



Annotated Bibliography IV

Integrated Research Sub-Project (IRSP) I – The Role of Technology Companies in Promoting Surveillance Internationally

Competition

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Introduction

The notion of competition has long been of central importance both in (micro)economics and strategic management. While these two disciplines are highly interrelated, they treat competition in distinct ways. Indifferences on how competition is treated stem primarily from conceptual differences in the concepts of *markets* and *firms*. In microeconomics¹, especially the neoclassical version, firms are treated as rational agents with objectives that can be expressed as quantitative functions (i.e. price functions) constrained by a series of environmental assumptions (Wilkinson 2005). Both in microeconomics and strategic management fields of inquiry, the firm² is very much treated as an economic entity. Scholars in the fields of microeconomics and strategic management, are not so much concerned with the internal organization of firms (firms as black boxes), especially in the case where the focus is the dynamics of competition.

For example, the surveillance industry can be characterized by a set of markets and firms. In such industrial setting, firms compete on similar (product) dimensions and for a given set of customers. Of course, even when such firms simultaneously compete across a number of markets, they are faced with different levels of competition. Competing firms can act both as suppliers and customers. In turn, a market exists when there is an economic exchange between firms for a specific product. In the example of the surveillance industry, product markets may be defined by the technological components that products entail such as RFID chips or facial recognition technologies.

To understand the concept of competition, it is important to highlight that strategic management scholars have explicitly viewed competition as a function of firm strategy³ and *not* as a function of markets. Central to this important conceptual difference of

¹ As Wilkinson (2005: 9) successfully puts it “There is one main difference between the emphasis of microeconomics and that of managerial economics: the former tends to be descriptive, explaining how markets work and what firms do in practice, while the latter is often prescriptive, stating what firms should do, in order to reach certain objectives.” In Wilkinson’s language managerial economics refers to what I, in this report, term as strategic management. This important distinction also holds implications for scholars concerned with competition. Scholars, concerned with the economics of industrial organization, investigate the dynamics of competition by forming game-theoretic models assuming the existence of equilibria. Strategic management scholars, on the other hand, are not concerned with formal mathematical models, but investigate empirical business phenomena. Predominantly, they rely on hypothesis testing and econometrics to investigate theoretical perspectives of competition (see Shapiro 1989).

² A formal definition of the firm in the strategic management tradition is offered by Penrose’s (1959) seminal work. Penrose (1959) defines the firm as “a collection of productive resources organized in an administrative framework” (Foss 2007: 17)

³ This report treats firm strategic behaviour in relation to microeconomic theory and the structure-conduct-performance general framework in the field of strategic management. Of course, scholars from different disciplines, such as sociology, have offered somewhat different views on firm strategic behaviour. For a review, the reader may refer to Ansoff’s theory of business strategy (1987). Deephouse (1999) offers a more recent treatment of both economic and sociological perspectives on firm strategic behaviour and competition.



competition, is that strategic management scholars perceive firms as inherently different. In fact it is these differences, strategy scholars argue, that provide firms with opportunities to appropriate economic value and endure competition. To explain firm differences⁴, strategic management scholars have provided us with several theoretical frameworks. In comparison with microeconomic models of competition, strategic management may lack unified theoretical validity but provide important empirical contributions on how firms compete with each other, gain (and lose) competitive advantage, and appropriate economic value (see footnote 1).

Of course, competition and firm behaviour remain a complex set of concepts. This report aims to provide some insights on how these concepts have been treated in the strategic management literature. While it is practically impossible to be exhaustive of the vast literature concerned with these concepts⁵, this report provides a road map on understanding the application and origin of these concepts in the strategic management field. The report departs from the important conceptual difference of how firms are treated in microeconomics and strategic management. While the report briefly illustrates how competition is viewed from a microeconomics point of view, it focuses on the strategic management view of competition as firm property.

