

DOMESTIC MINDSETS AND EARLY INTERNATIONAL PERFORMANCE: THE MODERATING EFFECT OF GLOBAL INDUSTRY CONDITIONS

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We develop and test a sensemaking model of early internationalization that ties domestic mindsets to international industry conditions and early international performance. Our central contention is that the fit between international industry conditions and domestic mindsets will lead to superior early international performance. We test this contention with a sample of 178 large and established domestic firms from 20 industries. Our results highlight the role of domestic mindsets in the early phases of internationalization and prescribe the types of domestic mindsets needed to maximize early international performance in global, multi-domestic, and transnational industry conditions. Our results also provide valuable insights to top managers of large and established firms on how to reduce the risk of failure and how to successfully prepare for and cope with international environments by matching their domestic mindsets with international industry environments. Copyright © 2010 John Wiley & Sons, Ltd.

INTRODUCTION

Recently, there has been a shift in the internationalization literature, from the strategic (e.g., diversification), structural (e.g., centralization and divisionalization procedures), and resource-based (e.g., firm size, reputation, R&D intensity) explanations of international outcomes to *sensemaking theories* (Caproni, Lenway, and Murtha, 1992; Kobrin,

1994; Levy, Beechler, Taylor, and Boyacigiller, 2007; Sapienza, Autio, George, and Zahra, 2006; Vermeulen and Barkema, 2001), which contend that a firm's success in international markets is tied to managerial *mindsets*—the lens through which top managers view the environment and make decisions. These studies underscore the role of managerial sensemaking in effective international adjustments (Bartlett and Ghoshal, 1989; Black, Mendenhall, and Oddou, 1991), in efficient adaptation to international environments (Caproni *et al.*, 1992; Kobrin, 1994), in effective learning through acquisitions (Vermeulen and Barkema, 2001), and in surviving the early phases of internationalization (Sapienza *et al.*, 2006).

Keywords: Sensemaking; mindsets; internationalization; global industry conditions; international performance and managerial cognition

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Despite its importance, several gaps persist in research on sensemaking in internationalization. First, few internationalization studies (theoretical or empirical) have prescribed the *type of managerial mindsets* needed to succeed in specific international environments. Such prescriptive, environment-specific studies are needed to better understand and clarify the performance implications of sensemaking in internationalization. Second, studies examining the role of sensemaking in *early* international outcomes are rare. This gap is enduring because early phases impose some of the greatest sensemaking challenges on top managers in learning about and adapting to complex international environments, which increase the risk of failure for newly internationalizing firms (Sapienza *et al.*, 2006). Thus, the sensemaking processes that top managers of domestic firms use in the early phases may be critical for the success of their early international activities. Finally, the literature has ignored the role of *domestic mindsets* in internationalization. Recent studies have hinted that due to lack of international experience, domestic mindsets of top managers are likely to guide their early international activities and outcomes by either allowing top managers to effectively leverage domestic knowledge in foreign markets or by creating strong inertia that can inhibit their understanding of new foreign markets (Andersen, 1993; Nadkarni and Perez, 2007; Vermeulen and Barkema, 2001).

We address these important gaps by developing and testing an integrated sensemaking model of early internationalization that ties domestic mindsets of top managers to international industry conditions and early international performance. We theorize that the international industries (global, multidomestic, and transnational) impose different sensemaking challenges on top managers of newly internationalizing firms. The *fit* between the international industry conditions and domestic mindset of top managers will maximize early international performance. We test this contention with a sample of 178 large and established domestic firms from 20 industries. Our results are prescriptive and shed new light on the type of domestic mindsets of top managers that are effective and ineffective for early internationalization in global, multidomestic, and transnational industries. Theoretically, our results extend previous literature in two ways. First, our results suggest that the *fit* between the type of domestic mindsets and the international industry

conditions results in superior performance and prescribe the *types of domestic mindsets* needed to maximize performance in global, multi-domestic, and transnational industry conditions. Second, our results highlight the role of *domestic mindsets* in the early phases of internationalization. Moreover, our results inform top managers of large and established firms on how to reduce the risks of failures and how to successfully prepare for and cope with international environments by matching their domestic mindsets with the international industry environments.

THEORY DEVELOPMENT AND HYPOTHESES

Sensemaking model of early internationalization

Our sensemaking model of early internationalization, shown in Figure 1, is rooted in the sensemaking literature in organization studies and international business. Central to this model is the *domestic mindset*¹. Domestic mindsets refer to *top managers' world view or conceptualization of the business before starting any international activities that is based on their experiences in domestic industries* (Andersen, 1993; Nadkarni and Perez, 2007). As top managers expand their firms beyond domestic markets, they are likely to encounter a greater diversity of cultures, customers, competitors, and regulations, which increases the volume, variety, and disunity of information that top managers must process. Without experiential knowledge about foreign markets, these top managers are likely to use domestic mindsets as “reference points” (Jeannet, 1999), as “cognitive filters” (Gupta and Govindarajan, 2002) or as “knowledge repertoires” (Vermeulen and Barkema, 2001) for

¹ Following organizational interpretation (Daft and Weick, 1984), strategic choice (Child, 1972), and upper echelon (Finkelstein and Hambrick, 1996) views and recent internationalization studies (Carpenter and Sanders, 2004), we focus on the mindsets of top managers. Top managers reside at the strategic apex of the firm (Daft and Weick, 1984; Finkelstein and Hambrick, 1996) and play the critical role of integrating international and domestic operations in the best interest of the firm, tying its early international activities to its existing resources, capabilities, and strategies (Carpenter and Sanders, 2004). Even if most international initiatives were to originate from lower levels, top managers choose among the various initiatives (Finkelstein and Hambrick, 1996), because an overriding firm objective is unwavering maximization of overall corporate success, especially in early international efforts.

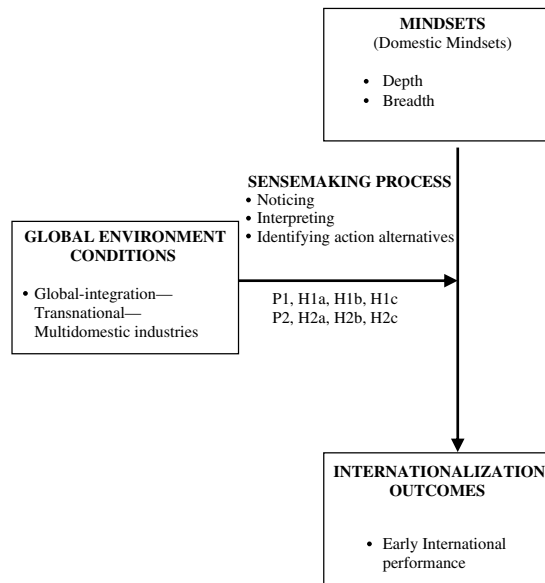


Figure 1. Theoretical Model of Sensemaking in Internationalization

making judgments about foreign markets. Thus, the ability of top managers to make sense of complex international stimuli is likely to be closely tied to their *domestic mindsets* (Carpenter and Sanders, 2004).

Organizational sensemaking literature suggests that mindsets of top managers influence actions through three sensemaking mechanisms—*noticing*, *interpreting*, and *identifying appropriate actions* (Bogner and Barr, 2000; Daft and Weick, 1984; Lyles and Schwenk, 1992; Kaplan, 2008; Nadkarni and Narayanan, 2007; Prahalad and Bettis, 1986; Weick, 1995). Accordingly, we suggest that domestic mindsets of top managers are likely to make some international environmental stimuli more salient than others and influence which aspects of the international environment top managers *notice* and attend to, and which aspects they selectively ignore (Caproni *et al.*, 1992; Prahalad and Doz, 1987). Domestic mindsets may also affect how top managers *interpret* the noticed international environmental stimuli in terms of what each stimulus means, whether it is an opportunity or a threat, how it affects the firm's strategy, whether there is a need to respond quickly to the stimulus, and so on. Managerial interpretation forms the basis for choosing internationalization *actions* that are appropriate responses to international events and implementing these actions. Thus, as shown in

Figure 1, domestic mindsets are likely to guide which international markets top managers choose in their early internationalization efforts. For example, Nadkarni and Perez (2007) found that domestic mindsets influenced early internationalization choices made by top managers of newly internationalizing firms.

The ability to make sense of complex information has been tied to two facets of mindsets—*breadth* and *depth* (De Bono, 1968; Turner, Bettis, and Burton, 2002; Zahra, Ireland, and Hitt, 2000). *Breadth*, also called relational or horizontal complexity, reflects diversity and heterogeneity of viewpoints embedded in a mindset. Broad mindsets accommodate multiple and varied dominant logics and world views (Fiol, 1995; Prahalad and Bettis, 1986; Vermeulen and Barkema, 2001). *Depth*, also referred to as cognitive or vertical complexity, represents the level of expertise, sophistication, and specialization within a single dominant logic (Fiol, 1995; Zahra *et al.*, 2000). De Bono (1968) used the analogy of the digging of holes to explain depth and breadth; breadth refers to digging a new hole elsewhere, whereas depth refers to digging the same hole deeper.

