducing a new epistemology. We get insight into this as we realize she sets up a disjunction between resources and services only to create a conceptual space for her solution, managerial learning. Many regard the essence of her theory in terms of the ‘Penrose Effect’ (Marris, 1961; Penrose & Pitelis, 2002) that: (a) the finite capacity of the management team limits the rate of growth in any particular period, and (b) the growth rate in subsequent periods may be reduced because of growth in a prior period (Hay & Morris, 1979). The Penrose effect is the inverse of the ‘dynamic capabilities’ argument and tells us the constraints of the firm’s dynamic capabilities set the limits to the firm’s growth, and so, by extension, to its ability to respond to environmental disturbance (Eisenhardt et al., 2000; Teece, Pisano, & Shuen, 1997). The ‘Penrose effect’ seems a narrow interpretation of Penrose’s work, making it less interesting than it really is - and missing what is most relevant to the MOC view. Of course, to positive economists the ‘effect’ is important because it seems testable.

But the lacuna at the heart of the RBV relates to value, and against this the absence of empirical testing is trivial. We must ask ‘Who creates or measures the value of the firm’s resources?’ rather than ‘Where do rent-earning resources come from?’ To answer ‘the market’ is to dismiss the possibility of rents and turn the RBV into tautology. Penrose (Penrose, 1995: 45) speaks of the managerial team, her metaphor for the firm’s thinking and learning capabilities. She points to the people processes that generate the coherence suggested in Grant’s work that signals the existence of a firm rather than a mere ‘legal fiction’. The services her team manages are those it perceives as possibilities embedded in the resources at its disposal. It values these in the process of extracting the flow of

services that comprise the firm, that fill the black box. So the essence of the link between the inputs and the outputs is the cognitive activity of the managerial team. The team's creative and imaginative perceptions, grounded in knowledge gained through experience, lead to a new class of rents. To differentiate them from Ricardian, economic, or quasi-monopoly rents, we might call them Penrose rents (Spender, 1994). Also we see Penrose's theory is a multi-period one, as the 'effect' indicates, so 'history matters' (Barney & Arian, 2001a). Crucially, the know-how gained in one period is non-rivalrous and can be economically deployed to strategic advantage in the next.

Penrose enriches her argument by appealing to uncertainty - bounded rationality - for the management team believes it can never know the ultimate potentialities of the resources at its disposal (Penrose, 1995: 77). This is crucial, for the managerial response to uncertainty is the key issue for economists and strategy theorists alike (Nelson et al., 1982: 4 n1), and is ignored in the RBV. It goads growth-oriented managers to look harder, to push, to experiment, and to engage in what we call organizational learning and thereby create the dynamic learning system that Penrose conjures up as her firm. This is the essence of her theory, and it pulls the theorizing out of the neoclassical framework in which the RBV is conceived and within which the vast bulk of the RBV conversation continues, and places it in the hands of the MOC members. It is also, as Barney (Barney, 1994) is quick to explain, a way to 'bring managers back in', and reverse the neglect of entrepreneurship in the neoclassical theory of the firm. Barney, like Schendel and most other strategy theorists, recognizes the key capability inside the black box is enterprise itself. The challenge is to theorize this and its process. Those of a positivist disposition

see management as intendedly rational data-collection and decision-making, and this is an important and valuable aspect of management. But the bulk of the RBV literature accepts this uncritically and thereby misses the key to Penrose's theory, a management team that learns as well as decides. What it learns, and the rest of the world does not know, is the source of Penrosian rents. Plus it can only select the knowledge and resources it wants to gain on the basis of what it already knows (Penrose, 1995: 79) - what we now call 'absorptive capacity' (Cohen & Levinthal, 1990).

This theory of managerial learning, complementing and completing the RBV, is a theory for strategizing. The team's entrepreneurial focus is as much internal, on managing its own experimentation and learning about its existing resources, as it is external, searching for quasi-monopolies. It alone selects and links the inputs to the firm's rent-yielding outputs, creates the possibility of endogenous growth, and constrains it. Given our changing world, the theory shapes the processes of constructing and reconstructing the firm, in a structuration sense, of directing its growth, in terms of strategic opportunity or intent, and of leveraging its current knowledge, in a path-dependency sense.

AH! BUT WHAT IS LEARNING ANYWAY?