This report is structured as follows. Section 2 briefly discusses firm strategic behaviour and competition in relation to microeconomic theory. Section 3, adds to the conversation by illustrating how these concepts have been treated by scholars concerned with firm strategy rather than pure microeconomic theory. Section 3 provides a review of major theoretical perspectives of strategic management and summarizes their treatment of competition and firm strategy. Section 3 starts by expanding on the point brought forward thus far; competition as a firm property. It then moves on and historically introduces seminal work on firm strategy. As strategic management is rooted on economic theory, section 3 introduces theoretical perspectives according to their reliance on microeconomic theory.

Microeconomic theory, competition, and firm behaviour

Classic models of microeconomic theory usually treat competition in separation from strategic interaction. While the notion of competition usually suggests some short of rivalrous behaviour, between firms that are trying to outperform their rivals in order to survive, such models rather treat competition only in relation to the prices invoked by firms in their respective markets (Gabszewicz 1999). Such microeconomic models base their assumptions on the existence of perfectly competitive markets⁶. However, in a real

⁴ The most central research question in the strategic management literature is “how firms gain competitive advantage over their competitors?” (Hoopes *et al.*, 2003)

⁵ For a basic introduction on the concepts of competition, firm behaviour, and firm strategy the reader should refer to Chapter 2 of Wilkinson’s (2005) managerial economics text book.

⁶ A perfect competitively market satisfies four basic assumptions: 1) the number of sellers and buyers in the market are very large, 2) there are no barriers to entry in the market, 3) the products exchanged in the



world industrial setting these assumptions are often violated. A good example is the case of oligopoly where strategic interaction is of central importance. In oligopolistic industries, large firms' strategic behaviour affects the relationship between market structure and performance (Shapiro 1989).

In contrast with traditional microeconomic theory and perfect competition, recent economic thought have been concerned with further understanding the nature of imperfect competition. In this case, scholars explicitly assume that firms behave strategically and are aware of each other behaviour. The recognition of strategic interaction among firms, however, does not necessarily increase the explanatory power of imperfect competition models on explaining real world industrial settings⁷. One reason for this, is the assumed strategic interaction of firms depends on firm-specific characteristics, and that these characteristics are known among firms competing in the market (Gabszewicz 1999). In today's economic environment however, competition may be more severe on the supply rather than on demand side. Specifically, the proliferation of innovation and knowledge, significantly alters the strategic interaction of firms, and their behaviour, by for example introducing new technological paradigms. A recent example is the emergence of the biotechnology paradigm in the pharmaceuticals industry in the late 1980's. Under such emerging competitive conditions, firm strategic behaviour does not solely focus on quantities and prices⁸ (as mostly assumed in traditional microeconomic theory), but also coevolves with the firm's competitive environment and aims to adopt to rapidly changing conditions for essential factors of production (resources).

A problem that arises with microeconomic theory and its fit of explaining firm behaviour in such is its inherent view of the firm. Predominantly, in this context, the firm is viewed as a contractual economic device superior to individual human agents (e.g. Holmstrom & Tirole 2000). In contrast with this view, evolutionary approaches in economics, view firms as complex adaptive systems adapting to changing environmental conditions (Foster & Metcalfe 2001).

market are homogeneous, and 4) buyers have full information on the prices announced by the sellers (Gabszewicz 1999: 1).

⁷ Of course several advancements have been made in last 10 to 15 years on the field of industrial organization in understanding firm strategic behaviour. Shapiro (1989) argues that advancements in game theory allow for a more careful examination of strategic behaviour across different industrial settings and under varying competitive conditions.

⁸ Scholars concerned with microeconomic theory have employed the Cournot and Bertrand equilibria to model firm strategic behaviour when firms compete in quantity and price (for an application see Shapiro 1989).



