Organization Studies

http://oss.sagepub.com/

The Co-Evolution of Organizational Value Capture, Value Creation and Sustainable Advantage

Christos N. Pitelis Organization Studies 2009 30: 1115 DOI: 10.1177/0170840609346977

The online version of this article can be found at: http://oss.sagepub.com/content/30/10/1115

> Published by: SAGE http://www.sagepublications.com



European Group for Organizational Studies

Additional services and information for Organization Studies can be found at:

Email Alerts: http://oss.sagepub.com/cgi/alerts

Subscriptions: http://oss.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.com/journalsPermissions.nav

Citations: http://oss.sagepub.com/content/30/10/1115.refs.html



The Co-Evolution of Organizational Value Capture, Value Creation and Sustainable Advantage

Christos N. Pitelis

Abstract

Christos N. Pitelis University of Cambridge, UK Despite much progress, scholarship on organizations and strategic management remains unduly reliant on economic models such as the industrial organization (IO) market structure-based analysis. The focus of such models is on price-output determination by firms and the economy-wide efficient allocation of scarce resources, under conditions of full knowledge and certainty. This limits their usefulness for students of organizations who have wider concerns and also focus on organizations, as opposed to just markets. In this article, we aim to provide a framework for analysing the most fundamental, even existential, issue of organization studies and strategic management scholarship. This is whether and how the pursuit of value capture from economic agents who perceive that they possess appropriable value creating advantages, capabilities and action potential, can motivate the emergence of organizations and their strategies and actions intended to capture socially co-created value in conditions of real life. To do so, we explore (the coevolution of) value capture and creation and their relationship to organizational sustainable advantage (SA). We delve into the nature, determinants and relationship between organizational value capture and creation and explore causal pathways, trade-offs and coevolution, as well as vehicles through which SA can be effected in an evolving and uncertain environment. We also discuss implications for managerial practice, limitations and future research opportunities.

Keywords: co-evolution, sustainable advantage, value capture, value creation

Introduction

The aim of this article is to provide a framework to address the most important, even existential, concern of organization studies (OS) and strategic management (SM) scholarship. This is whether and how the pursuit of value capture by economic agents who perceive that they possess advantages, capabilities and action potential that can help them create appropriable value, can inform the question of the emergence of organizations as well as their strategies and actions to capture as much as possible out of the overall value they and others co-create, in a sustainable way and under plausible assumptions about real life conditions and behaviours.

The creation of value and the pursuit of sustainable advantage (SA) are widely regarded as two critical concerns of strategic management and organization scholarship (Collis and Montgomery 1998; Saloner et al. 2001; Ghoshal et al. 2002; MacDonald and Ryall 2004; Teece 2007; Lepak et al. 2007). Yet the framework and

Organization Studies 30(10): 1115–1139 ISSN 0170–8406 Copyright © The Author(s), 2009. Reprints and permissions: http://www.sagepub. co.uk/journals permissions.nav even the terminology employed by students of organizations are still often borrowed from the economics of Industrial Organization (IO), such as the market structurebased analysis and its underlying concepts and assumptions (Lippman and Rumelt 2003a,b). The main focus of IO is on price-output determination by 'firms', which are seen as no more than points in a cost curve (Penrose 1959), under stylized assumptions concerning their objectives, conduct, the structure of the industry, information and knowledge. The results from the analysis of different types of market structures are then used to derive economy-wide efficiency implications. Importantly, by assuming profit maximization under conditions of perfect information and certainty, IO scholars can derive precise price-output equilibria and show that under conditions of perfectly competitive or contestable market structures (characterized by free entry and costless exit, Baumol 1982), there will be no excess (monopoly) profit and the economy-wide outcome will involve the efficient allocation of scarce resources (the first 'fundamental' theorem of welfare economics). On the other hand, imperfect competition will engender monopolistic rents, which firms can pursue by trying to weaken the forces of competition (Porter 1980).

Throughout, the focus of IO is on the economic or 'opportunity' cost of firms, namely cost measured in terms of the best alternative investment opportunity. It is also assumed that cost and demand conditions are well determined and known to all firms in the industry, including potential entrants (Tirole 1988). Importantly, technology and innovation are taken to be exogenous to firms (Pitelis and Teece 2009).

The IO focus is simultaneously narrower and broader than that of OS scholars. Students of organizations pay less attention to economy-wide considerations but have a keen interest in intra-organizational issues, which are ignored by IO (Coase 1937), not least innovation and strategy for value capture from appropriable advantages and actions. In addition, OS focuses on intra-organizational decision making under real life-informed organizational and environmental conditions. Such conditions are normally alien to those assumed by IO, such as perfect knowledge and certainty. Moreover, while the main focus of IO is on decision making at a given point in time and in a comparison of equilibria in different steady states (comparative statics), OS is concerned with intertemporal decision making and evolutionary change (dynamics). It is arguable therefore that a novel framework that is better suited to the concerns of OS and SM is required, one that focuses on intertemporal resource and value creation and capture through innovation and the pursuit of organizational SA under conditions faced by real life organizations. Despite recent extensive criticisms of the IO-centric concepts of extant OS scholarship (Makowski and Ostroy 1995; Lippman and Rumelt 2003a; Kaplan and Henderson 2005) and much progress on intra-organizational issues (see below), there has been no attempt so far to provide a comprehensive, alternative perspective that addresses OS's main scholarly and methodological interests. We aim to provide such a framework in this article through an analysis of the nature, determinants and co-evolution of organizational value capture and creation and their relationship to SA under conditions of uncertainty, change, limited rationality and learning, as well as anticipatory and pro-active behaviour by economic agents. We claim that despite recent interest and advances on value creation, value capture and SA, such an analysis is still missing.

Structure-wise, we first provide an historical account of the nature and theory of value in economics, OS and SM scholarship and propose a novel, more general definition of value (Section II). In Section III, we delve into the nature, determinants and trade-offs between value creation and capture at the organizational level. Section IV discusses the process and causal pathways whereby value is created and captured by organizations, as well as the co-genesis, co-determination and co-evolution of value creation and capture, their relationship to SA and vehicles through which SA can be effected in an uncertain, evolving environment. Section V concludes and discusses managerial practice, limitations and directions for future research.

The Nature of Organizational Value Creation and Capture

'Value' is an elusive term in social science and SM scholarship (Dobb 1973; Ramirez 1999). The term 'value added' is less so. For example Kay (1995) defines 'value added' as 'the difference between the (comprehensively accounted) value of a firm's output and the (comprehensively accounted) cost of the firm's inputs' (1995: 19). He regards 'value added' as 'the key measure of corporate success' (1995: 19).

'Value added' in the quote above is defined by reference to value, which, however, is not defined. More recently, Bowman and Ambrosini (2000) draw on earlier contributions to discuss what is valuable, the types of value (such as 'use value' and 'exchange value') and theories of value (for example 'marginal utility' and 'cost of production'), but provide no separate definition of 'value'. Makadok and Coff (2002) critically assess a debate on value in the context of the Resource-based View (RBV) between Bowman and Ambrosini (2000), Priem (2001) and Priem and Butler (2001a,b), on the one hand and Makadok (2001), on the other. They acknowledge that in much of the RBV literature (such as the work of Barney 1986; Collis and Montgomery 1995; Peteraf 1993) the focus is on value capture, not value creation. They claim that value creation, requires a theory of consumer utility. This is absent from the RBV, but present in the marketing literature, and as such of no separate concern to RBV scholars.

A more recent Special Topic Forum of the Academy of Management Review (2007) on 'value creation' aims to shed more light on value creation and capture. In their thoughtful introduction Lepak et al. point out that 'value creation is a central concept in the management and organization literature' and that value creation is 'not well understood' (Lepak et al. 2007: 180). They suggest that 'value creation depends on the relative amount of value that is subjectively realised by a target user (or buyer) who is the focus of value creation' (Lepak et al. 2007: 182). They proceed to discuss the process of value creation and the mechanisms that allow the creator of value to capture it. The authors provide very valuable insights, but they too take the term 'value' as extant and attempt no definition. Even more recently, Helfat et al (2007) build on Peteraf and Barney (2003) and define both 'value' and 'value creation' as 'willingness to pay minus opportunity costs' (pp. 12-13 for 'value creation' and p. 122 for 'value', respectively). Their definition aims to account both for consumer's 'willingness to pay' and the producer's economic (opportunity) costs. However, it does not distinguish between 'value' and 'value creation'.

The debate and the difficulties with the notion and theory of 'value' are not new-they go at least as far back as in the works of ancient Greek philosophers like Plato, Aristotle and Xenophon. It assumed renewed interest in the works of classical economists such as Adam Smith, David Ricardo and Karl Marx and more recently in the works of scholars in the 'marginalist' tradition of Jevons, Menger and Walras. Maurice Dobb (1973) provides an authoritative account of the historical evolution of these debates while more recently Ramirez (1999) revisits these from a SM perspective. Their gist lies in that 'classical economists' considered labour (in Marx's most developed variant, socially necessary labour of average skill and competence) expended in a product, as the sole source of 'value' (Brown 2008), while the 'marginalists' considered marginal utility as the sole source of 'value' (Dobb 1973: 168). Subsequent developments in the 'neoclassical' marginalist tradition refer to the 'theory of value', as a theory of price determination (Robbins 1935; Hicks 1939; Debreu 1959). The celebrated Keynesian economist Joan Robinson (1964), for one, considered the notion of 'value' as 'one of the great metaphysical ideas in economies', namely ideological propositions of some content, use, and even indispensability, which, however, are outside the realm of science proper (Dobb 1973: 2).