Breadth and depth promote different types of sensemaking mechanisms (Daft and Weick, 1984; Keisler and Sproull, 1982; Lyles and Schwenk, 1992). Broad mindsets reduce reliance on existing

knowledge and foster creation of new situation-specific knowledge (Vermeulen and Barkema, 2001) through *adaptive* sensemaking (Bogner and Barr, 2000). They allow top managers to notice and accommodate remote environmental concepts and trends, to develop new interpretations of noticed stimuli, and to develop a new repertoire containing a broad range of actions (Keisler and Sproull, 1982; Kaplan, 2008; Lant, Milliken, and Batra, 1992; Vermeulen and Barkema, 2001). Using breadth, top managers experiment with new strategies and simultaneously develop many simple but heterogeneous strategies and routines. Thus, broad mindsets instill variety rather than detail and sophistication.

Depth-oriented mindsets promote *path dependent* sensemaking in which top managers attempt to fit new stimuli into their existing mindsets (Keisler and Sproull, 1982; Lyles and Schwenk, 1992) and exploit existing knowledge bases (March, 1991). Path dependency promotes filtering of new information by focusing on tried-and-true strategies and developing detailed and sophisticated interpretations of these known concepts over time. As top managers increase the competence and sophistication of their existing knowledge through repeated interpretation and use, the advantages of exploiting this knowledge base cumulate (March, 1991). Thus, rather than significantly changing their mindsets by noticing and interpreting new and remote information, top managers make sense of new situations in the context of few but deeply held, detailed, and sophisticated concepts in their mindsets.

Studies in managerial cognition suggest an inverted U relationship between depth and breadth (Clarke and Mackaness, 2001; Eden, Ackermann, and Cropper, 1992; Lurigio and Carroll, 1985). Decision makers can accommodate both depth and breadth in their mindsets up to a moderate degree. However, very deeply held mindsets create a focus around a few extensively used, elaborated and well-honed concepts, which filters out new information that is inconsistent with these concepts. Over time, such path dependent sensemaking restricts incorporation of new, varied and remote information, thus restricting the breadth of mindsets (Bogner and Barr, 2000). Similarly, very broad mindsets evoke horizontal complexity through continuous creation of new and diverse knowledge categories. This constricts the level of sophistication and detail of existing

concepts needed for very deep mindsets (Lurigio and Carroll, 1985). Therefore, mindsets with high depth and high breadth are likely to be rare.

As top managers continuously make sense of and interact with their environment, over time they get embedded in these industries and the industry contexts create sensemaking challenges and contingencies for top managers of incumbent firms (Daft and Weick, 1984; Keisler and Sproull, 1982; Nadkarni and Barr, 2008). Therefore, the influence of depth and breadth on performance outcomes is not universal; rather, it is the result of the fit between mindsets and the environmental contexts chosen by the top managers (Bogner and Barr, 2000; Daft and Weick, 1984; Keisler and Sproull, 1982; Nadkarni and Narayanan, 2007). Ample theoretical and empirical evidence supports this fit contention. For example, Bogner and Barr (2000) argued that broad mindsets would be needed to successfully make sense of and cope with hypercompetitive environments, whereas narrow mindsets would likely be functional in stable environments but dysfunctional in hypercompetitive environments. In their empirical study, Nadkarni and Narayanan (2007) found that broad and complex mindsets fostered strategic flexibility and superior performance in fast changing industries, whereas focused and depth-oriented mindsets led to superior performance in slow changing industries.

In internationalization, Zahra *et al.* (2000) found that both breadth and depth affected new international venture performance positively; however, their study was conducted within a single environmental condition—high technology environment—and therefore did not consider the role of different international environments. Caproni *et al.* (1992) are the only international scholars to recognize the role of international industry conditions in theorizing the relationship between breadth of mindsets and international performance. They theorized that firms with broad managerial mindsets would outperform firms with narrow managerial mindsets in multidomestic environments, whereas firms with narrow managerial mindsets will outperform firms with broad mindsets in global environments. However, they do not articulate the specific sensemaking mechanisms underlying these relationships. Moreover, Caproni *et al.* (1992) did not address depth of mindsets. Collectively, extant research suggests that breadth and depth are likely

to influence performance outcomes and that this relationship is likely to be moderated by industry conditions. Thus, we hypothesize that the influence of depth and breadth of domestic mindsets on early international performance will be moderated by international industry conditions.

Hypotheses

We use the integration-responsiveness (IR) framework to classify international industries into *global*, *multidomestic*, and *transnational* (Birkinshaw, Morrison, and Hülland, 1995; Roth and Morrison, 1992). This framework has been most influential and widely used in international business (IB) research to conceptualize international contingencies and has accounted for significant variation in international industries (Prahalad and Doz, 1987; Venaik, Midgley, and Devinney, 2004; Zhou and Cavusgil, 2002).

Global industries have standardized and uniform markets with a high potential for economies of scale. Top managers from these industries need to develop *global integration* by building efficient operations networks, coordinating global operations, and exploiting similarities across international locations (Bartlett and Ghoshal, 1989; Kobrin, 1991; Roth and Morrison, 1992). In contrast, *multidomestic* industries have diverse and fragmented markets that offer few opportunities for economies of scale. Thus, top managers from these industries need to foster *local responsiveness* by differentiating foreign strategies and responding to the specific needs of each foreign market (Bartlett and Ghoshal, 1989; Kobrin, 1991; Roth and Morrison, 1992).

Transnational industries offer opportunities for global integration and economies of scale in some areas (e.g., manufacturing), but require local responsiveness in other areas (e.g., marketing and distribution). Success in transnational industries requires *balancing of global integration with local responsiveness* (Bartlett and Ghoshal, 1987, 1989; Kobrin, 1991, 1994; Tallman, 1991; Tallman and Fladmoe-Lindquist, 2002). Thus, global, multidomestic, and transnational industries pose different challenges to top managers of newly internationalizing firms. To succeed in each context, top managers need to follow different strategies and logics. Consequently, we expect breadth and depth to relate differently to early international performance in the three industry conditions.

Breadth

Multidomestic industries impose high levels of variety and novelty on top managers, as consumer demands and preferences, competitive structures, and government rules are unique to each international market (Carpano, Chrisman, and Roth, 1994; Roth and Morrison, 1992). Making sense of such varied, fragmented, and novel stimuli by use of a narrow mindset can evoke the *discounting* bias in noticing and interpreting environmental information. In the discounting bias, top managers oversimplify their environments and fail to notice important environmental stimuli because of the gap between their narrow mindsets and the actual environment (Bogner and Barr, 2000; Keisler and Sproull, 1982; Nadkarni and Narayanan, 2007). Such discounting of relevant strategic stimuli creates blind spots in decision making and inhibits effective environmental adaptation, which in turn adversely influences strategic outcomes (Bogner and Barr, 2000). Adaptive sensemaking promoted by broad mindsets allows top managers to notice more varied, novel, and remote stimuli that are inconsistent with existing mindsets (Keisler and Sproull, 1982; Weick, 1995). Broad mindsets also facilitate creation of new situation-specific knowledge that is central to developing new interpretations of noticed stimuli and to generating a broad set of action responses (Bogner and Barr, 2000; Nadkarni and Narayanan, 2007). This suggests that top managers with broad domestic mindsets can avoid the discounting bias and effectively implement local adaptation in multidomestic environments by noticing and interpreting critical differences between domestic and foreign markets and by undertaking a broad range of differentiated and unique action responses that vary across different local international markets. In contrast, top managers with narrow mindsets may fail to notice critical differences between domestic and diverse foreign markets and may misinterpret foreign markets, which is likely to hinder effective local adaptation (Eriksson, Johanson, Majkgård, and Sharma, 1997; Liesch and Knight, 1999).

Global industries are standardized, uniform, and predictable, and they offer ample opportunities for economies of scale by exploiting synergies with existing strategies (Birkinshaw, *et al.*, 1995). In such environments, characterized by low variety and novelty, the likelihood of discounting bias is very low (Bogner and Barr, 2000). The use

of broad mindsets in making sense of such uniform and standardized environments can evoke *the illusory perception* bias, in which top managers notice distinctions and stimuli that do not actually exist in the environment (Keisler and Sproull, 1982). Broad mindsets contain much more variety than the actual environments and this excess variety can prompt top managers to complicate relatively uniform and predictable environments. Consequently, top managers may notice complex and varied stimuli that do not actually exist. These illusory perceptions of the environment can lead to misinterpretations and inappropriate responses (Keisler and Sproull, 1982; Nadkarni and Narayanan, 2007). This is likely to inhibit global integration and tight coordination between domestic and international strategies, which is a prerequisite for success in global industries (Birkinshaw *et al.*, 1995). Thus, broad mindsets are likely to be dysfunctional in global environments.

In transnational industries, a high level of breadth will inhibit the global integration needed in some areas by creating excessive variety in sense-making and evoking the illusory explanation bias. A low level of breadth will inhibit local adaptation needed in other areas by promoting the discounting bias. A *moderate* level of breadth will maximize early international performance by allowing top managers to integrate global operations in some areas, while providing the flexibility needed to customize other activities to local markets.