Competition and strategic management

The field of strategic management (or nowadays strategy⁹) has been very much rooted to microeconomic theory. In line with microeconomic theory, and its treatment of competition, strategic management is concerned with how the firm position itself to compete in product markets (Rumelt, Schendel, & Teece 1994). In contrast, with economic theory that perceives firms as agents in an economic game, strategy scholars are concerned with *individual* firms, and their behaviour to achieve superior performance (Nelson 1991). More specifically, Nelson (1991) criticizes neoclassical economic theory's view of the firm. His critique is based on two important observations. First, he argues, neoclassical economic theory focus on how well an economy allocates resources, given preferences and technologies rather than paying attention to newly introduced competitive conditions such as innovation¹⁰. Second, in the theoretical arena of neoclassical economic theory, firm behaviour is rational. Firms face a well specified set of strategic choices and have no obstacles choosing the best strategy that maximizes their strategic objectives. Overall, Nelson highlights an important point of departure in the treatment of firm behaviour by newly developed strategic management theoretical frameworks. Economic theory, as illustrated above, does not explicitly recognize that discretionary firm differences matter (Nelson 1991).

Another important difference is that strategy scholars perceive competition as a firm-level property rather than a property of market structure (Baum & Korn 1996). In turn, competitive behaviour is a result of moves and countermoves of rival¹¹ firms (Young, Smith, Grimm, & Simon 2000). Thus a central question to the strategic management field is “*why do we observe performance variations among competing firms*” (e.g. Hoopes, Hadsen, & Walker 2003). To answer this central question, strategy scholars have predominantly drawn from the economics of industrial organization¹² (IO). Such effort has been very much driven by the early works of Michael Porter at Harvard Business School. The main proposition of Porter's work is that performance is a function of firm strategy and its competitive environment (Rumelt *et al.* 1994). In line with IO economics, scholars in this tradition assume that interfirm heterogeneity arises from differences in firm size (Conner 1991). Firm size has been seen as the primary characteristic of

⁹ In general terms, strategy is concerned with the logic that drives organizations to adapt to their external environment (Ansoff 1987: 501). Scholars in different theoretical traditions define strategy differently. For example, Ferrier (2001) sees strategy as a sequence of competitive actions over time. Barney and Arikan (2001: 859) perceive strategy a firm's theory of how it can gain superior performance in the markets within which it operates.

¹⁰ First, Schumpeter (1911) offered an economic theory that encompasses innovation as one of the major drives of economic growth.

¹¹ Rivalry occurs when the moves of one firm have noticeable effects on its competitors and thus may incite retaliation or effort to counter the move (Young *et al.* 2000: 1218).

¹² IO economics have been very much concerned with strategic behaviour and more specifically with answering questions such as “what information does each firm have about its rivals' actions or market conditions?” (Shapiro 1989: 125). In contrast with strategic management scholars, IO scholars have extensively used game theory to model strategic behaviour.



competitive structures, and it has been directly connected with the ability of firms to occupy advantageous market positions (Caves & Porter 1977; Porter 1979). Scholars in this tradition have tried to identify other firm-specific characteristics that may drive performance variations among competing firms. Such effort has been initiated by Hunt's (1972) seminal empirical observation that a group of industry competitors employ similar strategies, suggests that firms with similar characteristics may employ similar strategies. In line with Hunt's empirical study of the brewing industry, (Caves *et al.* 1977) made a similar point by arguing that "... sellers within an industry are likely to differ systematically in traits other than size, so that industry contains subgroups of firms with differing structural characteristics". Firms in the same strategic group will coordinate their strategic behaviour in order to erect barriers to entry and avoid intense competition. Put it differently, firms in the same strategic group will exhibit mutual dependence in terms of how they react to new entrants.

A large number of empirical studies have examined performance variations between and within strategic groups (Cool & Schendel 1988). In their study of the U.S. pharmaceutical industry, (Cool & Dierickx 1993) investigated between and within group rivalry as an intermediate link between strategic group membership and firm performance. They observed that while strategic distances between rival pharmaceutical firms remain stable over time, there was a repositioning of strategic groups (Cool *et al.* 1993). In the same empirical context, Bogner, Thomas and McGee (1996) illustrate the importance of resources stock on effectively accessing new markets. They conclude that a correlation exist between firm profitability and group membership. Furthermore, Nair and Filer (2003) empirically illustrate that strategic group membership is associated with strategic interaction among strategic group members. They more specifically suggest that intragroup variation on firm-specific strategies diminish over time. In their empirical investigation of heterogeneity within strategic groups, McNamara, Deephouse and Luce (2003) find evidence that performance differences are greater within strategic groups than across them. They further suggest that loosely-aligned firms (secondary firms) within a group outperform tightly aligned firms (core firms) and strategically unique firms (solitary firms). Despite the extensive empirical efforts on strategic group theory, scholars have suggested that there is no conclusive empirical evidence to support a direct relationship between strategic group membership and firm performance (e.g. Cool *et al.* 1993).