In economics, IO scholars and texts employ a combination of the cost of production and the marginal utility theory, as reflected respectively in the use of an (opportunity) cost and a demand schedule. Modern strategy literature also relies on this convention (Peteraf and Barney 2003; Helfat et al. 2007; Sirmon et al. 2007). This is despite the fact that scholars like Lippman and Rumelt (2003a,b) question the relevance and even definition of the concept of 'opportunity cost' and the nature and derivation of a supply curve in neoclassical economics, while marketing scholars, such as Hunt (2000), also question the relevance and even existence of a demand curve as a portrayal of consumer 'willingness to pay'. Such critiques of extant convention point to the need for a more generic definition of value that is more immune to them. On the above basis, we propose such a definition of 'value' at the level of the individual agent, as follows:

Value is perceived worthiness of a subject matter to a socio-economic agent that is exposed to and/or can make use of the subject matter in question.

Perceived worthiness can be due to rarity, aesthetic appeal, a perceived satisfactory price for what is on offer or 'value for money' (Pitelis and Taylor 1996), their combination and/or other attributes of the subject matter, perceived by others to be worthy. Advantages of the proposed definition include the fact that it does not rely on the idea of 'willingness to pay', which presupposes the existence of market prices. It also allows for the possibility that some 'subject matters' can have intrinsic value even when there is no market and/or someone who is willing to pay for them (indeed concepts such as 'decency' and 'reliability' are often defined as 'values' and our perceptions on these as 'value systems', Ramirez 1999). For our purposes in this article, in what follows we focus on organizational value, namely on activities, products and services engendered by organizations in market economies, which are perceived to be worthy by potential beneficiaries, such as consumers, suppliers or competitors. The focus on all potential beneficiaries recognizes the social dimension of value and value co-creation (Pitelis and Teece 2009) and raises the challenging issue of aggregation. Organizational 'value' can be conjectured or realized. Conjectured value is what an organization believes it can engender by undertaking a certain action, for example an innovation or a transactional activity. Conjectured value becomes realized through sale in the market. At the individual level, such as that of a firm, value created is only realized as value captured—ontologically, value is created and only manifests itself as value captured. In this context, producer value creation equals consumer value creation at the point of exchange, for the agreed price. Prior to this, however, producer value created is only potential and it can well diverge from perceived consumer value (Kim and Mahoney 2002).

The realization of value as price raises the issue of consumer awareness and the existence of substitute products and competitors—therefore issues of promotion, marketing and competitive strategy. 'Perceived worthiness' can be effected through efficiency, effectiveness and innovativeness in the production of a good or service that can lead to lower cost and price for given characteristics or 'quality', or to higher differentiation, namely higher perceived quality. In this sense 'value added' equals 'value creation' and is the additional perceived worthiness effected through reduced prices or increased differentiation, minus the costs or payments made for the purpose by the agent (such as the producer) who creates value (Lippman and Rumelt 2003a), realized as value captured by this economic agent.

While realized value creation and value captured coincide at the individual level, this is not the case at more aggregate levels, such as the industry, the economy or the globe. For instance, potential value creation by one agent can be realized as value captured by another agent who, for example, is in a better position to capture such value through appropriate strategy (Teece 1986). Value creation and value capture need not coincide also because value can be co-created by other economic agents, including competitors, suppliers, customers and users (Pitelis and Teece 2009). As such, an organization can capture more, the same or less value than the one it helps create. This calls for an appreciation of the strategies through which organizations can co-create and/or capture value and their interrelationship (including the possibility of trade-offs) and their impact on organizational SA (MacDonald and Ryall 2004; Amit and Shoemaker 1993; Sirmon et al. 2007).

In the economics IO approach, the canonical value creation/value capture in the form of price model is the market structure-based analysis of competition versus monopoly. According to this, 'perfectly competitive' market structures result in a 'zero profit' condition, where firms can only cover the economic (or opportunity) cost of their inputs, such as capital, labour, management and entrepreneurship. The possibility of capturing value as 'rents' appears whenever the existence of monopolistic conditions restricts supply, and therefore given the demand schedule, it raises prices above those just sufficient to cover average costs (see Peteraf and Barney 2003 and Lippman and Rumelt 2003a,b for discussions on the nature and types of rents). Given the assumption of exogenously given technology and resources-skills, the IO approach is good in showing how value can be captured in the form of monopoly rents, given the potential value creation encapsulated by the cost and demand curves. Subsequent developments in IO discuss the condition under which such 'rents in equilibrium' can be effected (Baumol 1982; Tirole 1988), notably the existence of barriers to mobility (entry and exit). The absence of barriers to mobility helps establish the 'zero waste' condition (Baumol 1991) and/or the 'zero profit' one (Augier and Teece 2008). For the last mentioned, escaping this 'zero profit' condition is of essence to business strategy.

The stylized assumptions of IO are not met (and are not meant to be met) in practice (Loasby 1996). In real life, costs and demand conditions faced by individual firms may differ, firms may be endowed with, or themselves aim to build, heterogeneous skills and capabilities; they can be more or less efficient, effective and innovative, than their rivals. Such differences, moreover, can be attributed and/or reflected in production and/or transaction costs. For example, firms which are more efficient can capture higher profits than their competitors in a sector, even when they charge the average market price, when they face lower costs (Demsetz 1973; Schumpeter 1942; Williamson 1968).

The resurfacing of Coase's (1937) transaction costs analysis, the elaborations and extensions of Coase by Williamson (1975, 1985), and the analysis of their links to property rights and the RBV, provide more reasons why large firm size and the concomitant more concentrated industry structures may be seen as the outcome of firm-level capabilities in reducing market transaction costs through the internalization of market transactions (Foss and Foss 2005).

More recently the RBV focused on the nature and determinants of firm heterogeneity (Barney 1991; Mahoney and Pandian 1992; Peteraf 1993; Peteraf and Barney 2003; Teece 1982; Wernerfelt 1984). There are arguably two variants of RBV: 'rents in equilibrium' and 'value creation' (Foss 1999). The former can be seen as a complement to the IO literature on barriers to mobility, only now the reason for rents is the possession by firms of resources which are valuable, rare, inimitable and non-substitutable (VRIN). The 'value-creation' variant focuses on the resource-creation potential of firms, through endogenous knowledge, innovation and growth (Penrose 1959). Building on Penrose, Richardson (1972) provided an additional production efficiency-based reason for the division of labour between markets, firms (integration) and inter-firm cooperation, based on the similarity and complementarity of activities (Kay 1998; Foss and Loasby 1998). Moreover, Teece (1986) explored conditions under which an innovator (such as the music company EMI which first invented the CT scanner), might fail to profit from its value creating innovations. He attributed such failures to the lack of strong appropriability regimes and/or the possession by firms of complementary skills and capabilities vis-à-vis their competitors. This focus on the nature and determinants of appropriability goes beyond the IO focus on monopoly rents through barriers to mobility and brings the issues of firm-level capabilities and organizational strategy centre-stage.

The aforementioned contributions focus on the production or supply-side. However, firms can also face (or try to engender) different demand conditions through advertising and other sale promotion activities that aim to create new demand and/or to make the demand schedule they face less elastic (Scherer and Ross 1990; Penrose 1959). Galbraith (1967) went as far as suggesting that the ability and effectiveness of firms to create demand is such that one should be talking about 'producer sovereignty' rather than consumer sovereignty. Marketing scholars explored conditions under which consumers will be more inclined to buy (Adner and Zemsky 2006). In addition, Priem (2007: 219) emphasized firm ability to create value by engendering 'consumer benefits experienced', while

schedules, focusing instead on the concept of 'market offerings'.

All the above issues are central to OS and SM, but are of limited concern to the IO 'competitive model'. This renders it almost superfluous for organization scholarship (Makowski and Ostroy 2001). Unfortunately, the Porterian and transaction-costs focus on 'strategizing' versus 'economizing' (Porter 1980; Williamson 1991) and the focus of the RBV on concepts borrowed from IO fail to break away from the economics straightjacket (Lippman and Rumelt 2003a). It is arguable that a new framework is required, more appropriate to OS. We aim to provide such a framework in this article, based what have emerged as the central issues of OS and SM, namely the nature, determinants, causal pathways, trade-offs and co-evolution of organizational value capture and creation, their relationship to SA—as well as vehicles employed by firms to achieve SA—under conditions of uncertainty, change, limited rationality and anticipatory-proactive behaviour by economic agents.