Proposition 1: International industry conditions will moderate the relationship between breadth of domestic mindsets and early international performance.

Hypothesis 1a: Breadth of domestic mindset will be positively related to early international performance in multidomestic industries.

Hypothesis 1b: Breadth of domestic mindset will be negatively related to early international performance in global industries.

Hypothesis 1c: Breadth of domestic mindset will have an inverted-U relationship with early international performance in transnational industries.

Depth

Because of the uniformity and standardization of global industries (Golden, 1992; Morrison and Roth, 1992; Roth and Morrison, 1992), top managers of newly internationalizing firms can effectively achieve global integration, economies of scale, and synergies using path dependent sense-making associated with deep mindsets. Using deep mindsets, top managers can effectively notice important distinctions between domestic and foreign markets and correctly interpret these noticed stimuli without evoking the discounting or the illusory perception bias. This is because the uniformity and predictability of the globally integrated industries allow newly internationalizing firms to generalize their cumulative, sophisticated and deeply held knowledge categories from their domestic mindsets to foreign markets (Roth and Morrison, 1992). Therefore, depth-oriented mindsets are likely to be effective in global industries.

Multidomestic markets create a need for local responsiveness to specific needs within a variety of host countries and often complex and dynamic market conditions as well as sociopolitical, regulatory, and macroeconomic environments in a host country (Bartlett and Ghoshal, 1989; Golden, 1992; Kobrin, 1991; Morrison and Roth, 1992; Roth and Morrison, 1992). Depth-oriented mindsets lack the variety and flexibility in sensemaking needed for effective local responsiveness. Path dependent sensemaking evoked by deep mindsets is likely to evoke the discounting bias, in which top managers overemphasize the similarities between domestic and foreign markets and fail to notice the critical differences. When managers fail to notice important stimuli such as new competitors, regulations, and technologies, they are likely to develop incorrect interpretations of the foreign markets and initiate inappropriate responses (Nadkarni and Perez, 2007). Therefore, depth-oriented domestic mindsets may inhibit early international performance in multidomestic industries.

In transnational industries, either a high level or a low level of depth will inhibit early international performance. A high level of depth will inhibit local adaptation needed in some areas of transnational industries as top managers discount critical distinctions in foreign markets across some dimensions. A very low level of depth will lack the sophistication and detail needed to leverage existing knowledge bases and exploit synergies

across international markets across some specific dimensions. This will inhibit effective global integration in some areas. A *medium* level of depth will maximize early international performance by allowing top managers to balance the sophistication and detail needed for international operations in some areas, without evoking discounting bias that can inhibit local responsiveness needed in other areas.

Proposition 2: International industry conditions will moderate the relationship between depth of domestic minds and early international performance.

Hypothesis 2a: Depth of domestic mindset will be positively related to early international performance in global industries.

Hypothesis 2b: Depth of domestic mindset will be negatively related to early international performance in multidomestic industries.

Hypothesis 2c: Depth of domestic mindset will have an inverted-U relationship with early international performance in transnational industries.

METHODS

Sample

The role of domestic mindsets in early internationalization is likely to be more prominent for larger and older firms than for small and medium-sized enterprises (SMEs) and born-global firms, in which top managers do not hold strong and well developed domestic mindsets because of lack of domestic experience and therefore enjoy the flexibility of learning quickly about foreign markets (Oviatt and McDougall, 1994; Zahra, 2005). In contrast, top managers from large and established firms have extensive domestic experience and strong and well developed domestic mindsets that are likely to dominate early international activities. Thus, domestic mindsets may be less relevant to early internationalization for born globals and SMEs than for large, established domestic firms.

To select firms from our population of interest—*large and established domestic firms*², we chose the year 1990, which helped us minimize the selection bias by offering a diverse and representative pool of established firms with no international operations. 1990 marked the beginning of an economic recession in the U.S. (U.S. Department of Commerce, 1994), which limited opportunities for domestic expansion and spurred international activities (Chen and Martin, 2001). From 1990 to 1993, there were sharp increases in international trade, finance, and investment as firms in all industries experienced pressures to internationalize.

Three factors guided our choice of firms in 1990. First, we chose large firms with sales of at least \$100 million (Miller and Chen, 1996) that were at least 10 years old (incorporated before 1980). Strategy studies have underscored that relationships between industry characteristics and individual firm behavior are likely to be most pronounced for the large, principal firms in an industry (Rajagopalan and Datta, 1996). Moreover, top managers of firms that are at least 10 years old have well-developed cognition (Barr, 1998). Second, we chose domestic firms from 1990 that initiated international activities between 1990 and 1993. As most strategic-change researchers employ three- to four-year time spans for strategic plans to be realized (Fombrun and Ginsberg, 1990), we picked three years as a reasonable time span for international decisions made in 1990 to yield results. Finally, we chose single-business firms (firms deriving 70 percent of their sales revenues from the primary 4-digit SIC segment) (Herrmann and Datta, 2002), because the effects of industry variables on the relationships of mindsets can be more directly assessed for nondiversified firms (Nadkarni and Barr, 2008). These criteria yielded 178 U.S. firms in 20 manufacturing and service sector industries from the COMPUSTAT database (shown in Appendix I), ranging from primarily multidomestic to transnational and global.

We tested whether excluding diversified firms and firms that internationalized before 1990 or after 1993 created a selection bias in our sample. First, we used the unpaired t test to compare our sample means with the means of excluded firms for a wide range of relevant variables (Winship

² Domestic firms refer to firms with no international operations (e.g., exports, joint ventures, licensing, or FDI).

and Mare, 1992), including demographic (firm size and age), strategy (capital intensity, R&D intensity, and advertising intensity), firm performance (sales growth, operating growth, and ROI growth), and early international performance (foreign sales growth, foreign operating profit goals, foreign asset turnover, and operational risk). There were no differences in these variables between our sample and the excluded firms. Second, we used Heckman's (1979) two-step residual procedure to estimate selection bias statistics resulting from the excluded firms. The rho (B: 0.14, SE: 0.09, n.s.), sigma (B: 0.05, SE: 0.03, n.s.), and Lambda/inverse mill's ratio (B: 0.15, SE: 0.10, n.s.) were insignificant for the selection equations. This suggests that our sample was representative and did not suffer from selection bias.

Data sources for the elicitation of domestic mindsets

Our data source for measuring mindsets is the CEO's letter to shareholders (LTS). LTS is particularly suitable for studies such as the present one that examine historic time frames because it avoids the retrospective bias inherent in interviews that attempt to elicit information from the distant past (Bettman and Weitz, 1983; Golden 1992). LTS are official documents that discuss the strategic themes that top managers believe are important to the firm (Osborne, Stubbart, and Ramaprasad, 2001). Recent work suggests that statements in LTS do not suffer from conscious attempts at impression management; rather, they represent biases in the sensemaking process (Fiol, 1995; Huff and Schwenk, 1990). Thus, we expect statements in LTS to reasonably reflect the beliefs held by top managers from our sampled firms. Despite these strengths of LTS, we empirically addressed three potential biases in the use of LTS, following the procedures developed by Nadkarni and Narayanan (2007): *lack of consistency*, *time lags in reporting*, and *trustworthiness*. We checked the three biases for a randomly drawn subsample of 50 firms from our study sample.

First, we examined consistency in the content of LTS and the content of management's discussion and analysis in the 10-K forms. Unlike LTS, which is addressed to shareholders, 10-K forms are required to be submitted to the security and exchange commission (SEC). A consistency in the two documents intended for different external

stakeholders would indicate inter-source reliability of the content (Nadkarni and Narayanan, 2007). The percentage of common concepts between the two documents ranged from 75 to 89 percent, and the correlations between frequencies of concepts in LTS and 10-K forms ranged from 0.54 ($p < 0.01$) to 0.74 ($p < 0.001$), suggesting satisfactory convergence between the two documents (Carley and Palmquist, 1992).

Second, although LTS is written in the time period of interest, the reporting of adverse strategic events may lag. We checked the time lag in reporting changes in corporate strategy events. None of the 50 firms had more than 15 percent of lagged events in 1990, 1991, and 1992. Thus time lag was not a major issue in LTS for our sample.

Finally, we used two qualitative measures of trustworthiness of strategic disclosure for the 178 sampled firms—*corporate social responsibility (CSR) ratings* (Kinder, Lydenberg, and Domini, 1990; Waddock and Graves, 1997) and *industry analysts' ratings*. CSR reflects the conscientiousness of top managements' interactions with its stakeholders, including stockholders, employees, consumers, and community. Because LTS is a document used to communicate with a firm's stakeholders, LTS of firms with high CSR are likely to be more trustworthy than those of firms with low CSR ratings. None of the 50 firms had a CSR measure (mean of the five attributes) of less than zero, suggesting adequate conscientiousness of the sampled firms in their interactions with their stakeholders. We also asked 22 industry analysts who were familiar with the 20 industries to rate the 178 firms in our sample (each firm was rated by two analysts) for the level of *trustworthiness of information* disclosed in the annual reports on a 5-point scale (1 = Highly untrustworthy and 5 = Highly trustworthy). No firm received a rating of 'Untrustworthy' or 'Highly untrustworthy.' Thus, the final sample for this study consisted of all 178 firms.