The tendency in the dynamic capabilities literature, clearly conscious of the need to bring learning into the RBV and so create a dynamic theory, is instead of specifying a theory of learning, it often presumes it (Eisenhardt et al., 2000; Tallman, 2003). Unfortunately our proposal is not yet complete - there is no theory of learning in Penrose's work. Her idea of a management responding to what it does NOT know about the resources is pregnant

with possibilities, but is scarcely a theory (Penrose, 1995 p.77). Absent this learning theory we have no theory of the firm as an on-going managed process, capable of initiating and sustaining its identity in a challenging environment. We must ask the TGF version of the question we asked earlier of the RBV, i.e. instead of 'Where do the rent-earning resources come from?' we must now ask 'Where does the management team come from?', for it is the genetic seed, the essence of the firm-specific and firm-specifying agency that transforms resources into services and so creates its identity.

A two domain theory emerges - each domain corresponding to a distinct epistemology. The first, wherein most of the RBV discussion is lodged, deals with identifiable resources and outputs, static constraints, and rational choices. Its focus is real enough, for absent a crucial resource the firm may be hobbled. In a market such as pharmaceuticals where a valuable patent is a pre-requisite, the lack of one is fatal, just as management's efforts become valueless if the distribution system collapses. But in Penrose we find a second domain - dynamic, creative, entrepreneurial, fluid - which turns on uncertainty, wherein the currency is knowledge and learning the game. Arguably, this reflects Penrose's attraction to non-equilibrium economics, as associated with the 'Austrian' economists such as Hayek, Kirzner, and von Mises (Butler, 1983; Foss, 1994; Foss et al., 2005b; Lachmann, 1977) and sociologists like Weber and Elster (Elster, 1989a). They attack neoclassical economics complaining its commitment to rational choice is unsound given bounded rationality. The shift of epistemology presents positive economics with major challenges. One is that our future is no longer 'out there' determined and waiting to be predicted using models of the environment. Rather our future is what we eventually

experience and recall, having created it through our actions. To speak of it is to refer to our subjective expectations rather than our knowledge of 'out there'. Penrose's team creates the services that become the firm. It does not discover them, for they are not there - just as the resources' potential for other management teams can never be known.

This plays directly to the interpretive epistemology that underpins the MOC approach. Penrose positions managers as custodians of the sense-making processes, establishing the firm's system of expectations and identity. The two domains imply different notions of learning. First we have the realist notion: learning means gathering facts about the world out there, though this can be turned inwards as the RBV list of resources indicates. The organizational learning literature largely stands on this kind of realism e.g. (Cohen & Sproull, 1996) and is explicit in March's much-cited exploration and exploitation article (March, 1991). By contrast the second domain's interpretive learning is about making more sense of the data gathered. The output of managerial sense-making is, for instance, the mission statement, the firm's culture, or its strategy as embedded in the filters through which it views its world. We can argue absorptive capacity has more to do with filtering and selecting than with knowing in the realist sense.

METHODOLOGICAL INDIVIDUALISM

Penrose's focus is on the management team's activity (Penrose, 1995 p.53), and by extension on a firm made up of a team and its passive instruments. Barney (Barney, 2001a) likewise stresses the firm as the relevant unit of analysis, and most RBV authors seem happy to do the same. But what sense can we make of a firm learning? This is

even more difficult when we define the firm as a bundle of resources and include things already learned. And where might a dynamic capability to learn more reside, in the firm, or in its constituting individuals? Penrose recognizes this difficulty and tells us knowledge can be of various types (Penrose, 1995 p.53). Knowledge can be factual and easily shared, and if we dismiss information asymmetry, is no basis for sustainable rents. But knowledge of experience is human, unique, and context-specific, about identity and how the firm makes sense of the world. Inherently difficult to communicate it is Penrose's way of referring to stickiness, causal ambiguity, uncertain inimitability, or the tacit components of the team's knowledge. But how can a firm experience? Or, rather, can it experience as an entity, or can only individuals within it do this?

