

Information-processing demands and the multinational enterprise: a comparison of foreign and domestic earnings estimates

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Abstract

We examine the information-processing demands top managers of the multinational enterprise (MNE) deal with in their portfolio of international operations by comparing the accuracy of foreign and domestic earnings estimates. Results indicate that the increase in information-processing demands is due to the complexity of managing foreign operations of the MNE. We also find greater information processing demands in foreign operations for managers of smaller multinational firms, firms with relatively low performance, and firms with lower levels of intangible assets. We use these results to develop implications for information-processing theory and practice.

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1. Introduction

When economic activities are internalized in the international environment, one of the most important costs multinational enterprises (MNEs) face is their increased communication cost (Buckley and Casson, 1976). The much greater communication cost in the internalized market is due to an increased flow of accounting and control information, the requirements of confidentiality of firm specific information, and the importance of checking information through expensive on-the-spot visits. However, obtaining accurate information about business activities may lead to enhanced firm value through better managerial decisions and thus researchers from different theoretical perspectives have considered information processing as an underlying factor in their theoretical models (e.g., Egelhoff, 1991; Henderson and Fredrickson, 1996; Madhavan and Prescott, 1995).

Prior studies have noted that information-processing demands for managers, the requirement to gather and transform data into information, and the communication and storage of information (Galbraith, 1973) may increase

in the international environment for several reasons (e.g., Ghoshal et al., 1994; Hansen, 2002; Schulz, 2001). For one, dissimilarities in language and the business environment contribute significantly to the increased demand of information processing. Distance between regions and discrimination by local governments against MNEs also raise the importance of information processing. In addition to external factors, the ability of the MNE's management to manage multiplant corporate accounting is central from the information-processing perspective (Birkinshaw et al., 2001; Buckley and Casson, 1976).

A body of prior research emphasized the cognitive element of information processing in the international context and studied a wide range of factors that may be relevant for MNE management. Information-processing demands are presented in these studies in line with general cognitive abilities of managers to make strategic decisions when influenced by different environmental conditions or organizational contexts (Wood and Bandura, 1989). For example, research considered information-processing demands as central factors in the design of efficient MNE organizations (Wolf, 1997). Other recent studies (e.g., Birkinshaw et al., 2001; Wolf and Egelhoff, 2002) offered organizational solutions to improve information processing in MNEs. However, prior research did not focus on where increased information-processing demands emerge in MNEs. Meanwhile, other studies in this area indicated the importance of

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this inquiry by showing the relevance of improved information processing for MNE strategies and performance. Along this line, the role of information processing has been demonstrated in knowledge acquisitions (Hansen, 2002; Schulz, 2001) and in strategic implementation (Kim and Mauborgne, 1995).

Managers may enhance MNE strategies and performance by identifying the sources and conditions of increased information-processing needs. Past academic literature, however, provided limited assistance in these directions. Most prior studies linked high information-processing demands with overall organizational complexity and high costs of bureaucratic coordination in MNEs. Although increasing organizational complexity is a constant managerial challenge, we suggest that the sources of increased information processing within the MNE should be identified and thus the way top managers perceive the MNE's portfolio of operations is relevant for research. For instance, managers can mobilize resources (e.g., information technology, experts) to areas with high information-processing needs, such as foreign subsidiary operations. It is likely that international environments in particular represent uncertain business conditions that managers can find difficult to navigate through and in which they may make erroneous predictions about business operations. This study makes steps in these directions by examining which component of the MNE's operations (domestic or foreign) leads to greater information-processing demands for top managers.

Beyond the source of increased information-processing demands in MNEs, we examine organizational contexts that may significantly affect managers' perception and thereby may alter strategic actions in the MNE. Limited empirical evidence in domestic settings indicates that certain environmental and organizational contexts influence information processing and, through managerial decisions, firms' strategies (Madhavan and Prescott, 1995; Haunschild and Miner, 1997). Organizational characteristics should be even more relevant for the information processing in MNEs. Managers of large multinationals, for instance, may have access to expertise on uncertain foreign markets. Therefore, we examine important organizational moderators, such as MNE size, performance, and the level of intangible assets from the perspective of information-processing theory.

To investigate the information-processing demands for the MNE's management, we rely on the estimates of leading financial analysts obtained directly from top managers of the MNE. Prior studies used analysts' estimates as a proxy for the management's forecast of the firm's performance in the domestic context and thus suggested the validity of our approach (e.g., Puffer and Weintrop, 1991; Madhavan and Prescott, 1995; Haunschild and Miner, 1997). Thus, by contrasting the forecast accuracy of earnings in the domestic and foreign businesses within the MNE, we extend prior research and provide a new perspective on information processing in the international context. We begin by developing hypotheses on the information-processing demands of

domestic and foreign operations and the effects of organizational contexts. Next, methods and results are presented. We conclude by providing implications for theory and practice and recommendations for future research.

2. Hypotheses

Managers are faced with high information-processing demands in numerous situations owing to the ambiguity of environmental factors and the complexity of organizational activities (Ungson et al., 1981). Indeed, prior research in domestic settings found that the information-processing requirements are considerably higher for top managers when they manage a complex set of diverse businesses (Haunschild and Miner, 1997). Operating in international markets has been also known to increase significantly the information-processing demands for top managers (Egelhoff, 1991; Hansen, 2002; Kim and Mauborgne, 1995; Roth, 1995). The increased information-processing demands are related to the differences between the domestic and foreign environment, such as governmental regulations, national cultures, market conditions, and customer habits (Birkinshaw et al., 2001; Dunning, 1993). International expansion may also lead to increased information-processing demands because of the more complex organizational forms of MNEs, communication problems, and the increased physical distance between the headquarter and foreign subsidiaries (Roth and O'Donnell, 1996; Wolf, 1997; Wolf and Egelhoff, 2002). Managers will be required to use greater cognitive efforts and incur incremental information search costs to assess their foreign operations (Schulz, 2001). Recent research in the international management area has focused on the effects of increased information processing demands on top management team composition, board structure, CEO compensation (Sanders and Carpenter, 1998), knowledge acquisition (Hansen, 2002), and international diversification strategy (Roth, 1995). Table 1 provides a summary of selected empirical studies and their results on MNEs from the information-processing theory perspective.

Although there is an agreement about the increased information-processing demands for managers in the international environment, little research has focused on the sources of the information-processing needs. Internalization of cross-border production may lead to increased information costs (e.g., Buckley and Casson, 1976) but managers in general are assumed to be involved in international diversification when they have accurate information about their MNE's capabilities and therefore their decisions can lead to higher performance and shareholder value (Caves, 1996).

We propose that, as their firm expands internationally, top managers face higher information-processing demands because of the uncertainties associated with their foreign operations. The core of our hypothesis is that for managers of MNEs, the foreign component of earnings is expected to be more difficult to predict than the domestic component of

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