Determinants of Firm-Level Value Creation and (Strategies for) Value Capture

Determinants of Value Creation by Firms

Strategy scholarship on value creation did not initially pay much attention to the determinants of value (Makadok and Coff 2002; Ramirez 1999). Amit and Zott (2001) provide one of the earlier discussions of determinants of value creation. They emphasize 'virtual markets', 'value chains', '(Schumpeterian) innovation', intra-firm resources, strategic networks and transactions costs economics as such determinants. More recently, Lepak et al. (2007) emphasize invention and innovation, management and entrepreneurship, the creation of advantages and factors underlying such creation (to include managerial capabilities and cognition), knowledge creation, learning and entrepreneurship, social networks and strategic human resources. Despite the evident progress that helped establish value creation and capture as canonical themes in strategy, it is arguable that the nascent literature on the determinants of value creation can benefit from a more systematic analysis. We suggest that such an analysis should distinguish between the generic determinants of value, the theories from which these generic determinants derive (such as transaction costs, agency, the RBV and property rights) (Kim and Mahoney 2002; Foss and Foss 2005), and any vehicles-means through which value creation is effected (such as strategic networks) and/or created. Put differently we submit that the literature so far bundles together all three categories above and that progress can be made by un-bundling them. We propose to do this below by drawing on the relevant economics and management scholarship and by focusing on what we claim to be four generic determinants of firm-level value creation: innovation, human resources and their services, unit costs economies/returns to scale and firm infra-structure and strategy (Pitelis 2004b), as well as the theories from which they derive.

Innovation, first, is arguably the determinant of value par excellence—the primus inter pares. Adam Smith (1776), the father figure of economics, regarded

the benefits from intrafirm division of labour, teamwork and 'inventions' by labourers, engendered through learning by doing, as a critical determinant of productivity and wealth creation (Smith 1776: Chapter 1). Marshall (1920) extended Smith's analysis by identifying knowledge as 'our most powerful engine of production' (Marshall 1920: 138). Schumpeter's (1942) focus on competition and 'creative destruction' highlighted the important role of innovation on intertemporal efficiency. The importance of innovation for intertemporal efficiency is now acknowledged by mainstream IO economists too (Baumol 1991, 2002). The focus of economics is on efficiency and productivity, not value creation as such. In SM scholarship, however, innovation, knowledge and creative destruction have in recent years been linked directly to value creation (Amit and Zott 2001; Felin and Hesterly 2007).

The neoclassical economic theory of growth helps highlight additional generic determinants of value. In early contributions, existing technology was considered to be embodied in the production function (which includes capital and labour), while technological change was seen as very important yet exogenous (Solow 1956). New 'endogenous growth' theories recognized the endogenous nature of technology and innovation, the role of increasing returns to scale and the significance of human resources such as management, in engendering growth (Romer 1986, 1990; Lucas 1988; Aghion and Durlauf 2005). Without always noticing it, such theories build on the ideas of Edith Penrose (1959) and earlier contributions by Allyn Young (1928), Kenneth Arrow (1962) and Nicholas Kaldor (1970, 1972). While not explicitly couched in terms of value creation and despite limitations (see Solow 1997; Loasby 1996), the neoclassical growth theory's focus on 'returns to scale', resources (capital and labour) and its assumptions about technology, provide hints on two important additional sources of value creation, notably human resources and returns to scale.

Human resources play a prominent role both in classical economics and in management. In Adam Smith, labourers engender productivity enhancement through teamwork, learning by doing and inventions. In Karl Marx (1959), the capitalist was the driving force of economic change. The 'entrepreneur' and entrepreneurship played this role in Schumpeter (1942), in 'Austrian Economics' (Ricketts 2002), in the recent literature on entrepreneurship (Casson et al. 2006; Alvarez and Barney 2007; Ireland 2007; Foss et al. 2008) and in strategic human resource management (Becker and Huselid 2006; Kang et al. 2007). In Penrose (1959) the hero was the 'manager' (Pitelis and Wahl 1998). Scholars such as Coff (1997) and Pfeffer (1998) underscored the importance of human resources (HR) in organizations. Human resources are unique and individual and their combination and relationships help create the distinct 'personality' of the organization (Peteraf 2006) and affect the strategy of the organization (Pitelis 2007). In all, it can be argued that the quantity, quality and relationship between HR and the services they provide are an important determinant of value creation. More recent work by Helfat et al. (2007) on managerial capabilities and by Kang et al. (2007) on HR architectures links HR specifically to organizational value creation. Non-human resources can also be important in the RBV especially when they satisfy the VRIN conditionsthereby facilitating value capture.

Factors that lead to reductions in unit costs (unit cost economies thereafter), include economies of scale and scope (Chandler 1962), economies of growth (Penrose 1959), transaction costs economies (Coase 1937; Williamson 1975), economies of learning (Arrow 1962), economies of joint governance (Williamson 2005), external and agglomeration economies (Henderson 2005; Kaldor 1970; Krugman 1991, 1996; Porter 1980), economies of pluralism and diversity (Pitelis 2004b; Mahoney et al. 2009). The stronger a firm's unit cost economies are, the lower will tend to be its unit costs and the higher its ability to create potential value. With the exception of transaction costs (Foss and Foss 2005), much of the economics literature on unit cost economies has not yet been linked explicitly to value creation *per se*. However, their impact on unit costs clearly suggests that *ceteris paribus* they help create value and should be seen as generic determinants of potential value creation.

Absent from economics, but central to strategy is the fourth generic determinant of value creation—a firm's infra-structure and strategy. Infra-structure refers to a firm's systems, routines and decision making processes, while structure refers mainly to its internal organization (for example, U-form, M-form, heterarchy, etc.). The role of a firm's systems, routines and internal decision making processes and dynamic capabilities has been explored by Cyert and March (1963), Nelson and Winter (1982, 2002), Simon (1995), the RBV and the Dynamic Capabilities (DCs) view (Teece et al. 1997; Teece 2007). The importance of internal organizational forms is discussed by Chandler (1962), Williamson (1981), and more recently, among others, Hedlund (1986) and Birkinshaw and Hood (1998). The choice of a firm's internal structure is considered by these authors as being of essence in implementing strategy, increasing efficiency and productivity, and acquiring and upgrading knowledge.

Strategy is the pursuit of a long-term objective supported by the requisite allocation of human and other resources for its implementation (Chandler 1962). The common focus on the value capture/profiting from advantages aspect of strategy, underplays the idea that strategy is also of essence in increasing efficiency by reducing transaction and production costs and by increasing perceived value through differentiation (Makadok and Coff 2002). More recently, the value creation attributes of strategy have been acknowledged and understood. Indeed Ghoshal et al. (2002) went as far as prescribing that strategy should focus on value creation, not value capture. Firm infra-structure is not usually couched in value creating terms, except in Porter's (1985) 'value chain' analysis. Given, however, its efficiency benefits, it is only sensible to consider organizational infra-structure too as a determinant of value creation.

Other potentially growth promoting factors considered in the economic literature include physical and financial capital. Physical capital is important in neoclassical growth theory, financial in the life cycle hypothesis of saving, (Ando and Modigliani 1963). Physical and financial capital are not discussed by economists as determinants of value. It is arguable that by facilitating entrepreneurial investments, these factors help create value. However, we propose that their contribution is indirect and operates through the four generic variables, especially HR (Harcourt and Cohen 2003). Similarly, other resources (for example raw materials) can be taken to serve as a basis on which value is added but they are not independent determinants of value creation (Bowman and Ambrosini 2000).

The four proposed generic determinants of value creation interact with each other. Indicatively, HR are the ultimate source of firms' innovation and strategy. Technology and innovation can help reduce unit cost economies. Innovation and technological accumulation can be explicit elements of strategy (Cantwell 1989). Firm infra-structure is crucial for the implementation of strategy, the leveraging of HR and technology (Cyert and March 1963; Loasby 1998; Nelson and Winter 1982). Unit cost economies enable innovation and the leveraging of HR for the undertaking of R&D and innovation (Chandler 1962).

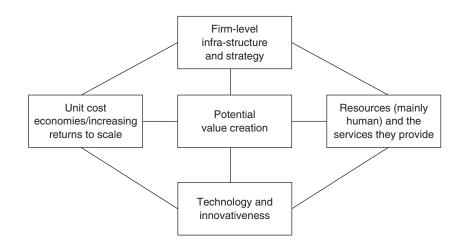
The four generic determinants impact on both cost and perceived utility. For example, a process innovation can reduce unit costs and engender product differentiation. Infra-structure and strategy can reduce costs (for example through integration) and help differentiate the firm itself through branding and business model innovation (Augier and Teece 2007). HR can affect subjective utility through strategy, product differentiation and/or innovation. 'Subjective utility' and cost reductions can feed back to the four generic determinants. For example, a firm's 'brand' can help it receive better terms for advertising and from suppliers, thus engendering unit cost economies.

In all, the four generic determinants of value creation help reduce costs and effect a firm's unique personality and character, often encapsulated in the complex interactions of tacit and codified knowledge, embodied in its 'business model' (Chesbourgh and Rosenbloom 2002; Teece 2009). These engender 'firm differentiation' and can add perceived value to consumers. They can also help firms to capture value.

In Figure 1, we summarize our discussion of the four generic determinants of value creation. In the remainder of this section, we focus on strategies for value capture.