Given intensive criticism on the validity of strategic group theory, strategy scholars have spent considerable efforts on empirically investigating how firm-specific effects drive firm behavior and result in performance variations (Bowen & Wiersema 1999). Most importantly, the early works of Wernerfelt (1984), Barney (1991), and Peteraf (1993) have formulated the resource-based view of the firm (RBV), what is now known to be the most popular theoretical framework in the strategic management field (Armstrong & Shimizu 2007; Barney 2001). Arguably, the RBV has been able to offer a stronger explanation of interfirm heterogeneity and competitive advantage (Short, Ketchen, Palmer, & Hult 2007). Moving away from microeconomic theory (especially IO), the



firm, in this case, is a seeker of costly-to-copy inputs (Conner 1991), and thus earns superior profits due to resource position barriers (Wernerfelt 1984). Simply, firms are seen as an administrative framework of resources that are costly-to-copy, hard to imitate, and cannot be perfectly substituted (Barney 1991; Penrose & Slater 1959). In turn, firms gain a competitive advantage over their rivals by implementing strategies based on such idiosyncratic resources. While competitive advantage does not always imply the appropriation of economic rents (Collis & Montgomery 1995), idiosyncratic resources hold rent-generating potential (Peteraf 1993). The RBV sees firm strategic behaviour as very much directed by idiosyncratic resources. The firm's ultimate strategic goal is to move away from competition by differentiating from its competitors. A vast amount of empirical research examines the link between resources and performance variations among competing firms. While it is empirically challenging to test the theoretical premises of the RBV (Priem & Butler 2001), scholars have shown that a wide range of idiosyncratic resources can contribute to competitive advantage (Crook, Ketchen, Combs, & Todd 2008).

Conclusion

This report aims to provide a brief discussion on the concept of strategic behaviour (firm strategy) and its relation with competition. While this report cannot cover the vast amount of research concerned with strategic behaviour both in microeconomics and in strategic management fields, it provides a dense description of relevant literature. An important takeaway message is that strategic management scholars have long viewed firm strategic behaviour as a result of firm-specific attributes (for example idiosyncratic resources) rather than an outcome of market structure. Latest development of economics, especially in the economics of industrial organization, have moved away from neoclassical economic theory and employed game-theoretic models to understand firm strategic behaviour in several industrial contexts. After all, in today's hypercompetitive environments firms do not compete only on quantity and price but in several other dimensions such as technology and R&D.



References

Ansoff, H. (1987). 'The emerging paradigm of strategic behavior', *Strategic Management Journal*, 8: 501-515.

Armstrong, C. E., & Shimizu, K. (2007). 'A Review of Approaches to Empirical Research on the Resource-Based View of the Firm'. *Journal of Management*, 33(6): 959-986.

Barney, J. (1991). 'Firm Resources and Sustained Competitive Advantage'. *Journal of Management*, 17(1): 99.

Barney, J. B. (2001). 'Os the resource-based 'view' a useful perspective for strategic management research? Yes'. *Academy of Management Review*, 26(1): 41.

Baum, J. A. C., & Korn, H. J. (1996). 'Competitive dynamics of interfirm rivalry'. *Academy of Management Journal*, 39(2): 255.

Bogner, W. C., Thomas, H., & McGee, J. (1996). 'A Longitudinal Study of the Competitive Positions and Entry Paths of European Firms in the U.S. Pharmaceutical Market'. *Strategic Management Journal*, 17(2): 85.

Bowen, H. P., & Wiersema, M. F. 1999. 'Matching method to paradigm in strategy research: Limitations of cross-sectional analysis and some..'. *Strategic Management Journal*, 20(7): 625-636.