Methodological individualism is the doctrine that valid explanations of social activity, such as economics and firms, must refer to the intentional states that motivate the individual actors involved. The term was coined by Schumpeter, whose thinking was influenced by Menger's debates with Schmoller and the 'historical economists' (Elster, 1989b; Heertje, 2004; Visser, 1998). Few now pay attention to those debates, but it frames the questions about whether groups such as firms, institutions and societies can know or learn. These have been much discussed recently, often beginning with Simon's comment that 'only individuals can know' (Simon, 1996: 176), and any theory of learning that tries to fill the lacuna in the RBV must deal with this. Methodological individualism shares the background of 'Austrian' economics and holds that collectives act through their constituting individuals (Foss, 1996a, b). The fundamental point, pivotal to Hayek's thinking, is our cognitive limitations shape our choices under uncertainty and so are the

key to explaining our actions (Hayek, 1945). Instead of rationality, which can clearly be embedded in social or mechanical systems - such as computers - the methodological individualist's focus is on a-rationality and imagination, that unique property of the individual. Explanations of social activity are thus explanations of how we align our actions, given this a-rationality, for logical analysis must come to a stop at the point where the imagination reconstructs our limited appreciation of the world.

How we consider whether the firm learns depends, of course, on what we mean by 'knowing'. The realist position is that it means having and holding facts about the world 'out there', as a library does, so we must agree that both individuals and collectives such as firms can collect facts about assets, processes, products, and markets. A firm can learn so long as that means acquiring more facts. Advances in information technology enable huge amounts of this kind of firm knowledge, to be applied by making it available swiftly to individuals or to other firms. But what about sense-making, adding meaning to the facts found in databases, about knowing what a book is saying?

MOC members know much about this topic e.g. (Daft & Weick, 1984; Eden & Spender, 1996; Hatch & Yanow, 2003; Weick, 1979, 2001). Can a firm know in the sense of giving meaning to new data? The answer seems to be yes. Corporate culture is a form of knowing and much managerial effort goes into getting all the employees 'on board', into a shared framework to achieve this coherent sense of the organization's knowing.

Likewise Barney ponders whether corporate culture is a source of competitive advantage (Barney, 1986a; Barney & Hansen, 1994). But we immediately see the familiar question

lurking in the background; 'Where does a culture come from?' Can the firm know and create its own culture, as a self-contained entity or a self-organizing or autopoietic system might (Maturana & Varela, 1998; Varela, Thompson, & Rosch, 1991), or is this our way of referring to the specific knowledge and attitudes shared by those comprising the firm?

We can short-circuit this by stepping back to consider how sense-making happens. On the one hand we have realist notions, that the essence of reality presses itself on our consciousness and we begin to make sense in the way grounded theory proposes, even if none too convincingly. On the other, we can recognize the link between reality and our certain knowledge of it is permanently severed - just as Penrose severs the link between the firm's inputs and outputs - and understand sense as what we construct to represent the world when stimulated by it. We shield ourselves from cognitive overload using the filters, lenses, and other selection devices we know as our tacit knowledge (Gourlay, 2004). Having eliminated all but what we have tacitly selected - in the way the RBV must tacitly limit what it seeks to combine into the firm - we use our imaginations and creatively construct the selected stimuli into the relatively coherent framework we call meaning. Clearly this outcome does not inhere in the stimuli, in the primary qualities of what is being observed - it is our creation and a product of imagination alone.

We adopt a constructivist approach (von Glasersfeld, 2002), but one that is overtly managerial, built within the specifics of the organization's *Gesellschaftlich* objectives, rather than in the predefined society of the social constructionists (Gergen, 1994, 1995). With this notion in hand we agree firms can know facts, as data acquired and held, and

know meanings, systems of interpretation constructed and communicated, as in a culture. But we see a firm can never create such meanings. When a management team is brainstorming and creating meaning that meaning must first coalesce in a single consciousness. The processes that precede that thought may be interactive and collegial, but they trigger rather than determine the thought. So Simon is incorrect in saying ‘only individuals know’ if that means having and holding data, or having and holding a meaning system. But he is completely correct if knowing means, as the proposers of dynamic capabilities intend, the ability to create new meaning when confronted by uncertainty, and this is the core of the management learning that Penrose proposes.