Firm-Level Strategies for Value Capture

Capturing value from conjectured value creating advantages, assets and actions is arguably the main objective of firms (Brandenburger and Nalebuff 1995;





Teece 1986; Teece et al. 1997; Pitelis and Teece 2009). Assuming that a firm possesses an advantage, from which it believes it can profit, the fundamental question becomes how to obtain the maximum possible net present value (NPV) of the anticipated future income streams of this advantage. In addition, the firm has the wider consideration of how to capture the maximum possible value created by other firms and the economy at large. This is of essence to competition (Brandenburger and Stuart 1996, 2007; MacDonald and Ryall 2004). Through market power, strategy, ingenuity, imagination and luck, firms try to out-compete rivals in order to capture value. In general, firms can capture less, equal or more value than the one created through their activities (Brandenburger and Nalebuff 1995). The size of the pie captured by a firm depends on factors such as barriers to entry (Bain 1956; Porter 1980), firm-level 'generic strategies', namely cost leadership, differentiation and niche strategies (Porter 1985), integration co-operation and diversification strategies (Penrose 1959; Chandler 1962; Williamson 1981; Teece 1986), and firm-wide differentiation strategies.

The literature on barriers to entry goes back to Bain (1956), who identified three main barriers to entry for new firms, which allow incumbents to capture super-normal profits; absolute cost advantages, economies of scale and product differentiation. Bain's empirical work showed that differentiation (or the 'pre-ference barrier') was most important. Subsequent literature focused on pricing (Modigliani 1958), investments in excess capacity (Spence 1977), product proliferation and advertising (Scherer and Ross 1990). Bain and the IO did not explicitly link barriers to entry to value capture, focusing instead on the related theme of price determination. Strategy scholars such as Porter (1980) built on Bain and the IO and made this link explicit. A limitation of this perspective is that it focuses on the level of the industry, not the firm, thus underplaying intra-firm resources and capabilities.

Firm-level 'generic strategies' such as 'cost leadership', 'differentiation', 'focus' or 'niche', as well as 'value for money' (Pitelis and Taylor 1996) on the other hand, focus on the firm level and have been explicitly couched in terms of value capture (Porter 1985). They allow firms to position themselves in a sector, so as to capture value by reducing the forces of competition. On the other hand, integration, diversification and cooperation strategies aim to capture value, either through efficiency, for example in the transaction costs literature (Foss and Foss 2005), or through market power, for example in Bain (1956) and Porter (1980). The two are often linked. For example, firms can often obtain market power through the successful implementation of transaction costs reduction-motivated integration strategies (Pitelis 1991).

Penrose (1959) discussed both Bain-type barriers to entry, and intra-firm barriers, which she termed technological or 'relatively impregnable bases' (Penrose 1959: 137). These are bundles of skills, competences, innovation capabilities and the whole gamut of advantages that distinguish them from other firms and allow them to grow through diversification by building on strength (Pitelis 2002, 2004a and below).

Hard to imitate intra-firm resources and capabilities, as well as 'relatively impregnable bases' and the overall 'business model' (Chesbourgh and Rosenbloom 2002; Augier and Teece 2007), can also help shape a firm's 'distinct identity'

(Peteraf 2006; Peteraf and Shanley 1997; Richardson 1998), and therefore engender a 'firm differentiation' barrier to entry. This can serve as a value capture strategy.

The four types of value capture strategies interact. From Bain's three barriers, two relate to Porter's generic strategies (cost leadership and differentiation). Integration, cooperation and diversification strategies are often viewed as barriers to entry (Porter 1980). They also impact on 'firm differentiation' as they help determine a firm's 'business model'—distinct identity.

In their interactions, the four types of strategies for value capture are also linked to value creation. Bain's cost and differentiation barriers and Porter's generic strategies help reduce unit costs and/or increase perceived value. Intra-firm barriers, 'relatively impregnable bases' and the 'business model' help firms create potential value through 'branding'. Integration strategies help create value by reducing transaction costs (Foss and Foss 2005). Even Bain-type barriers can help create potential value, by providing an incentive to potential entrants and thereby engendering Schumpeterian 'creative destruction'. This interaction points to the possible co-determination and co-evolution between value capture and value creation, which we explore below.

Some of the aforementioned relationships have been formalized in the context of game theoretic models (Brandenburger and Stuart 2007; MacDonald and Ryall 2004). The latter derive conditions under which strategy (such as capacity choices) competition and value creation can help firms to capture value, taking value creation opportunities as given (MacDonald and Ryall 2004: 1324). The authors acknowledge the restrictive assumption and results of their game theoretic framework, critically the assumption that all agents have the same perceptions of value. It is arguable that this denies the very notion of entrepreneurship, which is based on subjectivism (Lippman and Rumelt 2003b; Foss et al. 2008). This provides an additional reason why (without denying the usefulness of formal theorizing for its purposes and uses) we adopt below an appreciative theory-based co-evolutionary perspective. Further important reasons for doing so are discussed in the next section.

An implication from our analysis is that organizational innovation, in its conventional sense, as for example R&D, is not necessary for a firm to capture value. Firms like IBM, Microsoft, Cisco, Intel, Sun and Oracle can capture value through strategy without any additional innovation advantages (Chesbourgh 2003). Looked at differently, such firms are innovative in devising strategies for value capture, which are therefore value creating-value capture strategies. Importantly, technology and innovation can be seen as part and parcel of a value capture strategy. Strategy itself is a potentially value creating 'advantage' from which firms can capture value, so as to obtain SAs. Clearly not all advantages lead to improved performance. In addition to competition, this will depend in part on stakeholder bargaining power (Coff 1999; Lippman and Rumelt 2003a,b), the type of human capital and HR practices (Bowman and Swart 2007; Coff 1997) and the extent of intra-organizational conflict (Amit and Shoemaker, 1993; Pitelis 2007; Georgiadis and Pitelis 2008). It will also depend on the relative mix and potential trade-offs between value creation and capture strategies discussed below.

Value Creation–Value Capture Trade-Offs

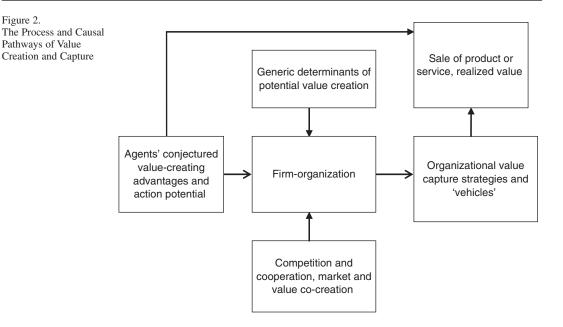
Despite their interrelationship, some value-based strategies are almost exclusively concerned with value capture-such as strategic entry deterrence and monopolistic restrictions (Penrose 1959). Others, like explorative innovations (March 1991), such as EMI's CT scanner, focus more on value creation. In this context there are likely to be trade-offs between value capture and value creation strategies (much like in March's (1991) exploration and exploitation strategies). In particular, it could be argued that at any given point in time, resources allocated in pursuing value capture may be taken away from resources required for value creation (for example explorative innovation) (see Mizik and Jacobson 2003), and vice versa. It is also arguable that the pursuit of value creation versus capture may require different types of knowledge and capabilities (Loasby 1998). This helps explain why some firms (such as EMI) were more successful in creating value, and some others (like Apple), in capturing value. Arguably, the successful management of this trade-off is of the essence to firm strategy and performance. Too much focus on value capture today may undermine long-term success, too much focus on value creation may deprive an organization of the means to compete and thus keep creating value.

The above calls for ambidexterity, and the need for organizational structures, divisions of labour and vehicles that can engender value creation and value capture, exploration and exploitation, simultaneously and intertemporally (Smith and Tushman 2005; Organization Science, 2009). In turn this too invites a coevolutionary analysis of the relationship between value creation and capture as well as their link to organizational SA, under conditions of change, uncertainty, limited rationality, learning and anticipatory and proactive behaviour. This is our focus in the next section.

Co-Evolution and Co-Determination of Value Creation and Capture and (Vehicles for) Quasi-SA

In real life conditions, economic agents face uncertainty (often radical—where no probabilities can be assigned on expected future outcomes, Knight 1921) and change. Moreover, agents are not globally rational, but instead possess limited, bounded and/or procedural rationality (Simon 1995; Loasby 1996). In this context, agents are unlikely to hold the same perceptions of value, let alone have the ability to identify the optimal mix between value creation and capture that will lead to SA. Instead they try to do the best they can under the circumstances, as well as to change the circumstances to facilitate the realization of their choices as far as possible, that is, effect temporary and precarious (quasi) SA. For example, firms may not go for profit maximization at a given point in time (short run) but pursue other objectives such as growth and market share (Marris 2002). This is because they may believe that by so doing they will be in a stronger position to achieve long-term profits (Best 1990), and/or because the process of growth itself is endogenous in firms (Penrose 1959). For Richardson (1998) the presence Figure 2.

Pathways of Value



of uncertainty and divergent beliefs about the chance of success is of the essence to the competitive process, as it fuels creativity (and, we might add, risk taking). Such issues are little explored in the still nascent literature on value creation and capture, while game theoretic models mostly abstract from such divergence (Lippman and Rumelt 2003b; MacDonald and Ryall 2004).

Another limitation of extant literature is the absence of discussion of the causal pathways through which value is created and captured. In what follows, we try to fill these gaps by bringing together our analysis of conjectured and realized value and our discussion on value capture, in order to identify causal pathways between the two, explore their potential co-evolution and co-determination and identify potential vehicles through which firms try to capture and create value intertemporally and simultaneously in order to achieve quasi-SA. We do so in terms of Figure 2.