Conceptual analysis

We used conceptual or thematic analysis to elicit the number of broad content categories (breadth) and the richness or detail of the content categories (depth) from LTS (Carley and Palmquist, 1992; Lurigio and Carroll, 1985). Conceptual analysis avoids the recall bias that plagues interviews and

provides rigorously collected information about mindsets (Carley and Palmquist, 1992). It has been used to measure the depth and breadth of mindsets (Lurigio and Carroll, 1985) and to assess the content of mindsets from LTS (Kaplan, 2008; Osborne *et al.*, 2001).

We used the two-step procedure suggested by Carley and Palmquist (1992) to develop the conceptual coding scheme. In step one, two raters (not involved in the study) divided the assertions in the LTS into “*information units*” (Lurigio and Carroll, 1985). An information unit is a single statement or an idea (some statements contain multiple ideas). Repetitious phrases conveying the same meaning were counted as one unit. Such generalization of raw phrases in the text minimizes misclassification of information units due to peculiar wording and moves the text beyond explicitly articulated ideas to implied or tacit ideas (Carley and Palmquist, 1992; Lurigio and Carroll, 1985). This analysis yielded 240 distinct information units (Krippendorff’s alpha:0.85).

In step two, we used two criteria to categorize the 240 information units into broad content categories—*theoretical relevance* (Carley and Palmquist, 1992; Fahey and Narayanan, 1989) and *face validity* (Anderson and Gerbing, 1991). Using established theoretical literature ensures that the categories are relevant, distinct, and uniform in scope and abstraction (Carley and Palmquist, 1992; Nadkarni and Barr, 2008). We conducted a thorough literature review to develop a comprehensive set of broad content categories that are relevant to global, multidomestic, and transnational environments. This search yielded 35 content categories in six strategic domains: *environment* (Allred and Steensma, 2005; Morrison and Roth, 1992; Porter, 1986), *competitive actions* (Carpano *et al.*, 1994; Porter, 1986; Roth and Morrison, 1992), *corporate strategies* (Carpenter and Sanders, 2004; Luo, 2007; Prahalad and Doz, 1987), *resources* (Allred and Steensma, 2005; Morrison and Roth, 1993; Porter, 1986), *organizational routines* (Bartlett and Ghoshal, 1989; Tallman, 1991; Tallman and Fladmoe-Lindquist, 2002), and *firm performance* (Herrmann and Datta, 2002). Two raters (not authors) independently categorized the 240 information units into these 35 content categories (Krippendorff’s alpha: 0.82). Disagreements among the raters were resolved through discussion.

We used the sorting technique (Anderson and Gerbing, 1991) to strengthen the face validity of

content categories. Fourteen strategy professors and 22 industry analysts familiar with the 20 industries sorted the 240 information units into the 35 content categories (shown in Appendix II) (Krippendorff’s alpha: 0.89). The theoretical and sorted categories were consistent (Krippendorff’s alpha: 90). We resolved the few inconsistencies through discussions with the professors and analysts, using the majority rule (Carley and Palmquist, 1992). We used the 240 information units and the 35 content categories to measure depth and breadth of domestic mindsets.

Measures

Breadth and depth

We measured breadth by the number of content categories and depth by the average detail or richness of the content categories—the average number of information units (out of 240) in the content categories (Lurigio and Carroll, 1985; Lyles and Schwenk, 1992). We first measured the breadth and depth separately for each strategic domain (environment, corporate strategy, competitive actions, resources and capabilities, organizational routines, and performance). We then created a composite measure by averaging the depth and breadth of the six strategic domains. We also analyzed data by entering the individual depth and breadth of each strategic domain in the regression equations. Because these results were consistent with the more parsimonious primary analyses, we did not report them in the study.

Early international performance

We used multiple performance measures that effectively captured the diverse strategic goals of early internationalization. In internationalization literature, the commonly accepted goals include efficiency, market growth, and risk reduction (Luo, 1998). These criteria yielded four measures of international performance: foreign sales growth, foreign operating profit goals, foreign asset turnover (foreign sales/foreign assets), and operational risk (Luo, 1998).

Following Luo (1998), we used the accounting-based measure of risk because this measure reflects a firm’s operational variability better than the stock-based measure of risk. Accounting-based

risk is commonly measured by the standard deviation of accounting return (e.g., ROA). Standard deviation (or its square, the variance) is a widely-accepted measure of dispersion and hence operational risk. We computed the standard deviations of foreign operating profit growth, foreign sales growth, and asset turnover and then calculated the geometric average of these standard deviations, which can eliminate skewed distribution of scores for observations in a dynamic environment and alleviate the bias that the arithmetic average approach would introduce in computing the mean of standard deviations (Cooley and Lohns, 1971).

We used the three-year average (Luo, 1998) of international performance measures immediately following the *first international activities* of the domestic firms. We conducted sensitivity analysis, using two-, four-, and five-year averages, to see if the results significantly changed. Because these results were consistent with those of the three-year average, we used the three-year average of early international performance.

The four measures yielded a single factor (eigen value: 3.95; factor loadings: 0.87–0.95). Thus, we reverse coded the risk measure and used a composite measure of early international performance by averaging the z scores of the four measures.

International industry conditions

Following Zhou and Cavusgil (2002) and Samiee and Kendall (1992), we derived a continuous measure of global integration-local adaptation by triangulating quantitative and qualitative data sources. The two quantitative measures of global industries were *industry trade flow level* (Porter, 1986) and *global competitors in the industry* (Porter, 1986). Industry trade flow level was measured as imports plus exports as a percentage of U.S. consumption. The higher the industry trade flow level, the more global the industry, and the lower the trade flow level, the more multidomestic. The second measure was a dummy variable representing 1 = the presence of at least one firm in the industry competing in global markets (global industry) and 2 = no firms competing in global markets (multidomestic industry). The industry trade flows and global competitor data were obtained from trade journals, United States International Trade Commission (ITC) Summary of Trade and Tariff

Information, and the United States Industry Outlook published by the United States Department of Commerce.

We also obtained subjective ratings (on a 1–5 scale) on a continuous six-item scale that captured global-integration-local adaptation in different areas (Carpano *et al.*, 1994; Roth and Morrison, 1992). Chen, Farh, and MacMillan (1991) suggest that to get robust and reliable subjective estimates of industry variables, three key informants should be industry analysts, managers, and professors familiar with the industries. The chosen industry analysts were international and strategic consultants from the consulting units of the two “Big Five” accounting firms with expertise in international and strategic areas and our sampled industries and an average consulting experience of 17.5 years. The chosen managers had an average of 20.4 years of work experience, with at least 5 years of experience in firms from our sampled industries. The academic professors had taught strategy and IB cases about the industry, had conducted research in the industry, or had interacted with managers from the industries in executive MBA courses.

Each industry was rated by at least one industry analyst (a total of 22 analysts), one professor (14 professors), and one manager (30 managers); inter-rater reliability ranged from 0.87 to 0.95 on the six items rated: worldwide standardization of buyer needs, worldwide standardization of technology, worldwide standardization of purchasing practices, worldwide standardization of products, availability of product information worldwide, and presence of mainly multinational companies. High ratings on all the items indicate that the industry is more global, whereas lower ratings on all items indicate that the industry is more multidomestic. High ratings on some items and low ratings on others indicate that the industry is transnational. For example, the semiconductor industry had high ratings (4.0–4.5) on all six items and high trade flows, suggesting that it is a global industry. In contrast, the hospital industry is a multidomestic industry with low trade flows and low ratings (1.8–2.7) on all six items. The retail drugstore industry had high ratings on worldwide standardization of buyer needs (4.0) and presence of both domestic and multinational companies (3.8) but had low industry trade flows and low ratings on the other four items (2.0–2.2). Thus, it is a transnational industry.

We averaged the z scores of industry trade flow, global competitors, and subjective scale to create a continuous composite measure of global-integration. Exploratory factor analyses yielded a single factor for the six subjective measures and the two objective measures (eigen value: 3.79, variance explained: 0.74; factor loadings ranged from 0.83 to 0.97). We also classified the industries into global (>3 on all subjective items and top 33.33 percentiles for the objective measures), multidomestic (<3 on all subjective items and the bottom 33.33 percentiles for the objective measures), and transnational (>3 on some items and <3 on other items and middle 33.33 percentiles for the objective measures) to conduct separate subgroup analysis for each industry condition and test the sub-hypotheses (H1a, H1b, H1c and H2a, H2b, H2c).