MANAGING LEARNING, AND AN RBV THEORY COMPLETED

The objective in the previous section is two-fold, (a) to imply a theory with two interlocking but epistemologically distinct domains of discourse, one rational, covering certainties and decision-making, the other dynamic, about uncertainties and our responses to them, and (b) to suggest that while individuals, computer systems, firms, and all manner of social collectives can operate in the first domain, only imaginative individuals can create meaning and so operate in the second. Thus the firm’s production function, as economists and organization theorists might understand it, is a creature of the first, while the process of entrepreneurship that lead to rents are of the second. The puzzle in the first part of the paper is that the RBV is constructed using the intellectual apparatus of the first, while attempting to address an issue that can only arise in the second, and so it misses its target. The Penrosian link between resources and services is a creative one, a-rational rather than logical. *Ex post* we can explain why we acted as we did only by drawing

others into the system of meaning and value that we constructed, so clarifying how we resolved our cognitive limits. Such construction lies at the core of situated knowledge (Rogoff & Lave, 1984; Sternberg & Ben-Zeev, 2001; Sternberg & et al, 2000).

But by going beyond rational choice we imply the theory of the firm has now to show us how to harness the individual's imagination and creativity to the prior goals of the firm - which is a *Gesellschaft*, an artifact of human intention (Toennies, 1971). We characterize this via the concept of human agency, the presumption that we act on and make a difference in the world. This only makes sense when we reject the assumption that every effect has an explainable cause, for that is to imagine a completely determined world that has no uncertainties and that we cannot re-shape. Clearly much of our experience can be predicted by reference to a pre-determined world; we jump off the roof and we die. But the second domain of our creation lies beside and interpenetrates this determined world wherever it is under-determined and its uncertainties appear. Were there no limits to our cognition we might find out that we only think that we can change the world, mistakenly. But Penrose, and the Austrian economists, propose to this second domain of analysis to draw our attention to the fact that we, and a firm's managers, are boundedly rational and act only on our expectations. The rents we seek are the products of the management team's human agency.

How then to manage the agent's expectations and, theorizing, complement and complete the RBV? The weakness with the concept of bounded rationality is we are never told in what way our reasoning is limited and therefore at what point we are forced to apply our

imaginations. Milliken shows Simon is ambiguous - one moment the limit is our data-gathering, the next our computational faculty (Milliken, 1987; Simon, 1997). There is a huge literature on encouraging creativity e.g. (Amabile, 1996, 1998; Sternberg, 1999) and much advice on creating contexts in which creativity can flourish. This is also the heartland of innovation management e.g. (Leonard-Barton, 1995; Tushman & Moore, 1988). We know that one aspect of managing so that new rent-yielding services arise is to let the imaginations of those in the organization - including the senior executives - flow (Csikszentmihalyi, 1996). But they cannot be allowed to run wild in the sense implied by exhortations to 'think out of the box'. People need first to know the box and to be constrained to the organization's prior purposes, to be able to value the products imagined in the way managers must be able to value resources in the RBV.

So in the second domain managing the imaginations of others is about constraints that complement the encouragements. How can these constraints work? At their simplest they are about making sure those given the space to imagine understand the firm or project objectives - and this leads to the concept of 'problemistic search' as in March and Simon (March & Simon, 1958). We imagine a system of organizational constraints that are reflections of the business model and the resources, linkages, and relationships that comprise it. We often talk of 'resource' constraints, and say it is all very well to imagine doing this or that, but we do not have the resources. This implies financial or physical constraints, but there are moral and ethical constraints too, embodied in the attitudes and practices of the organization's constituents. These act directly as agents confront their cognitive limits. Strategy theorists used to describe the full set of organizational

constraints saying the strategy developed must recognize what the firm ‘might, can, should, and wants to do’ (Learned, Christensen, Andrews, & Guth, 1965).

We also know there are constraints in terms of the non-organizational or managerially determined limits to viable imagining. Physical constraints exist, the Second Law of Thermodynamics and the other laws of physics apply; it takes a finite time to deliver goods, etc. People need to study and comprehend the physical limits to the services that might be extracted from resources. But as the new institutional theorists (Powell, 1992; Powell & Brantley, 1992; Powell & DiMaggio, 1991) remind us, there are constraints that comprise the social environment of the organization and so shape our imaginings. Likewise corporate law sets limits, as does employment law. Here we begin to describe the entire social, physical, economic, legal, ethical, etc. context in which the firm is located, and get sucked into precisely the same difficulty as we saw faces the RBV - we must have a way of selecting a specific situated world before we can integrate with it.

