Market Structure and the Multinational Enterprise: A Game-theoretic Approach

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Since at least the late 1950s, it has been recognized that multinational enterprises operate in imperfect markets characterized by oligopoly. The dominant “transactions-cost” theory of multinational enterprises does not wholly account for why this is so. The reductio ad absurdum of this theory would predict imperfect markets to be sure, but they would be monopolistic rather than oligopolistic. In this article, a simple model based on noncooperative game theory shows how oligopolistic markets can evolve from monopolistic ones. Also shown is that it is neither necessary nor sufficient that a firm have lower costs than its rivals in order to have an incentive to become multinational.

INTRODUCTION

Chapter 4 of Multinational Enterprise and Economic Analysis, second edition (Caves, 1996), is entitled “Patterns of Market Competition.” This second edition serves as a useful survey of contributions to the literature on multinational enterprises (MNEs) that have appeared since the first edition of the same book (Caves, 1982). Caves emphasizes, in his preface, the need to review “significant new theoretical contributions” in a number of areas. Thus, what is perhaps surprising about chapter 4 is that no reference is made to recent articles in the literature attempting to apply the “new” theories of industrial organization to the behavior of MNEs. These new theories are, in turn, largely driven by applications of game theory (see, e.g., the introduction to Tirole, 1988).

Admittedly, there is a rather small number of applications of the new industrial organization to multinational behavior. Virtually all of these have appeared after 1989; the vast majority (over 90%) of the references in Caves are to articles that appeared prior to 1989. Some of the recent items include Graham (1990) and Veugelers (1995). Incomplete reviews are contained in Onida (1995) and Graham (1996). But, although this literature might be, in terms of number of articles published, a small one, it is important nonetheless. In fact, the “new” theories of industrial organization largely underpin the

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"new" theories of international trade (on this, see the introduction to Krugman, 1990) which have led to substantial rethinking about this important subject.\(^1\) Given both the importance of MNEs and the historic relevance of concepts from industrial organization to explaining the existence and behavior of these firms (e.g., the much-cited Ph.D. dissertation of Stephen Hymer, written during the late 1950s, but published as Hymer, (1976), it is perhaps surprising – and even dismaying – that so little effort has been made to rethinking MNE behavior in light of new theory. The present article, therefore, rethinks key issues about the behavior of MNEs using concepts from the new theories of industrial organization based on cooperative game theory.

As stressed by Hymer (and by Caves himself in the opening paragraphs of chapter 4), the MNE is prevalent in markets where sellers are concentrated, i.e., where the necessary conditions for "perfect competition" apparently do not exist. In such markets, sellers are not "price takers"; rather, the actions of individual sellers can affect price and, importantly, because this applies in most cases to more than one seller, the actions of each seller can affect the outcome. An important implication is that the "best response" of each seller is conditional upon the actions of other sellers. Hence, in determining what should be its actions, each seller will take into account the likely response of other sellers.

This strategic interdependence is of critical importance in understanding the dynamics of competition among MNEs, but it is almost wholly absent in the "transactions-cost" approach to explaining MNE behavior that has so dominated the literature of international business during the past two decades. This approach asserts, in the words of Caves in chapter 1, "that horizontal MNEs will exist only if the plants they own and operate attain lower costs or higher revenue productivity than the same plants under separate management."\(^2\) But, as will be explained in the next section of this article, under a "new" industrial organization approach, this condition simply is not necessary for a firm to become multinational nor, indeed, is it a sufficient condition. In fact, early empirical work by Knickerbocker (1973) would suggest that competing firms in major industries tend to make foreign direct investments (FDI) in lock step. Not all competing firms can have costs lower than their rivals simultaneously, and hence Knickerbocker's empirical observations should cast aspersion on the strict necessity of lower transaction costs as a prerequisite for multinational investment.

It is precisely such markets that industrial organization – whether "new" or "old" – addresses. As noted in the opening paragraph, the area in which the "new" theories of industrial organization differ from the "old" is mostly in the use of concepts derived from game theory. Game theory attempts to explain the behavior of "players," where the optimal moves of these players depend critically upon the moves taken by other players. Of particular relevance is "non-cooperative" game theory, wherein it is assumed that each player will maximize its own interests, as opposed to the collective interests of a group of players. It is not ruled out, however, that these interests might coincide: an individual player might in fact cooperate with other players. If, however, this happens, it is because the player chooses to cooperate out of self-interest, rather than