In Figure 2 the first box portrays an aspiring principal-entrepreneur (or a team thereof), who conjecture that they possess advantages or capabilities that could create appropriable value to end users, from which they can themselves capture as much as possible. Their choice is to sell the advantage or capability in the market, or to create an organization that allows them to build the product or service and then sell it to end users. At this stage, value creation is conjectured or imagined. It only exists in the mind of the economic agents in question as an 'image' (Penrose 1959). In the case these agents can sell the advantage or capability in the market at what they perceive to be a satisfactory price, they realize automatically the conjectured-imagined value. By capturing value they translate conjecture to reality. Value creation and value capture at the level of the chosen unit of analysis coexist. This case is more akin to commerce or licensing. Its realization will depend on the degree of existence of complete and perfect, present and future markets.

In the event the agents in question believe there is no market for their ideas/advantages, namely when markets are thin or inexistent, especially likely

in the case of intangible assets and ideas, and/or that they can capture more value by creating an organization to produce and sell the product or service, they may decide to do so (Pitelis and Teece 2009). The existence of the organization may also help its members to capture value created by others, such as suppliers, customers and distributors, who may help co-create value by appreciating ('valuing') and/or improving and promoting the product or service in question. This for example, can be the case when other organizations develop assets complementary to the value creating organization in question (Teece 1986). Similarly, the value from an organization's advantages can be captured and/or improved upon by other competitors. While at each level of analysis total value created also equals total value captured, at each individual organization's level it is quite possible, and indeed likely, that more or less value is captured from the ideas, advantages, capabilities and value co-created by the organization in question and/or by others. Under uncertainty and limited rationality, it is not possible to predict or even guess-estimate the potential for value capture and creation of any original ideas, not least because the potential and extent of value co-creation is both unknown and at least partly endogenous to entrepreneurial action. In this context the next best thing organizations can hope to do is create the preconditions that will allow them to compete in the market place from a position of relative strength, that is co-create markets, value and prices, so as to capture as much of the market as possible (Pitelis and Teece 2009). In the case of an aspiring entrepreneur, this could often involve the creation of an organization-firm that helps them do so (Pitelis 2005).

In the scheme above, causality goes from conjectured or imagined value creation to realized value creation, directly or through the setting up of an organization. In our analysis, conjectured-imagined value creation causes organization, value capture strategies and in turn realized value creation, thus value capture. However, as value created is only realized as value captured, value capture capabilities can in turn interact with, and help create, value. In addition, value capture capabilities can help capture value created by others. In this sense, value creation and capture are co-determined and co-evolving. The conjecture of a value creating advantage, the potential value of which is perceived as appropriable, motivates the setting-up of an organization that can help realize the conjectured and co-created value, by co-creating markets, thus prices, and by valorizing its offerings. The process of social market co-creation therefore aids firm's pursuit of private appropriation, which is effected through the adoption of value capture strategies.

The complex interrelationship between different types of value capture and value creation strategies, and the absence of full knowledge and rationality, makes it all but impossible for organizations to select an 'optimal' value capture strategy at any given point in time. In the context of uncertainty and limited rationality, therefore, an important question is how best can an organization go about capturing value intertemporally, or what 'vehicles' it may deploy to do so. Such 'vehicles' could combine elements of the value capture strategies we discussed, yet allow firms to change their mix over time, depending on their shifting 'productive opportunity'.

Penrose's concept of 'relatively impregnable bases' provides such an example, which moreover is akin to more recent developments by Teece (1986) and the RBV, pertaining to innovation, firm heterogeneity, the need for appropriability,

complementary and co-specialized assets and capabilities and the role of dynamic capabilities in allowing firms to sustain their advantages (Teece 2007; Pitelis and Teece 2009). In Penrose's (1959/1995) words:

In the long run the profitability, survival, and growth of a firm does not depend so much on the efficiency with which it is able to organize the production of even a widely diversified range of products as it does on the ability of the firm to establish one or more wide and *relatively impregnable 'bases'* from which it can adapt and extend its operations in an uncertain, changing and competitive world. (p. 137; emphasis added)

Penrose (1960) provided an example in her case study of the Hercules Powder Company. While Hercules' original focus was on explosives, it gradually developed competencies in chemistry, customer relationships and reputation that allowed it to diversify, by building on the strength of such advantages and capabilities that were difficult for competitors to match. When Hercules accidentally came up with a new chemical substance, called CMC, with potential applications outside explosives, it adopted a highly innovative approach which involved advertising the characteristics of CMC in the national press and asking the question 'what do you see in CMC?'. This allowed the company to exploit dispersed knowledge and diversify in other activities by building on its 'relatively impregnable base' to capture value from its new (and old) advantages. In this example Hercules combined firm differentiation with cost leadership, careful dealing with potential competitors (entry deterrence) and VRIN-type intra-firm resources and capabilities—all built around a technological relatively impregnable base 'platform'.

'Relatively impregnable bases' (as well as 'routines' and 'dynamic capabilities', Nelson and Winter 1982; Helfat et al. 2007) can be seen as vehicles through which firms try to marry over time stability and change, diversity and direction, equilibrium and growth (Loasby 1996; Richardson 2002). 'Relatively impregnable bases' can allow firms to capture value, but also to create value by building on such bases.

Recent work on industry architectures (Jacobides et al. 2006) is complementary to that of 'relatively impregnable bases', in that the control of 'industry architectures' can help engender 'relatively impregnable bases' for incumbents. This idea can be extended to 'system-integration' and 'system-architecture' advantages possessed by large multinational firms (Pitelis 2009) as well as to the concept of 'business model innovation' (Augier and Teece 2007). Such vehicles can also be employed in order to help firms shape their productive opportunity so this is better aligned to the shifting and environmental conditions, which are partly endogenous to the firm's actions.

It is arguable that some firms can be 'too successful' in building 'impregnable bases'. Large companies, like Google and Microsoft, are sometimes accused of failing to pursue exploratory innovations more vigorously, because their relative 'impregnability' is strong enough for them to be able to stem the forces of creative destruction and affords them the luxury of focusing on exploitation-value capture. This can create a dissonance between organizational SA and system-wide sustainable value creation, eventually undermining the very sustainability of organizational advantage. The recent crisis is a case in point and has led to calls for regulatory policy on the part of government and/or requisite action by the civic society at large to promote economic sustainability (Mahoney et al. 2009).

To summarize, in the real world of uncertainty, change and limited and procedural rationality, learning, combined with the pursuit of adaptive and proactive actions based on anticipatory behaviour as well as attempts to mould their 'productive opportunity', is a way through which firms try to survive, evolve and succeed in a shifting landscape. In this context value creation and value capture are codetermined and co-evolve. A way to capture value and effect quasi-SA in such a context is to co-create markets, value and prices, so that more socially created value becomes available for private appropriation. Value capture strategies, as well as vehicles such as 'relatively impregnable' (albeit evolving) bases, allow firms to appropriate as much value as possible.

Conclusions: Managerial Practice, Limitations and Future Research Opportunities

The purpose of this article is to make progress towards providing a novel framework for organization and management scholarship, better suited for its purposes than the economics market-based IO approach. While the purpose of the last mentioned is to analyze price determination under restrictive benchmark assumptions, the focus of management and OS is to appreciate the nature, determinants and co-evolution of organizations, their structure, performance and impact on their wider environment. We suggested this purpose can be at least partly served by a framework that explores the nature, determinants, trade-offs, causal pathways and co-evolution and co-determination between value capture and creation, and their relationship to organizational SA, under conditions of uncertainty, change, limited rationality, learning, adaptive and proactive behaviour.

In addition to the above main objective, our analysis extended extant literature on value creation and capture in the following ways. First, we provided a novel, more general definition of value and value creation, distinguished between conjectured and realized value creation and observed the coincidence of value creation and value capture at the individual unit level. Second, we discussed the generic determinants of value creation in a more systematic and discriminating way than hitherto available. Third, we discussed the major strategies for value capture and proposed the novel concept-strategy of 'firm-differentiation', which is more consistent with current research in the RBV tradition. Fourth, we discussed potential trade-offs between value creation and capture and their relationship to firm-level SA. Fifth, we analysed causal pathways of value creation and capture, and their interrelationships, co-evolution and co-determination in the context of an uncertain, path-dependent environment, limited rationality and learning. Sixth, we proposed that value is being co-created and that market and thus price creation and co-creation is a fundamental way through which firms can enhance the overall pie and capture as much as possible of the socially co-created value. Seventh, we discussed vehicles through which firms can aim to achieve SA in such contexts, notably that of developing 'relatively impregnable bases', as well as industry, business and system integration architectures.

In terms of managerial practice, our analysis suggests that firm-level SA can be effected through the pursuit of innovation at all levels, to include market and value creation and co-creation, as well as value capture capabilities and strategies and the intertemporal management of the trade-offs between value creation and capture that can be effected through the building of 'relatively impregnable bases'. All these require both generic and firm-specific entrepreneurial and managerial capabilities which are not only unavailable in extant markets but importantly precede, and are critical for, the co-creation of markets, prices and value (Pitelis and Teece 2009).