Controls

We used seven control variables: *industry*, *technological intensity*, *advertising intensity*, *firm size*, *firm age*, *past domestic performance*, and *international experience of the top management team (TMT)*. Domestic industry variables affect the propensity and feasibility of risk and resource commitments associated with internationalization (Chen and Martin, 2001). For this reason, we used industry (based on four digit SIC code) as a control variable. We created 19 dummy (0, 1) variables to represent the 20 industries. *Technological intensity* (Gatignon and Anderson, 1988), *advertising intensity* (Agarwal and Ramaswami, 1992), *firm size* (Erramilli, 1996), and *age* (Zahra, 2005) represent firm-specific advantages that reduce the risk of internationalizing and therefore may positively affect performance. Past performance is considered to a reflection of a firm's success in domestic market and is it is also considered to drive subsequent strategic actions and outcomes.

Technological intensity was measured by R&D intensity (Gatignon and Anderson, 1988) and total patents filed by the firm (Bresman, Birkinshaw, and Nobel, 1999). Data for R&D intensity and advertising intensity were derived from the COMPUSTAT database, whereas patent data were based on the US Patent and Trademark office archival documents. We measured firm size by the logarithm of the total employees (Erramilli, 1996) and firm age by number of years from founding of firm

to 1990. We used three established accounting-based measures of firm performance from the financial records provided by the sampled firms: *return on assets (ROA)*, *return on sales (ROS)*, and *return on investment (ROI)* (McDonald, Khanna, and Westphal, 2008). In the primary analysis, we used a three-year average of firm performance prior to first international activity. However, we conducted sensitivity analysis using one and two year averages. Because these results are consistent with the primary analysis, we do not report them in the study. TMT's international experience reflects their experiential knowledge about foreign markets (Herrmann and Datta, 2002) and thus may affect early international performance. We measured TMT's international experience as the total number of years spent abroad on assignment, higher education, and/or a firm's international division (Herrmann and Datta, 2002). Data on TMT's international experience were drawn from *Dunn and Bradstreet Reference Book of Corporate Management*.

ANALYSES AND RESULTS

In our model, international industry conditions also represented the domestic context of incumbent firms because we chose only firms that internationalized by entering new foreign markets in the same industry. Recent studies have argued and empirically shown that over time, top managers develop their cognition by interacting with and responding to their environments (Nadkarni and Barr, 2008). Thus, industry context shapes the cognition of top managers. Therefore, to test the moderating effect of international industry conditions on the relationship between depth and breadth of domestic mindsets and early international performance, we needed to partial out the confounding effects of international industry conditions on domestic mindset. We tested our model relationships by use of the two-stage least squares (2SLS) regression, which is useful in testing relationships of such non-independent predictor variables (Bollen, 1996). For our model, the 2SLS regression would correct for these confounding effects, by first estimating depth and breadth of domestic mindset as a function of international industry conditions, and then including predicted values from that equation in a second-stage moderated regression model. Accordingly, for the first stage of the

Table 1. Mean, standard deviations, and inter-correlations among study Variables

Variables	Inter-correlations among study variables (n = 178)											
	Mean	SD	1	2	3	4	5	6	7	8	9	10
<i>Control variables</i> ¹												
1. Technology intensity	0.39	0.52	—									
2. Product differentiability	0.05	0.10	0.09	—								
3. TMT's international experience	2.41	5.24	0.12	0.15	—							
4. Firm size (in millions)	597.19	274.95	0.17†	0.19†	.11	—						
5. Firm age (yrs)	10.49	15.19	0.10	0.13	0.09	0.27*	—					
6. Past performance	0.19	0.11	0.18†	0.14	0.19†	0.16	0.11	—				
<i>Global industry conditions</i> ²												
7. Global industry conditions ²	2.98	1.94	−0.11	0.07	0.14	0.09	0.12	0.20†	—			
<i>Domestic mindsets</i>												
8. Breadth	17.5	5.81	0.34**	0.27*	0.22*	0.17	0.14	0.16	−0.29*	—		
9. Depth	5.99	2.01	−0.25*	−0.24*	−0.19†	0.10	0.11	0.12	0.24*	−0.21*	—	
<i>Early international performance</i>												
10. Early international performance	0.27	0.21	0.22*	0.25*	0.21*	0.16	0.12	0.24*	0.22*	0.20†	0.19†	—

† p < 0.10 * p < 0.05 ** p < 0.01 *** p < 0.001

¹ We used 19 dummy variables to represent industry. Given the space constraints, we have not included them in the table.² The higher the ratings, the greater the global nature of the industry and the lower the ratings the higher the multidomestic the industry

2SLS regression, we modeled depth and breadth of mindsets as a function of international industry conditions and control variables. In the second stage, we included the interaction effects of breadth (X_1) and depth (X_2) and global industry conditions (Z) on early international performance, using moderated regression procedures (Aiken and West, 1991) as follows:

$$Y = b_1X_1 + b_2X_2 + b_3Z + b_4X_1Z + b_5X_2Z + bc_0$$

We used mean-centered values of predictor variables in all the regression models to minimize multicollinearity problems and to ease the interpretation of non-product terms (Aiken and West, 1991).

Table 1 shows the descriptive statistics and inter-correlations among study variables and Table 2 shows the 2SLS moderated regression results. Among the control variables only past performance is significantly related to early international performance. There are no significant linear or non-linear main effects for breadth and depth. The interaction terms of breadth, depth, breadth-squared,

and depth-squared with international industry conditions are significantly related to early international performance. Together, the interaction terms explain a significant variation in early international performance ($R^2 = 0.24$, $p < 0.001$; $F = 5.71$, $p < 0.001$). These results confirm the moderating effect of international industry conditions and support propositions 1 and 2.

To test the nature of moderation, we conducted sub-group analysis for each international industry condition. We show these results after controlling for industry, firm, and TMT controls, in Table 3 and graphically illustrate the results in Figure 2. The relationship between breadth and early international performance is linear and negative in the global sample ($\beta = -0.30$, $p < 0.001$), linear and positive in the multidomestic sample ($\beta = 0.30$, $p < 0.001$), and inverted-U (Breadth-squared: $\beta = -0.29$, $p < 0.001$). The graphs in Figure 2 confirm these relationships. Together, these results support H1a, H1b, and H1c. In contrast, the relationship between depth and early international performance is linear and positive in the global sample ($\beta = 0.29$, $p < 0.001$), linear and negative in the multidomestic sample ($\beta =$

Table 2. Two stage least squares regression results of domestic mindsets, global industry conditions, and international performance

Variables	Early international performance (n = 178)		
	B	SE B	β
<i>Control variables</i> ^{1,2}			
1. Technological intensity	0.29	0.21	0.17
2. Product differentiability	0.44	0.31	0.19†
3. TMT's international experience	0.24	0.12	0.20†
4. Firm size	0.19	0.20	0.05
5. Firm age	0.25	0.28	0.01
6. Past performance	0.32	0.09	0.24*
<i>Model Variables</i>			
7. Global industry conditions ³	0.44	0.37	0.14
8. Breadth	0.21	0.10	0.21†
9. Breadth-square	−0.28	0.19	−0.20†
10. Depth	0.27	0.08	0.21†
11. Depth-square	−0.24	0.13	−0.19†
12. Breadth X global industry conditions ³	−0.05	0.00	−0.31***
13. Depth X global industry condition ³	0.22	0.03	0.29***
14. Breadth-square X global industry conditions ³	−0.21	0.04	−0.28**
15. Depth-square X global industry context ³	−0.04	0.00	−0.30***
	F		5.71***
	R ²		0.24***

† p < 0.10 * p < 0.05 ** p < 0.01 *** p < 0.001

¹ Regression model presented in the table is after crolling for industry dummy variables² Since firm size and age were not related to early international performance, we did not include it as controls in the regression equations³ The higher the ratings, the greater the global nature of the industry and the lower the ratings the higher the multidomestic the industry.Table 3. Results of two stage least squares sub-group analysis¹ for each global industry condition

	Early international performance								
	Global industries (n = 59)			Multidomestic industries (n = 60)			Transnational industries (n = 59)		
	B	SE B	β	B	SE B	β	B	SE B	β
1. Breadth	−0.42	0.07	−0.30***	0.31	0.02	0.30***	0.14	0.01	0.21*
2. Breadth-square	−0.17	0.24	−0.02	0.09	0.14	0.03	−0.11	0.00	−0.29***
3. Depth	0.24	0.03	0.29***	−0.24	0.01	−0.28***	0.17	0.00	0.23*
4. Depth-square	0.03	0.04	0.01	−0.08	0.13	−0.01	−0.19	0.01	−0.30***
F			10.14***			11.28***			7.98***
R ²			0.28***			0.29***			0.27***

* p < 0.05 ** p < 0.01 *** p < 0.001

¹ Regression model presented in the table is after controlling for industry dummy variables, technological intensity, product differentiability, past performance, and TMT's international experience. Past performance had a significant positive relationship with early international performance ($\beta = 0.22$, p < 0.05).² Since firm size and age were not related to early international performance, we did not include it as controls in the regression equations

−0.28, p < 0.001), and inverted-U in transnational industries (depth-squared: $\beta = -0.30$, p < 0.001). Thus, H2a, H2b, and H2c are fully supported.