At the same time, as BPS theorists, we see we have come full circle, back to the work of Barnard (Barnard, 1968). His theorizing is about the ‘function of the executive’, his term for Penrose’s ‘management team’, and the strategic activity that generates the dynamic organic organization he experienced as the head of Bell Telephone. He frames the task as synthesizing three subsystems; the physical, the social, and the personal. As in Penrose’s ‘effect’ he sees the principal constraint on organizational growth is ‘executive capacity’ (Barnard, 1968: 282). He tells us the executive imagination is constrained by its understanding of these subsystems or, in today’s parlance, by knowing the dimensions

and nature of the box. These must be studied and experienced. Only with the situated understanding that comes from experience and exploration can the executive imagination explore the anomalies, fault lines, wrinkles, and gaps through which it moves to create a new future. Paradoxically we see that there can be no abstract, generalized, un-situated theory of human learning, nor of the firms it constructs. In other words, the un-situated RBV is without content, an abstraction. But situated, with a theory of constrained practical human learning at its core, it has considerable promise.

CONCLUSION

The paper's title spells out my agenda - to explore how managerial cognition might contribute to the RBV discourse by considering the implications of methodological individualism. The paper's initial sections probe the link between resource inputs and firm outputs and conclude the rents implied by the RBV cannot arise if these links are purely logical, transparent to those within and without the firm. No question a firm can achieve quasi-monopolistic and Ricardian rents without going beyond this. But whether they are sustainable is determined by the markets, not the firm's management. Penrose sharply dismisses these as persistent sources of growth. The challenge, then, is to theorize learning and creativity into the center of the RBV. The dynamic capabilities discussion seems to do this, so what is new here? My argument is that it certainly asserts this, but goes no further. We do not see the learning nor how it impacts strategic theorists focused on competitive performance, nor the practical implications for a firm's managers.

To reach that objective we require an appropriate theory of learning, and the realist notions which underpin the bulk of the RBV discourse are not sufficient to this task. They lead only to the idea that learning is a resource-consuming fact-gathering activity, and sets up the exploration - exploitation problem March considers. We need a radical introduction of human agency, an attribute that lies well beyond rational choice. So we shift epistemological domains, from a pre-existing realist world to an interpretive one in which managers construct their firms and their futures, and so make space for the human imagination. Many management writers find this unattractive, even nonsensical. But it is far from novel and merely re-introduces the two-domain methodology - of rational choice + human imagination - the Austrian economists struggled with for a century. Thus we grasp more of the potential of Schumpeter's work as a guide to entrepreneurship and a dynamic RBV theory of the firm (Cantwell, 2002; Scherer, 1984; Schumpeter, 1934). There is a fundamental disjunction between the ideas presented here and that of more contemporary entrepreneurship theorists' e.g. (McMullen & Shepherd, 2006). In spite of being based on Schumpeter, Kirzner, and Knight, that struggles to fit itself into what we have here called the first domain. It denies the distinction here between reason and imagination, denying any learning other than that of realism, and implying everything imagined can be brought under a causal law.

Still once the imagination is admitted to the analysis we have to theorize its control. Motivation is material, a necessary condition, but insufficient to direct others' imagination towards the organization's goals. So these have to be communicated, a relatively trivial conclusion. But it hides the distinction between managers that

communicate decision criteria to be applied without imagination, and those that allow others to explore practical limits to the situated imagination. The managerial implication, therefore, is that those whose imaginations are to be harnessed to the firm must be given the space to explore, conceptually and empirically, the firm's situation. The resulting knowledge is firm-specific and situated, whose meaning is only apparent to those within the activity system or community of practice that comprises the firm (Spender, 1995).

Throughout the paper I invoke Penrose acts as our guide. Not all her disciples and interpreters would agree my positioning her as neo-Austrian, but that debate belongs in another paper and is not likely to be quickly resolved. We could make most of the points without mentioning her work at all, but it would mean using philosophical rather than economic language and so become more distant from our literature. The RBV challenges us to complement our success analyzing the application of human reason in organizations, using the metaphors of economic choice and organizational decision-making, with an imaginative analysis of the application of the human imagination. This is uncomfortable, may seem woolly, and obliges us to leaven our commitment to objectivity with some appreciation of our ineradicable human subjectivity. But we can take encouragement from Hayek: "every important advance in economic theory during the last hundred years was a further step in the consistent application of subjectivism" (Hayek, 1955: 31).

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