The strength of our analysis lies in that it provides a framework and answers to some of the most generic and existential concerns of OS and SM scholarship. This is also a limitation and opportunity for further research. In terms of limitations, our framework and analysis involves multiple interacting categories that can benefit from further elaboration, modelling, testing and extensions. An indicative list of examples includes the following questions. Are all determinants of value creation and capture equally important? Does the role of determinants change over time and how? Are all types of the constituents of the various determinants (for instance different types of HR, of innovation, of unit cost economies and of firm infra-structure) equally important and does this change over time? Is the relationship between the various determinants and their constituents equally strong and significant? Importantly, what is their exact relationship and how does this evolve and/or is moderated by other factors? What factors and actions may lead to potential value destruction and how? When and how does value capture lead to potential value destruction, or simply non-creation? Importantly, can overall value created increase through actions that reduce the value captured by some agents (such as workers) and even by shedding value creating resources, such as human resources? If so, how can we perform comparisons of overall utility of such different states of nature? How testable are our proposed ideas and framework and can evidence of what type can be marshalled to test and support or reject some of our ideas?

The above and many other questions that emerge from our analysis are also opportunities for further research. Three lines of such research that we currently pursue are as follows. First is the role of value capture on the nature of the firm, namely why and how firms emerge in market economies (Pitelis and Teece 2009). Second is the adoption of formal models to derive exact relationships (such as intra-firm conflict management and the type of innovation most appropriate for value capture), under specific assumptions (Panagopoulos and Pitelis 2009, 2010). Third is the empirical testing of the determinants of value creation and capture in real firms and industries through the collection and use of primary data (Georgiadis and Pitelis 2009). Fourth, how can we compare between different states of nature in conditions that involve gains by some agents and losses for others (Mahoney et al. 2009). In addition to our own efforts, much of the current research undertaken in OS and strategy has direct implications for our framework, despite the fact that it is not informed by it. Our hope is that our research will help provide an alternative lens to that of IO and that it will motivate others to undertake similar, related and complementary critical work on these important issues, by adopting this lens as more appropriate for OS scholars.

Notes

We are grateful to John Dunning, Martin Kilduff, Joe Mahoney, Anita McGahan, Sarah Kaplan, Pellumb Kelmendi, Bart Nooteboom, David Teece, three anonymous reviewers and the former Editor in Chief of this Journal, Hari Tsoukas, as well as participants at conferences and seminars where earlier versions of the paper were presented (notably at ALBA, SOAS, Copenhagen Business School and the ENEF Workshop in Pisa) for comments and discussion. Errors are ours.

| References | Academy of Management Review 2007 'Special topic forum on value creation'. 32/1, January. | Barney, Jay B. 1991 'Firm resources and sustained competitive advantage'. <i>Journal of</i> <i>Management</i> 17/1: 99–120. |
|------------|---|---|
| | Adner, Ron, and Peter Zemsky 2006 'A demand-based perspective on sustainable competitive advantage'. <i>Strategic Management Journal</i> 27: 215–239. | Baumol, William J. 1982 'Contestable markets: An uprising in the theory of industry structure'. <i>American Economic Review</i> 72/1: 1–15. |
| | Aghion, Philippe, and Steven Durlauf, eds 2005 <i>Handbook of economic growth.</i> Amsterdam & London: Elsevier. Alvarez, Sharon A, and Jay B. Barney | Baumol, William J. 1991 Perfect markets and easy virtue: Business ethics and the invisible hand. Oxford: Basil Blackwell. |
| | 2007 'Discovery and creation: Alternative theories of entrepreneurial action'. <i>Strategic Entrepreneurship Journal</i> 1/1–2: 11–26. | Baumol William J. 2002 The free-market innovation machine: Analyzing the growth miracle of capitalism. Princeton, NJ: Princeton University Press. |
| | Amit, Raphael, and Paul J. H. Schoemaker 1993 'Strategic assets and organizational rent'. <i>Strategic Management Journal</i> 14: 33–46. Amit, Raphael, and Christoph Zott | Becker, B. E., and M. A. Huselid 2006 'Strategic human resources management: Where do we go from here?' Journal of Management 32/6: 898–925. |
| | 2001 'Value creation in e-business'. <i>Strategic Management Journal</i> 22: 493–520. Ando, Albert, and Franco Modigliani 2002 (TT), U.G., et al., et al., | Best, Michael H. 1990 The new competition: Institutions for industrial restructuring. Cambridge and Oxford: Polity. |
| | 1963 'The life cycle hypothesis of saving: Aggregate implications and tests'. <i>American Economic</i> <i>Review</i> 53: 55–84. | Birkinshaw, Julian, and Neil Hood, eds 1998 Multinational corporate evolution and subsidiary development. Basingstoke: Macmillan. |
| | Arrow, Kenneth J. 1962 'The economic implications of learning by doing'. <i>Review of</i> <i>Economic Studies</i> 29: 155–73. | Bowman, Cliff, and Veronique Ambrosini 2000 'Value creation versus value capture: Towards a coherent definition of valu in strategy'. <i>British Journal</i> of Managament 11/11, 1, 15 |
| | Augier, Mie, and David J. Teece 2007 'Dynamic capabilities and multinational enterprise: Penrosean insights and omissions'. <i>Management</i> <i>International Review</i> 47/2: 175–192. | of Management 11/1: 1–15. Bowman, Cliff, and Juani Swart 2007 'Whose human capital? The challenge of value capture when capital is embedded'. Journal of Management |
| | Augier, Mie, and David J. Teece 2008 'Strategy as evolution with design: Dynamic capabilities and the design and evolution of the business enterprise'. <i>Organization Studies</i> 29: 1187–1208. | Studies 44/4: 488–505. Brandenburger, Adam, and Barry J. Nalebuff 1995 'The right game: Use game theory to shape strategy'. <i>Harvard Business</i> <i>Review</i> 73/4: 57–71. |
| | Bain, Joe S. 1956 Barriers to new competition: Their character and consequences for manufacturing industries. Boston, | Brandenburger Adam, and Harborne Stuart 1996 'Value-based business strategy'. Journal of Economics & Management Strategy 5/1:5–24. |
| | MA: Harvard University Press. Barney, Jay B. 1986 'Strategic factor markets: Expectations, lucks and business strategy'. Management Science 32: 1231–1241. | Brandenburger Adam, and Harborne Stuart 2007 'Biform Games'. Management Science 53/4:537–549. Brown, Andrew 2008 'A materialist development of some recent contributions to the labour |

theory of value'. Cambridge Journal of Economics 32: 125-146. Cantwell, John A. 1989 Technological innovation and multinational corporations. Oxford: Blackwell. Casson, Mark, Bernard Yeung, Anuradha Basu, and Nigel Wadeson 2006 The Oxford handbook of entrepreneurship. New York: Oxford University Press. Chandler, Alfred D. 1962 Strategy and structure: Chapters in the history of the industrial enterprise. Cambridge, MA: MIT Press. Chesbourgh, Henry W. 2003 'The era of open innovation'. Sloan Management Review 44: 35-41. Chesbourgh, Henry W., and Richard S. Rosenbloom 2002 'The role of the business model in capturing value from innovation: Evidence from Xerox corporation's technology spin-off companies'. Industrial and Corporate Change 11/3: 529-555. Coase, Ronald H. 'The nature of the firm'. Economica 1937 4: 386-405. Coff. Russell W. 1997 'Human assets and management dilemmas: Coping with hazards on the road to resource-based theory'. Academy of Management Review 22/2: 374-402. Coff, Russell W. 1999 'When competitive advantage doesn't lead to performance: The resourcebased view and stakeholder bargaining power'. Organization Science 10/2: 119-131. Collis, David J., and Cynthia A. Montgomery 1995. 'Competing on resources'. Harvard Business Review 73/4: 118-128. Collis, David J., and Cynthia Montgomery 1998 'Creating corporate advantage' Harvard Business Review 76/3: 70-83. Cyert, Richard M., and James G. March, eds 1963/ A behavioral theory of the firm,

1992 2nd edn. Englewood Cliffs, NJ: Prentice Hall.