DISCUSSION

Our results support the contention that the fit between the domestic mindsets of top managers

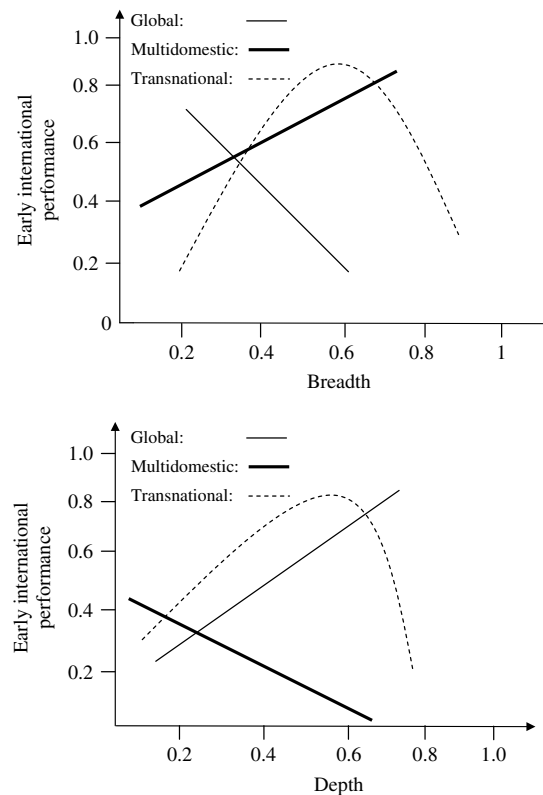


Figure 2. Relationship between Depth, Breadth, and Early International Performance measures in Global, Multidomestic, and Transnational Industries

and the international industry conditions maximizes early international performance. Depth and breadth of domestic mindsets related differently to early international performance in global, multidomestic, and transnational industries. The relationship between depth and early international performance was positive in global industries, negative in multi-domestic industries, and inverted-U in transnational industries. In contrast, the relationship between breadth and early international performance was positive in multi-domestic industries, negative in global industries, and inverted-U in transnational industries. We discuss the important theoretical and practical implications of these findings in the following sections.

Implications and future directions

Sensemaking theories in internationalization

Our results extend sensemaking theories in internationalization in three ways. Despite theoretical

arguments (Bogner and Barr, 2000) and empirical evidence (Nadkarni and Narayanan, 2007) in organizational sensemaking research on the importance of environmental context in the relationship between depth and breadth of mindsets and performance, sensemaking literature in internationalization has ignored the role of international industry context (Black *et al.*, 1991; Caproni *et al.*, 1992; Kobrin, 1994; Sapienza *et al.*, 2006). For example, these studies have argued that breadth of mindsets is beneficial to internationalization, irrespective of industry context (Bartlett and Ghoshal, 1989; Caproni *et al.*, 1992; Nadkarni and Perez, 2007). Our results inform that this is not the case and extend extant literature by not only highlighting that, but also by specifying how global industry conditions moderate the relationship between domestic mindsets and early international performance. Depth was critical to success in global industries but dysfunctional in multidomestic industries, whereas breadth promoted superior international performance in multidomestic industries but inhibited poor performance in global

industries. In transnational industries, balance between breadth and depth was critical to early internationalization success. Thus, the *fit* between facets of mindsets and global industry conditions was critical in maximizing international performance. The important implication of these results is that future research in internationalization should examine the performance implications of mindsets in *specific international environmental contexts*. An important extension of our study would be to examine the relationship between domestic mindsets and early international performance in other dimensions of international environments such as technology development, innovation types, and levels of international competition.

Second, we found that facets of *domestic mindsets* influenced early international performance in global, multidomestic, and transnational environments. This is an important finding because research has focused mainly on international experiential knowledge, arguing that it helps top managers overcome hurdles in the early phases of internationalization and leads to positive international outcomes (Eriksson *et al.*, 1997; Liesch and Knight, 1999). This research has ignored the role of *domestic mindsets* in early international outcomes. Our results strengthen and empirically support suggestions that domestic mindsets help top managers of established firms overcome inertial forces and lack of international experience (Andersen, 1993; Vermeulen and Barkema, 2001; Gupta and Govindarajan, 2002). An important area of future research would be to examine the change in mindsets from a more domestic orientation in the early phases, to more global orientation in later phases of internationalization and the implications of these changes in domestic mindsets for international performance. As top managers engage in international activities, they have greater opportunities to learn from their activities in different foreign markets (Eriksson *et al.*, 1997). This international experiential knowledge gained through learning may change the domestic mindsets and guide the subsequent international outcomes. This raises important speculative questions such as: How does international experiential knowledge change the domestic mindset of top managers? Does the nature of evolution of mindsets influence the pattern of internationalization activities and performance? Future studies can examine these possibilities.

Finally, although the literature has recognized the role of breadth in international outcomes (Bartlett and Ghoshal, 1989; Caproni *et al.*, 1992), study of the role of depth of mindset remains severely underdeveloped. Little is known about how depth affects international performance. Drawing on the organizational sensemaking literature (De Bono, 1968; Fiol, 1995; Turner *et al.*, 2002), we hypothesized that depth will promote international success in global industries but will inhibit international performance in multidomestic industries and that medium levels of depth will maximize performance in transnational industries. Our results support this contention and extend theories of early internationalization by suggesting a new variable (depth) that explains early international performance. Future studies can build on the results of this study to test the relationships of depth to other important international environmental variables such as technology transfer, strategic alliances, and global networks. Such studies are critical in developing conclusive theories surrounding depth of mindsets.

IR framework and sensemaking

The organizational sensemaking literature has proposed a complex and dynamic relationship between industry conditions and mindsets (Keisler and Sproull, 1982; Weick, 1995). On the one hand, how top managers subjectively make sense of their environment influences how they strategically choose their industries (Bogner and Barr, 2000; Weick, 1995). On the other hand, over time, top managers become strongly embedded in their chosen industrial environments, and these environments represent external contingencies, and the fit between mindsets and industry context predicts firm performance (Bogner and Barr, 2000; Daft and Weick, 1984; Lant *et al.*, 1992; Keisler and Sproull, 1982; Nadkarni and Barr, 2008). Recently, Devinney, Midgley, and Venaik (2000), in their model of efficient frontiers, questioned the purely deterministic perspective (Roth and Morrison, 1992) that has dominated the IR framework. Consistent with the organizational sensemaking literature, they conceptualized IR as both choices resulting from managerial beliefs (mindsets) and deterministic contingencies for managerial beliefs.

Although our theoretical model included both aspects of the relationship between sensemaking

and the IR framework, we formally hypothesized and empirically tested the deterministic relationships between mindsets and the IR framework. Because of the cross-sectional nature of our study, we had to make sampling choices that allowed us to robustly test the fit hypotheses for domestic firms. Using older and single business domestic firms allowed us to minimize the confounding effects of multiple international environments (by excluding diversifying firms) (Herrmann and Datta, 2002; Nadkarni and Narayanan, 2007) and of unstable and transitional cognition of top managers (by excluding new and emerging firms) (Barr, 1998). The older and single business domestic firms in our sample had chosen their industries in the distant past (at least 10 years back) and were now deeply salient in and strongly bound by their chosen environments. Therefore, we expected the contingency effects of the IR framework to be significant for these strongly salient domestic firms.

However, future studies could extend our model to include firms that remained in their respective domestic industries as well as firms that entered new industries. Using a longitudinal design, these studies could incorporate both the influence of domestic mindsets on international industry choices and the influence of the fit between domestic mindsets and international industry context on international performance. These studies could yield important insights on the complex relationships between mindsets and IR proposed by Devinney *et al.* (2000). For example, depth oriented mindsets could dispose top managers toward choosing global industries, whereas broad mindsets could promote multidomestic industry choices. Future studies could build on these preliminary results by testing the influence of mindsets on IR conditions, using a much broader sample that includes newly emerging and diversifying firms along with older, single business firms, such as those included in the current sample. Top managers of newly emerging and diversifying firms are not strongly salient in a single industry context and are therefore likely to actively and continuously choose their industry environments. These studies could integrate the contingency and the managerial orientation perspectives to develop a more complete understanding of the complex and dynamic relationships underlying mindsets, IR framework, and international performance, using a longitudinal design.

Nature of fit between domestic mindsets and international industry conditions

We focused on single-industry firms that expanded in foreign markets within their industry. We theorized that top managers of domestic firms will use their domestic mindsets for judging foreign markets. Our results show that both past performance and the fit between domestic mindsets and international industry context influenced early international performance. This implies that high performing firms that engage in effective learning in their domestic markets and develop mindsets that are appropriate to their industry can effectively deploy these mindsets in foreign markets within the same industry context, whereas low performance firms that do not develop appropriate mindsets in their domestic markets, are unlikely to succeed in foreign markets within the same industry. This result is consistent with the behavioral theory of the firm, which contends that superior performance reinforces the validity of existing strategies and fosters exploitation of these strategies, whereas low performance signals the need to considerably change existing strategies and search for newer strategies (Cyert and March, 1963; Greve, 2003; Lant and Mezias, 1992). This result has two major implications. First, low performing domestic firms may need to change their mindsets radically and explore new strategies *before* internationalizing to achieve a better fit with the industry context or face low early international performance. In contrast, high performing firms can effectively exploit their domestic mindsets through incremental changes. Future studies could use our preliminary result to formally test this contention.