Caves, R. E., & Porter, M. E. (1977). 'From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competition'. *Quarterly Journal of Economics*, 91(2): 241.

Collis, D., & Montgomery, C. (1995). 'Competing on resources: how do you create and sustain a profitable strategy', *Harvard Business Review*, 73: 118-128.

Conner, K. R. (1991). 'A Historical Comparison of Resource-Based Theory and Five Schools of Thought Within Industrial Organization Economics: Do We Have a New Theory of the Firm?' *Journal of Management*, 17(1): 121.

Cool, K., & Dierickx, I. (1993). 'Rivalry, Strategic Groups and Firm Profitability', *Strategic Management Journal*, 14(1): 47.

Cool, K., & Schendel, D. (1988). 'Performance Differences among Strategic Group Members', *Strategic Management Journal*, 9(3): 207.



Crook, T. R., Ketchen, J. D. J., Combs, J. G., & Todd, S. Y. (2008). 'Strategic resources and performance: a meta-analysis', *Strategic Management Journal*, 29(11): 1141-1154.

Foster, J., & Metcalfe, J. S. (2001). *Frontiers of evolutionary economics: competition, self-organization, and innovation policy*, Edward Elgar.

Gabszewicz, J. J. (1999). *Strategic interaction and markets*, Oxford University Press.

Holmstrom, B., & Tirole, J. (2000). 'The theory of the firm'. *The Theory of the Firm: Critical Perspectives on Business and Management*, 148.

Hoopes, D. G., Hadsen, T. L., & Walker, G. (2003). Guest Editors' Introduction to the Special Issue: Why is there a Resource-Based View? Toward a Theory of Competitive Heterogeneity. *Strategic Management Journal*, 24(10): 889.

Hunt, M. S. (1972). *Competition in the major home appliance industry, 1960-1970*. Cambridge, MA: Harvard University Press.

Nair, A., & Filer, L. (2003). Cointegration of Firm Strategies within Groups: a Long Run Analysis of Firm Behavior in the Japanese Steel Industry. *Strategic Management Journal*, 24(2): 145.

Nelson, R. (1991). 'Why do firms differ, and how does it matter?' *Strategic Management Journal*, 12.

Penrose, E., & Slater, M. (1959). *The Theory of the Growth of the Firm*: Blackwell Oxford.

Peteraf, A. M. (1993). 'The Cornerstones of Competitive Advantage: A Resource-Based View'. *Strategic Management Journal*, 14(3): 179.

Porter, M. E. (1979). 'The Structure within Industries and Companies Performance'. *Review of Economics & Statistics*, 61(2): 214.

Priem, R. L., & Butler, J. E. (2001). 'Is the Resource-Based "View" a Useful Perspective for Strategic Management Research?', *The Academy of Management Review*, 26(1): 22-40.

Rumelt, R. P., Schendel, D., & Teece, D. (1994). 'Fundamental Issues in Strategy'. In R. P. Rumelt, D. Schendel, & D. Teece (Eds.), *Fundamental Issues in Strategy: A Research Agenda*. Boston, MA: Harvard Business School Press.

Shapiro, C. (1989). 'Theories of oligopoly behavior', in R. Schmalensee and R. Willig (Eds.) *Handbook of Industrial Organization*. Elsevier North-Holland, Amsterdam.



Short, J. C., Ketchen, D. J., Palmer, T. B., & Hult, T. M. (2007). 'Firm, strategic group, and industry influences on performance', *Strategic Management Journal*, 28(2): 147-167.

Wernerfelt, B. (1984). 'A resource-based view of the firm'. *Strategic Management Journal*, 5(2): 171.

Wilkinson, N. (2005). *Managerial economics: a problem-solving approach*. Cambridge University Press.

Young, G., Smith, K. G., Grimm, C. M., & Simon, D. (2000). 'Multimarket Contact and Resource Dissimilarity: A Competitive Dynamics Perspective'. *Journal of Management*, 26(6): 1217.