1959 Theory of value. New York: Wiley. Demsetz, Harold 1973 'Industry structure, market rivalry, and public policy'. Journal of Law and Economics 16: 1-9. Dobb, Maurice 1973 Theories of value and distribution since Adam Smith: Ideology and economic theory. Cambridge: Cambridge University Press. Felin, Teppo, and William S. Hesterly 'The knowledge-based view, nested 2007 heterogeneity, and new value creation: Philosophical considerations on the locus of knowledge'. Academy of Management Review 32/1: 195-218. Foss, Kirsten, and Nicolai J. Foss 2005 'Resources and transaction costs: How property rights economics furthers the resource-based view'. Strategic Management Journal 26: 541-553. Foss, Nicolai J. 1999 'Edith Penrose, economics and strategic management'. Contributions to Political Economy 18: 87-104. Foss, Nicolai J., and Brian J. Loasby, eds 1998 Economic organization, capabilities and co-ordination essays in honour of G. B. Richardson. London & New York: Routledge. Foss, Nicolai J., Peter G. Klein, Yasemim Y. Kor, and Joseph T. Mahoney 2008 'Entrepreneurship, subjectivism, and the resource-based view: toward a new synthesis'. Strategic Entrepreneurship Journal 2/1: 73-94. Galbraith, John K. 1967/ The new industrial state, 2nd edn. 1972 Harmondsworth: Penguin. Georgiadis, Andreas, and Christos N. Pitelis 2008 'Strategy, profitability and human resources: Theory and evidence from UK SMEs in the THL sector'. London School of Economics and University of Cambridge, mimeo. Georgiadis, Andreas, and Christos N. Pitelis 2009 'Strategic human resource practices and value creation through innovation: Evidence from a quasiexperiment'. London School of

Debreu, Gerard

Economics and University of Cambridge, mimeo.

| | al, Sumantra, Martin Hahn, ter Moran 'Management competence, firm growth and economic progress' in <i>The growth of the firm: The legacy of</i> <i>Edith Penrose.</i> C. Pitelis (ed.). Oxford & New York: Oxford University Press. | Kaplar 2005 | learning, a Extending architecture <i>Manageme</i> 32/1:236–2 a, Sarah, and 'Inertia and |
|------------------|--|-----------------|--|
| Harcou 2003 | Irt, Geoffrey C., and Andrew J. Cohen 'Retrospectives: Whatever happened to the Cambridge capital theory controversies?' <i>Journal of Economic</i> <i>Perspectives</i> 17/4: 179–196. | Kay, Jo 1995 | organizatio organizatio <i>Science</i> 16 ohn <i>Foundation</i> |
| 1986 Helfat, | nd, Gunnar 'The hypermodern MNC: A heterarchy?'. <i>Human Resource</i> <i>Management</i> 25: 9–36. Constance, Sydney Finkelstein, | Kay, N 1998 | How busin Oxford: Ox feil 'Clusters o joint ventu <i>Economic</i> |
| Singh, | litchell, Margaret Peteraf, Harbir David Teece, and Sidney Winter Dynamic capabilities: Understanding strategic change in organizations. Oxford: Blackwell. | | and co-ord of G. B. Ri B. J. Loasb ongwook, a 'Resource- |
| 2005 | rson, Vernon J. <i>New economic geography.</i> Northampton, MA: Elgar. | 2002. | perspective case of oil Manageria Economics |
| 1939 | John R. Value and capital. Oxford: Oxford University Press. | Knight 1921 | , Frank H. <i>Risk, uncer</i> Boston, M. |
| Hunt, \$ 2000 | Shelby D. A general theory of competition: Resources, competences, productivity, economic growth. Thousand Oaks, CA: Sage. | Krugm 1991 | an, Paul <i>Geography</i> MA: MIT |
| Ireland 2007 | l, R. Duane 'Strategy vs. entrepreneurship'. Strategic Entrepreneurship Journal 1/1–2: 7–10. | Krugm 1996 | an, Paul 'Making se debate'. O: Economic |
| Jacobio 2006 | des, M. G., T. Knudsen, M. Augier 'Benefiting from innovation: Value creation, value appropriation and the role of industry architectures'. <i>Research Policy</i> 35: 1200–1221. | 1 | David P., K an Taylor 'Value crea multilevel <i>Manageme</i> |
| Kaldor 1970 | ; Nicholas 'The case for regional policies'. <i>Scottish Journal of Political</i> <i>Economy</i> 17/3: 337–348. | Lippm 2003a | an, Steven A 'The paym Micro-four analysis'. S Journal 24 |
| Kaldor 1972 | ; Nicholas. 'The irrelevance of equilibrium economics'. <i>Economic Journal</i> 82: 1237–1255. | | an, Steven A 'A bargaini advantage' Journal 24 |
| - | Sung Choon, Shad S. Morris, ott A. Snell 'Relational archetypes, organizational | Loasby 1996 | y, Brian <i>Choice, con</i> Oxford: Ox |
| | | | |

- Kaplan, Sarah, and Rebecca Henderson
 'Inertia and incentives: Bridging organizational economics and organizational theory'. Organization Science 16/5: 509–521.
 - 995 Foundations of corporate success: How business strategies add value. Oxford: Oxford University Press.
- 1998 'Clusters of collaboration: The firms, joint ventures, alliances and clubs' in Economic organization, capabilities, and co-ordination: Essays in honour of G. B. Richardson. N. J. Foss and B. J. Loasby (eds). London: Routledge.
- Kim, Jongwook, and Joseph T. Mahoney
- 2002. 'Resource-based and property rights perspectives on value creation: The case of oil field unitization.' *Managerial and Decision Economics* 23/4: 225–245.
- 1921 *Risk, uncertainty and profit.* Boston, MA: Houghton Mifflin.
- .991 *Geography and trade*. Cambridge, MA: MIT Press.
- 1996 'Making sense of the competitiveness debate'. Oxford Review of Economic Policy 12/3: 17–25.

Lepak, David P., Ken G. Smith, and

007 'Value creation and value capture: A multilevel perspective'. Academy of Management Review 32/1: 180–94.

Lippman, Steven A., and Richard P. Rumelt 2003a 'The payments perspective: Micro-foundations of resource analysis'. *Strategic Management Journal* 24: 903–927.

- Lippman, Steven A., and Richard P. Rumelt 2003b 'A bargaining perspective on resource advantage'. *Strategic Management Journal* 24: 1069–86.
 - 96 *Choice, complexity and ignorance.* Oxford: Oxford University Press.

1136

| Loasby, Brian 1998 'The concept of capabilities' in Economic organization, capabilities and co-ordination: Essays in honour of G. B. Richardson. N. J. Foss and B. J. Loasby (eds). London & New York: Routledge. | Marshall, Alfred 1920/ Principles of economics, 9th edn 1961 (Guillebaud edn). London: Macmillan. Marx, Karl 1959 Capital. London: Lawrence and Wishart. |
|---|---|
| Lucas, Robert 1988 'On the mechanics of economic development'. Journal of Monetary Economics 22/1: 3–42. | Mizik, N., and R. Jacobson 'Trading off between value creation and value appropriation: The financial implications of shifts in strategic |
| MacDonald, Glenn, and Michael D. Ryall 2004 'How do value creation and competition determine whether a firm appropriates value?'. <i>Management</i> <i>Science</i> 50/10: 1319–1333. | emphasis'. Journal of Marketing 67/January: 63–76. Modigliani, Franco 1958 'New developments on the oligopoly front'. Journal of Political Economy |
| Mahoney, Joseph T., and J. Rajendran Pandian 1992 'The resource-based view within the conversation of strategic management'. <i>Strategic Management</i> <i>Journal</i> 13: 363–380. | Nelson, Richard, and Sidney Winter (eds) 1982 An evolutionary theory of economic change. Cambridge, MA: Belknap/Harvard University Press. |
| Mahoney, Joseph T., Anita McGahan, and Christos Pitelis 2009 'The interdependence of private and public interests'. <i>Organization</i> <i>Science</i> , forthcoming. | Nelson, Richard, and Sidney Winter 2002 'Evolutionary theorizing in economics'. Journal of Economic Perspectives 16/2: 23–46. Organization Science 20/4 |
| Makadok, Richard 2001 'Toward a synthesis of the resource- based and dynamic-capability views of rent creation'. <i>Strategic</i> <i>Management Journal</i> 22: 387–401. | 2009 Special Issue on 'Organizational Ambidexterity'. ISSN 1047-7039. Panagopoulos, Andreas, and Christos N. Pitelis 2009 'Innovation governance for value |
| Makadok, Richard, and Russell Coff 2002 'The theory of value and the value of theory: Breaking new ground versus reinventing the wheel'. <i>Academy of</i> <i>Management Review</i> 27/1: 10–13. | capture: The problem and a simple model-based solution'. <i>International Journal of</i> <i>Strategic Change Management</i> 3/1: 171–185. |
| Makowski, Louis, and Joseph M. Ostroy 1995 'Appropriation and efficiency: A revision of the first theorem of welfare economics'. <i>American</i> <i>Economic Review</i> 85/4: 808–827. | Panagopoulos, Andreas, and Christos N. Pitelis 2010 'Intra-firm conflict management and open innovation'. <i>International</i> <i>Journal of Learning and Intellectual</i> <i>Capital</i>, forthcoming. |
| Makowski, L., and J. M. Ostroy 2001 'Perfect competition and the creativity of the market'. <i>Journal of Economic</i> <i>Literature</i> 39/2: 479–535. | Penrose, Edith T. 1959/ The theory of the growth of the firm, 1995 3rd edn. Oxford: Oxford University Press. |
| March, James | Penrose, E.T. |
| 1991 'Exploration and exploitation in organizational learning'. Organization Science 2: 71–87. | 1960 'The growth of the firm. A case study: The Hercules Powder Company'. Business History Review 34: 1–23. |
| Marris, Robin 2002 'Edith Penrose and economics' in <i>The growth of the firm: The legacy of</i> <i>Edith Penrose.</i> C. Pitelis (ed), 61–80. New York: Oxford University Press. | Peteraf, Margaret A. 1993 'The cornerstone of competitive advantage'. <i>Strategic Management</i> <i>Journal</i> 14: 179–191. |