Second, the effectiveness of their domestic mindsets may also influence which industries firms choose to expand in. The behavioral theory of the firm argument (Cyert and March, 1963; Greve, 2003; Lant and Mezias, 1992) would suggest that superior performance in domestic industries may prompt firms to expand internationally in the same industry through exploitation, whereas low domestic performance may prompt firms to explore new industries in their international expansion through exploration. This implication is especially important because many internationalization studies have focused more on the differences across individual foreign markets (Liesch and Knight, 1999) rather than the broad international industry contexts. Although we did not specifically measure

or theorize about learning processes, future studies could use a broader sample that includes both firms that internationalized in the same industry and firms that internationalized in new industries to examine which specific learning approaches (e.g., exploitation versus exploration) (March, 1991) in early internationalization lead to success in global, transnational, and multidomestic contexts.

Limitations

Our results highlight intriguing relationships between domestic mindsets, global industry conditions, and early international performance. However, these results must be interpreted in light of the limitations inherent in the research design. First, we focused on newly internationalizing U.S. firms. Because host country characteristics are critical predictors of internationalization (Agarwal and Ramaswami, 1992), future studies may want to study firms from other countries. Second, we used LTS to construct domestic mindsets, in part because large-scale empirical studies are, for pragmatic reasons, often limited to textual sources of data, although such studies are needed to advance our insights into issues of mindsets and international commitments. Nonetheless, future studies may want to use primary data sources in replicating our study. Finally, we used the IR framework to operationalize global industry conditions. We acknowledge that, although used widely in IB literature, the IR framework represents just one way of representing global industry conditions. Future studies may want to test the moderating role of global industry conditions using other frameworks (e.g., high-technology/low-technology industries).

Managerial implications

Our results provide valuable insights to top managers of large and established firms on how to successfully prepare for and cope with international environments by matching their domestic mindsets with the global industry environments. To maximize early international performance, top managers of firms in multidomestic industries need to develop *breadth* in their mindsets *prior* to internationalization by hiring senior managers with diverse experiences, by exploring new customer segments, by experimenting with radically new technologies, and by designing varied marketing strategies. In contrast, to succeed in their

early international efforts, managers of firms in global industries need to develop *depth* in their mindsets by hiring senior managers with high level of expertise in core areas, by investing in competence-enhancing technologies, and by strengthening coordination mechanisms within the firm. Finally, managers of firms in transnational industries need to balance both *depth and breadth* in mindsets. For example, top managers can combine the depth and sophistication in their procurement and manufacturing capabilities with breadth in marketing and distribution systems. Our results could also inform top managers of newly internationalizing firms on the global industry choices that could maximize their early international performance. Top managers with broad domestic mindsets could increase their chance of success by choosing multidomestic industries, whereas top managers with high depth could choose to enter globally integrated industries to maximize their chance of achieving superior performance. Venturing into transnational industries could improve the chance of success for top managers who can accommodate both depth and breadth in their mindsets. Thus, top managers could use our results to guide their internationalization choices.

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REFERENCES

- Aiken LS, West SG. 1991. *Multiple Regression: Testing and Interpreting Interactions*. Sage Publications: Newbury Park, CA.
- Andersen O. 1993. On the internationalization process of firms: A critical analysis. *Journal of International Business Studies* **24**(2): 209–232.
- Anderson JC, Gerbing DW. 1991. Predicting the performance of measures in a confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology* **76**: 732–740.
- Agarwal S, Ramaswami SN. 1992. Choice of foreign market entry mode: impact of ownership, location and internalization factors. *Journal of International Business Studies* **23**: 1–27.

- Allred BA, Steensma HK. 2005. The influence of industry and home country characteristics on firms' pursuit of innovation. *Management International Review* **45**(4): 383–412.
- Barr PS. 1998. Adapting to unfamiliar environmental events: A look at the evolution of interpretation and its role in strategic change. *Organization Science* **9**: 644–669.
- Bartlett CA, Ghoshal S. 1987. Managing across borders: New strategy requirements. *Sloan Management Review* **28**: 7–17.
- Bartlett CA, Ghoshal S. 1989. *Managing Across Borders: The Transnational Solution*. Harvard Business School Press: Boston, MA.
- Bettman JR, Weitz A. 1983. Attributions in the board Room: Causal reasoning in corporate annual reports. *Administrative Science Quarterly* **28**: 165–183.
- Birkinshaw J, Morrison A, Hulland J. 1995. Structural and competitive determinants of a global integration strategy. *Strategic Management Journal* **16**: 637–655.
- Black SJ, Mendenhall M, Oddou G. 1991. Toward a comprehensive model of international adjustment: An integration of multiple theoretical perspectives. *Academy of Management Review* **16**(2): 291–317.
- Bogner WC, Barr PS. 2000. Making sense in hypercompetitive environments: A cognitive explanation for the persistence of high velocity competition. *Organization Science* **11**: 212–226.
- Bollen KA. 1996. An Alternative Two Stage Least Squares (2SLS) Estimator for Latent Variable Equations. *Psychometrika* **61**: 109–121.
- Bresman H, Birkinshaw J, Nobel R. 1999. Knowledge transfer in international acquisitions. *Journal of International Business Studies* **30**: 439–462.
- Caproni PJ, Lenway SA, Murtha TP. 1992. Multinational mindsets: sense making capabilities as strategic resources in multinational firms, Division of research, School of Business Administration, the University of Michigan.
- Carley K, Palmquist M. 1992. Extracting, representing and analyzing mental models. *Social Forces* **70**: 601–636.
- Carpano C, Chrisman J, Roth K. 1994. International strategy and environment: An assessment of the performance relationship. *Journal of International Business Studies* **25**: 639–656.
- Carpenter MA, Sanders GW. 2004. The effects of top management team pay and firm internationalization on MNC performance. *Journal of Management* **30**(4): 509–528.
- Chen MJ, Farh JL, MacMillan IC. 1993. An exploration of the expertness of outside informants. *Academy of Management Journal* **36**: 1614–1632.
- Chen R, Martin MJ. 2001. Foreign expansion of small firms: The impact of domestic alternatives and prior foreign business involvement. *Journal of Business Venturing* **16**: 557–574.
- Child J. 1972. Organization, structure, environment, and performance: The role of strategic choice. *Sociology* **6**: 1–22.
- Clarke IA, Mackaness WA. 2001. Management 'Intuition': An interpretative account of structure and content of decision schemas using cognitive maps. *Journal of Management Studies* **38**: 147–172.
- Cooley WW, Lohns PR. 1971. *Multivariate Data Analysis*. Wiley: New York, NY.
- Cyert RM, March JG. 1963. [1992]. *A Behavioral Theory of the Firm*. Malden, MA: Blackwell.
- Daft RL, Weick KE. 1984. Toward a model of organizations as interpretation systems. *Academy of Management Review* **9**: 284–295.
- De Bono E. 1968. *New think: The use of lateral thinking in the generation of new ideas*. Basic Books: New York.
- Devinney TM, Midgley DF, Venaik S. 2000. Optimal performance of the global firm. *Organization Science* **11**(6): 674–695.
- Eden C, Ackermann F, Cropper S. 1992. The analysis of cause maps. *Journal of Management Studies* **29**: 309–324.
- Erramilli MK. 1996. Nationality and subsidiary ownership patterns in multinational corporations. *Journal of International Business Studies* **27**(2): 225–48.
- Eriksson K, Johanson J, Majkgård A, Sharma DD. 1997. Experiential knowledge and cost in the internationalization process. *Journal of International Business Studies* **28**: 337–360.
- Fahey L, Narayanan VK. 1989. Linking changes in revealed causal maps and environmental change: an empirical study. *Journal of Management Studies* **26**: 361–378.
- Finkelstein S, Hambrick DC. 1996. *Strategic leadership: Top executives and their effects on organizations*. West: St. Paul, MN.
- Fiol M. 1995. Corporate communications: Comparing executives' private and public statements. *Academy of Management Journal* **38**(2): 522–537.
- Fombrun CJ, Ginsberg A. 1990. Shifting gears: Enabling change in corporate aggressiveness. *Strategic Management Journal* **11**: 297–309.
- Gatignon H, Anderson E. 1988. The multinational corporation's degree of control over foreign subsidiaries: An empirical test of a transaction cost perspective. *Journal of Law, Economics, and Organization* **4**: 305–36.
- Golden BR. 1992. The past is the past: Or is it? The use of retrospective accounts as indicators of past strategy. *Academy of Management Journal* **35**(4): 843–861.
- Greve HR. 2003. *Organizational Learning from Performance Feedback: A Behavioral Perspective on Innovation and Change*. Cambridge University Press.
- Gupta AK, Govindarajan V. 2002. Cultivating a global mindset. *Academy of Management Executive*. **16**(1): 116–126.
- Heckman J. 1979. Sample selection bias as a specification error. *Econometrica*, January: 153–161.
- Herrmann P, Datta DK. 2002. CEO successor characteristics and the choice of foreign market entry mode: An empirical study. *Journal of International Business Studies* **33**(3): 551–569.
- Huff AS, Schwenk C. 1990. Bias and sensemaking in good times and bad. In AS Huff (ed.), *Mapping Strategic Thought*, Chichester: Wiley: pp: 81–108.
- Jeannot JP. 1999. *Managing with a global mindset*. Financial Times/Prentice Hall.

- Kaplan S. 2008. Cognition, capabilities, and incentives: Assessing firm response to Fiber-Optic Revolution. *Academy of Management Journal* **51**(4): 672–695.
- Keisler S, Sproull L. 1982. Managerial responses to changing environments: perspectives on problem sensing from social cognition. *Administrative Science Quarterly* **27**: 548–570.
- Kinder, Lydenberg, Domini and Co. (KLD). 1990. 129 Mt. Auburn St., Cambridge, MA 02138.
- Kobrin SJ. 1991. An empirical analysis of the determinants of global integration. *Strategic Management Journal* Summer Special Issue **12**: 17–32.
- Kobrin SJ. 1994. Is there a relationship between a geocentric mindset and multinational strategy? *Journal of International Business Studies* **25**(3): 493–511.
- Lant TK, Mezias SJ. 1992. An organizational learning model of convergence and reorientation. *Organization Science* **3**(1): 47–71.
- Lant TK, Milliken FJ, Batra B. 1992. The role of managerial learning and interpretation in strategic persistence and reorientation: An empirical examination. *Strategic Management Journal* **13**(8): 585–608.
- Levy O, Beechler S, Taylor S, Boyacigiller NA. 2007. What we talk about when we talk about 'global mindset': Managerial cognition in multinational corporations. *Journal of International Business Studies* **38**: 231–258.
- Liesch PW, Knight GA. 1999. Information internalization and hurdle rates in small and medium enterprise internationalization. *Journal of International Business Studies* **30**: 383–394.
- Luo Y. 1998. Timing of investment and international expansion performance in China. *Journal of International Business Studies* **29**(2): 391–407.
- Luo Y. 2007. *Global Dimensions of Corporate Governance*, Malden, MA: Blackwell.
- Lurigio AJ, Carroll JS. 1985. Probation officers' schemata of offenders: Content, development, and impact on treatment decisions. *Journal of Personality and Social Psychology* **48**: 1112–1126.
- Lyles MA, Schwenk CR. 1992. Top management, strategy and organizational knowledge structures. *Journal of Management Studies* **29**: 155–174.
- March J. 1991. Exploration and exploitation in organizational learning. *Organization Science* **2**: 71–87.
- McDonald ML, Khanna P, Westphal JD. 2008. Getting them to think outside the circle: Corporate governance, CEOs' external advice networks, and firm performance. *Academy of Management Journal* **51**(3): 453–475.
- Miller D, Chen M. 1996. The simplicity of competitive repertoires: An empirical analysis. *Strategic Management Journal* **17**(6): 419–440.
- Morrison AJ, Roth K. 1992. A taxonomy of business-level strategies in global industries. *Strategic Management Journal* **13**(6): 399–418.
- Morrison AJ, Roth K. 1993. Relating Porter's configuration/coordination framework to competitive strategy and structural mechanisms: Analysis and implications. *Journal of Management* **19**(4): 797–818.
- Nadkarni S, Barr PS. 2008. Environmental context, managerial cognition, and strategic action: An integrated view. *Strategic Management Journal* **29**(13): 1395–1427.
- Nadkarni S, Narayanan VK. 2007. Strategy frames, strategic flexibility and firm performance: The moderating role of industry velocity. *Strategic Management Journal* **28**(3): 243–270.
- Nadkarni S, Perez P. 2007. Prior conditions and degree of internationalization: The mediating role of domestic mindsets. *Journal of International Business Studies* **38**(1): 160–176.
- Osborne JD, Stubbart CI, Ramaprasad A. 2001. Strategic groups and competitive enactment: A study of dynamic relationships between mental models and performance. *Strategic Management Journal* **22**: 435–454.
- Oviatt BM, McDougall PO. 1994. Toward a theory of international new ventures. *Journal of International Business Studies* **25**: 45–65.
- Porter ME. 1986. *Competition in Global Industries*. Harvard Business School Press: Boston, MA.
- Prahalad CK, Bettis RA. 1986. The dominant logic: A new linkage between diversity and performance. *Strategic Management Journal* **7**(6): 485–501.
- Prahalad CK, Doz YL. 1987. *The Multinational Mission: Balancing Local Demands and Global Vision*, The Free Press: New York.
- Rajagopalan N, Datta DK. 1996. CEO characteristics: does industry matter? *Academy of Management Journal* **39**(1): 197–215.
- Roth K, Morrison AJ. 1992. Business-level competitive strategy: A contingency link to internationalization. *Journal of Management* **18**: 473–487.
- Samiee S, Kendall R. 1992. The influence of global marketing standardization on performance. *Journal of Marketing* **56**(2): 1–16.
- Sapienza HJ, Autio E, George G, Zahra SA. 2006. A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review* **31**(4): 914–933.
- Tallman S. 1991. Strategic management models and resource-based strategies among MNEs in a host market. *Strategic Management Journal* **12**: 69–82.
- Tallman S, Fladmoe-Lindquist K. 2002. Internationalization, globalization, and capability-based strategy. *California Management Review* **45**(1): 116–135.
- Turner SF, Bettis R, Burton R. 2002. Exploring breadth versus depth in knowledge management strategies'. *Computational and mathematical organizational theory* **8**: 49–73.
- U.S. Department of Commerce, International Trade Administration. 1994. *U.S. Industry and Trade Outlook*.
- Venak S, Midgley DF, Devinney TM. 2004. A new perspective on the integration-responsiveness pressures confronting multinational firms. *Management International Review* **44**: 15–50.
- Vermeulen F, Barkema H. 2001. Learning through acquisitions. *Academy of Management Journal* **44**(3): 457–476.

- Waddock SA, Graves SB. 1997. The corporate social performance—financial performance link. *Strategic Management Journal* **18**: 303–319.
- Weick K. 1995. *Sensemaking in Organizations*. London: Sage.
- Winship C, Mare RD. 1992. Models for sample selection bias. *Annual Review of Sociology* **18**: 327–350.
- Zahra SA. 2005. A theory of international new ventures: a decade of research. *Journal of International Business Studies* **36**(1): 20–28.
- Zahra SA, Ireland RD, Hitt MA. 2000. International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal* **43**(5): 925–950.
- Zhou S, Cavusgil T. 2002. The GMS: A broad conceptualization of global marketing strategy and its effect on firm performance. *Journal of Marketing* **66**(4): 40–56.

APPENDIX I

List of industries and firms in the industry

Industry	SIC code	No. of firms	Multidomestic/Global/transnational ratings
1. Electric work	1731	9	2.5
2. Hospital	8060	7	2.2
3. Mortgage banks	6162	8	2.4
4. Retail dept. stores	5311	7	2.7
5. Retail consumer stores	5412	8	2.4
6. National commercial banks & savings institutions	6035	12	2.7
7. Life insurance	6311	9	2.6
<i>Total Multidomestic Firms</i>		60	
8. Food & kindred products	2000	12	3.2
9. Retail drug stores	6021	7	3.5
10. Crude petroleum & natural gas	1311	10	3.0
11. Drilling oil & gas wells	1381	9	3.5
12. Retail radio, TV stores	5731	7	3.3
13. Consumer electronic stores	5912	14	3.4
<i>Total Transnational Firms</i>		59	
14. Electronic computers	3571	8	3.9
15. Telephone telecommunications	4812	8	4.0
16. Bottled & canned drinks	2086	8	3.8
17. Soft drinks & carbonated water	2100	7	3.7
18. Computers & office equipment	3570	11	4.0
19. Aircraft	3721	9	4.2
20. Semiconductors	3674	8	4.1
<i>Total Global Firms</i>		59	
<i>Total Firms</i>		178	

APPENDIX II**Organizational routines**

List of categories used to code concepts in the causal maps

Environment

1. Macroenvironment
2. New entrants/barriers to entry
3. Customer/Market environment
4. Competition
5. Substitute markets
6. Suppliers
7. Industry change

Competitive actions

8. Service actions
9. New product actions
10. Market actions
11. Low cost/pricing actions
12. Capacity related actions

13. Strategic processes
14. Strategic controls
15. Organizational culture
16. Organizational structure
17. Organizational change

Corporate strategy

18. Co-operative alliances
19. Portfolio analysis
20. TMT/Corporate governance
21. Strategic vision
22. Internal growth
23. Strategic objectives
24. Financial objectives

Resources and capabilities

25. Human capital resources
26. Other organizational tangible resources

- | | |
|---|-------------------------------|
| 27. Technological resources | 34. Manufacturing performance |
| 28. Physical capital resources | 35. Financial performance |
| 29. Other organizational tangible resources | |
| 30. Financial resources | |
| 31. People | |

Performance

- 32. Product performance
- 33. Strategic performance