Τ

Τ

| | f, Margaret A. 'New domains and directions for research in organizational identity'. Presentation at the IIB Organizational Identity Workshop, Stockholm. | Pitelis, 1996 | Christos N., and Stuart Taylor 'From generic strategies to value for money in hypercompetitive environments'. <i>Journal of General</i> <i>Management</i> 21/4: 45–61. |
|------------------|---|------------------|--|
| | f, Margaret A., and Jay B. Barney 'Unraveling the resource-based tangle'. <i>Managerial and Decision</i> <i>Economics</i> 24: 309–324. | Pitelis, 2009 | Christos N., and David J. Teece 'The (new) nature and essence of the firm'. <i>European Management</i> <i>Review</i> 6/1: 5–15. |
| Peterat 1997 | f, Margaret A., and Mark Shanley 'Getting to know you: A theory of strategic group identity'. <i>Strategic</i> <i>Management Journal</i> 18(summer special issue): 165–186. | Pitelis, 1998 | Christos N., and Michael W. Wahl 'Edith Penrose: Pioneer of stakeholder theory'. <i>Long Range</i> <i>Planning</i> 31/2: 252–261 |
| Pfeffer 1998 | , Jeffrey The human equation: Building profits by putting people first. Watertown, MA: Harvard Business School Press. | 1980 | Michael E. Competitive strategy. New York: Free Press. Michael E. Competitive advantage: Creating and |
| | Christos N. Market and non-market hierarchies: Theory of institutional failure. Oxford: Basil Blackwell. | Priem. | sustaining superior performance. New York: Free Press. Richard L. |
| | Christos N. (ed.) The growth of the firm: The legacy of Edith Penrose. Oxford: Oxford | 2001 | 'The business-level RBV: Great Wall or Berlin Wall?'. <i>Academy of</i> <i>Management Review</i> 26: 499–501. |
| | University Press. Christos N. 'Edith Penrose and the resource-based view of (international) business | Priem, 2007 | Richard L. 'A consumer perspective on value creation'. <i>Academy of Management</i> <i>Review</i> 32/1: 219–235. |
| | strategy'. International Business Review 13/4: 523–532. Christos N. '(Corporate) governance, | | Richard L., and John E. Butler 'Is the resource-based "view" a useful perspective for strategic management research?'. <i>Academy of Management</i> <i>Review</i> 26/1: 22–40. |
| | (shareholder) value and (sustainable) economic performance'. <i>Corporate</i> <i>Governance: An International</i> <i>Review</i> 12/2: 210–223 | | Richard L., and John E. Butler 'Tautology in the resource-based view and the implications of |
| Pitelis, 2005 | Christos N. 'Edith Penrose, organisational economics and business strategy: | | externally determined resource value: Further comments'. <i>Academy of</i> <i>Management Review</i> 26/1: 57–66. |
| Ditalia | An assessment and extension'. <i>Managerial and Decision</i> <i>Economics</i> 26/2: 67–82. | Ramira 1999 | ez, Rafael 'Value co-production: Intellectual origins and implications for practice and research'. <i>Strategic Management</i> |
| 2007 | Christos N. 'A behavioral resource-based view of the firm: The synergy of Cyert and March (1963) and Penrose (1959)'. <i>Organization Science</i> 18/3: 478–490. | Resear 2006 | Journal 20: 49–65. <i>ch Policy</i> 'Special issue commemorating the 20th Anniversary of David Teece's article: "Profiting from innovation"". |
| Pitelis, 2009 | Christos N. 'The sustainable competitive advantage and catching-up of nations: | D' 1 | H. Chesbourgh, H. J. Birkinshaw and M. Teubal (eds) <i>Research</i> <i>Policy</i> 35/8. |
| | FDI, clusters and liability (asset) of smallness'. <i>Management International Review</i> 49/3–4: 95–119. | Richar 1972 | dson, George 'The organization of industry'. <i>Economic Journal</i> 82/327: 883–896. |

| Richar 1998 | rdson, George <i>The economics of imperfect</i> <i>knowledge</i> . Northampton: Edward Elgar. |
|----------------|--|
| Richar 2002 | rdson, George <i>The organization of industry re-</i> <i>visited.</i> Paper presented at the DRUID Summer Conference 2003 on Creating, sharing and transferring knowledge: The role of geography, institutions and organizations. Copenhagen: 12–14 June 2003 |
| Ricket 2002 | tts, Martin The economics of business enterprise: An introduction to economic organisation and the theory of the firm, 3rd edn. New York: Harvester Wheatsheaf. |
| Robbi 1935 | ns, Lionel An essay on the nature and significance of economic science, 2nd edn. London: Macmillan. |
| Robin 1964 | son, Joan <i>Economic philosophy</i> , 2nd edn. Harmondsworth: Penguin. |
| Rome 1986 | r, Paul M. 'Increasing returns and long-run growth'. <i>Journal of Political</i> <i>Economy</i> 94/5: 1002–1037. |
| Rome 1990 | r, Paul M. 'Endogenous technological change'. Journal of Political Economy 98: 71–101. |
| | er, Garth, Andrea Shephard, el Podolny <i>Strategic Management.</i> New York: John Wiley and Sons. |
| Schere 1990 | er, Frederic M., and David Ross (eds) Industrial market structure and economic performance, 3rd edn. Boston, MA: Houghton Mifflin. |
| | npeter, Joseph <i>Capitalism, socialism and democracy</i> , 5th edn. London: Unwin Hyman. |
| Simon 1995 | Herbert A. 'Organisations and markets'. Journal of Public Administration, Research & Theory (Transaction) 5/3: 273–295. |
| | n, David G., Michael A. Hitt, and ane Ireland 'Managing firm resources in dynamic environments to create value: Looking inside the black box'. <i>Academy of Management Review</i> 32/1: 273–292. |

Smith, Adam 1776/ An inquiry into the nature and 1937 causes of the wealth of nations. New York: Random House. Smith, Wendy K., and Michael L. Tushman 'Managing strategic contradictions: A 2005 top management model for managing innovation streams'. Organization Science 16/5: 522-536. Solow, Robert M. 1956 'A contribution to the theory of economic growth'. Quarterly Journal of Economics 70: 65-94. Solow, Robert M. 1997 Learning from 'learning by doing': Lessons for economic growth. The Kenneth J. Arrow Lectures. Palo Alto, CA: Stanford University Press. Spence, Michael 1977 'Entry, capacity, investment and oligopolistic pricing'. Bell Journal of Economics 8: 534-544. Teece, David J. 1982 'Towards an economic theory of the multiproduct firm'. Journal of Economic Behavior and Organization 3: 39-63. Teece, David J. 1986 'Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy'. Research Policy 15/6: 285-305. Teece, David J. 2007 'Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance'. Strategic Management Journal 28/13: 1319-1350. Teece, D. 2009 Dynamic capabilities and strategic management: Organizing for innovation and growth. Oxford: Oxford University Press. Teece, David J., Gary Pisano, and Amy Shuen 1997 'Dynamic capabilities and strategic management'. Strategic Management Journal 18/7: 509-533. Tirole, Jean 1988 The theory of industrial organization. Cambridge, MA: MIT Press. Wernerfelt, Birger 1984 'The resource-based view of the firm'. Strategic Management Journal 5: 171-180.

| Willia | imson, Oliver E. | Willia | umson, Oliver E. |
|--------|---|--------|--|
| 1968 | 'Economics as an anti-trust defense: The welfare trade-offs'. <i>American Economic Review</i> | 1985 | The economic institutions of capitalism. New York: Free Press. |
| | 58/1: 18–36. | Willia | umson, Oliver E. |
| | 50/1.10 50. | 1991 | 'Strategizing, economizing, and |
| Willia | mson, Oliver E. | | economic organization'. Strategic |
| 1975 | Markets and hierarchies: Analysis and antitrust implications. | | Management Journal 12: 75–94. |
| | A study in the economics of internal | Willia | umson, Oliver E. |
| | organization. New York: | 2005 | 'The economics of governance'. |
| | Free Press. | | American Economic Review 95/2: 1–18. |
| Willia | mson, Oliver E. | | /5/2.1 10. |
| 1981 | 'The modern corporation: Origins, | Young | g, Allyn |
| | evolution, attributes'. Journal of | 1928 | |
| | Economic Literature | | progress'. Economic Journal |
| | 19/4: 1537–1569. | | 38/152: 527-542. |

Dr Christos Pitelis Christos Pitelis is Director of the Centre for International Business and Management (CIBAM) at the Judge Business School, University of Cambridge and Professor of Economics, University of Athens. Christos has published over a hundred articles in scholarly journals such as *Organization Science, Journal of International Business Studies, Organization Studies* and *International Journal of International Business Studies, Organization Studies* and *International Journal of Industrial Organization*. He is the Editor of the *Collected Papers of Edith Penrose*, on the editorial boards of *Organization Studies, Contributions to Political Economy, Corporate Governance, International Business Review* and *Management International Review*, on the theory of the firm, globalization, international business, regulation, global governance and global finance. Christos has researched, consulted and co-ordinated projects for governments, the European Commission, the United Nations, USAID, the Commonwealth Secretariat and the private sector. Since 1999 he is included in the Marquis 'Who is Who in the World'. *Address:* CIBAM, Judge Business School, University of Cambridge, Trumpington Street, Cambridge CB2 1AG, UK.

Email: c.pitelis@jbs.cam.ac.uk