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FIRM-SPECIFIC ASSETS, MULTINATIONALITY, AND FINANCIAL PERFORMANCE: A META-ANALYTIC REVIEW AND THEORETICAL INTEGRATION

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Through a meta-analysis of 120 independent samples reported in 111 studies, we test the predictions of internalization theory in the context of the multinationality-performance relationship. Findings indicate that multinationality provides an efficient organizational form that enables firms to transfer their firm-specific assets to generate higher returns in international markets. In addition, the results delineate the conditions under which firm-specific assets have the strongest impact on the multinationality-performance relationship. Meta-analytic evidence also suggests that multinationality has intrinsic value above and beyond the intangible assets that firms possess, given analyses controlling for firms' international experience, age, size, and product diversification.

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During the past three decades, internalization theory has been a leading perspective in the international business and management strategy literatures. Within the intellectual framework of “markets and hierarchies” approaches (Coase, 1937; Hymer, 1960; Williamson, 1975), internalization theory provides an explanation for the motivation and existence of foreign direct investment or, more precisely, of multinational enterprises (MNEs). Simply stated, per internalization theory, an MNE is created when a firm can increase its value by internalizing markets for certain of its intangible assets across national borders (Buckley & Casson, 1976; Morck & Yeung, 1991). In essence, this theory allows prediction of the incidence or pattern of hierarchical governance structures with the assumption that profit maximization remains the sole objective of a firm in systematically imperfect external markets. As such, internalization theory represents a general theory of organizational structure that includes MNEs as a special case (Buckley & Casson, 1976).

Perhaps the most central divide among scholars regarding internalization theory concerns the nature of the influence of asset specificity in internalization models. As Williamson wrote, “Asset specificity is the big locomotive to which transaction cost economics owes much of its predictive content” (1985: 36). Internalization theory ties transaction-specific assets directly to hierarchical governance, and the original specification of internalization theory in the international business literature maintains this theoretical position. Specifically, according to traditional internalization models, internalization of firm-specific assets will generate high levels of multinationality because the idiosyncratic nature of these knowledge assets gives rise to safeguarding problems in foreign markets (Buckley & Casson, 1976, 2003). Although Dunning’s (1980) eclectic paradigm maintains that the extent, form, and pattern of international production are determined by the configuration of the ownership of specific assets, location-specific advantages, and internalization advantages, Rugman (1986) subsequently demonstrated that ownership and internalization advantages can be collapsed, since an ownership advantage must necessarily be internalized to be effective in international markets. Thus, the core philosophy of internalization theory—based on the Coasian nature of firms and on rational action modeling—still remains embodied in two general axioms: (1) firms choose the least-cost location for each activity they perform, and (2) firms grow by internalizing markets up to the point at which the benefits of further internal-

ization are outweighed by the costs (Buckley, 1988).

The most significant departure from this argument, perhaps best exemplified by Morck and Yeung (1991), suggests that because of their intangible and informational nature, firm-specific assets (i.e., proprietary assets) behave like public goods in that their value increases as a firm becomes more multinational. Therefore, the equity value of firms should, *ceteris paribus*, be positively correlated with the degree of multinationality in *the presence of such assets*. In keeping with this perspective, Lu and Beamish (2004) indicated that the net influence of multinationality on performance can vary in its magnitude with the value of firm-specific assets, intangible assets in particular, because the efficient exploitation of these information-intensive assets requires their internalization in imperfect markets. These arguments suggest that asset specificity has a moderating effect on the multinationality-performance relationship, rather than the central and direct influence on firm multinationality prescribed in the traditional interpretations of internalization theory.

A second ongoing and related dispute concerns the normative implications of internalization theory. This debate mirrors the debate also prevalent in the broader transaction cost literature detailed in a recent meta-analysis of transaction cost theory. In their comprehensive review, Geyskens, Steenkamp, and Kumar (2006) indicated that the transaction cost economics literature is explicitly normative, since firms that follow its prescriptions and align their organizational forms with transaction dimensions will economize on transaction costs, which in turn should translate into performing better than those who do not. This basic normative logic is essentially assumed in most international diversification, or multinationality-performance, research.¹ In fact, the extant research has actually been more concerned with assessing the magnitude or functional form of the implied relationship between multinationality and firm performance than with positing and testing an explanation for its existence. However, these approaches have recently come under sharp criticism, as Hennart

¹ “Degree of internationalization,” “international diversification,” “multinationality,” “geographic diversification,” and “international expansion” tend to refer to the same phenomenon (Capar & Kotabe, 2003; Hitt, Tihanyi et al., 2006; Lu & Beamish, 2004). We use these terms interchangeably in this study to stay consistent with the extant strategic management and international business literatures.

(2007) and Verbeke, Li, and Goerzen (2009) among others have argued that no theoretical rationale supports a generalizable multinationality-performance relationship. This theoretical gap in the extant literature presents a significant opportunity for additional theorizing regarding internalization.

The purpose of this study is to test the predictions of internalization theory in the context of the multinationality-performance relationship with the help of meta-analytic techniques. Moreover, we aim to further develop and refine understanding of internalization theory with a focus on the role and nature of firm-specific assets in the multinationality-performance relationship. Meta-analysis has won widespread recognition in management research over the last few decades as an indispensable research tool for integrating and expanding the bases of knowledge on specific research topics (Eden, 2002). In particular, meta-analytic techniques are valuable for theory-testing purposes, as they enable researchers to examine a more comprehensive set of factors than those investigated in a literature (Viswesvaran & Ones, 1995). In addition, meta-analysis is well suited for resolving current theoretical disputes in a more definitive way than any single study because it is a powerful tool for synthesizing empirical research over a variety of disciplines and studies (Hunter & Schmidt, 1990). Thus, using data from 120 independent samples involving 104,014 firms, our investigation is a comprehensive test of an existing, widely cited, and influential theory in the international business and management strategy literatures. Specifically, we first examine the direct effects of asset specificity on firm multinationality as stipulated in internalization theory (Buckley & Casson, 1976; Dunning, 1980, 1988). Thereafter, we report explicit tests of three extensions to this model. First, we investigate the complex relationships involving firm-specific assets, multinationality, and financial performance. Second, we examine the conditions under which firm-specific assets affect the extent to which multinationality relates to financial performance. Finally, we take a significant step forward by assessing the relative predictive power for firm performance of multinationality vis-à-vis various strategic resources. Our discussion section builds upon these contributions to provide guidance for future research.

THEORY AND HYPOTHESES

A considerable body of research has focused on explaining the governance structure represented by multinational firms, as well as why such firms might be expected to outperform their rivals. Nev-

ertheless, numerous scholars have observed that research examining the relationship between multinationality and performance has been largely inconclusive (e.g., Bausch & Krist, 2007; Hennart, 2007; Verbeke et al., 2009). Research has found positive, negative, and nonsignificant linear effects between multinationality and performance as well as wide variation in types of curvilinear models that depict their relationship (for a summary, see Hitt, Tihanyi, Miller, and Connelly [2006]). With few exceptions, the dominant approach to reconciling these divergent results has been methodological refinement, such as the selection and measurement of constructs, the use of more sophisticated estimation procedures to address issues such as endogeneity, and the incorporation of different sets of control variables (see Bowen [2007] for a review of empirical issues in multinationality-performance research). Largely ignored has been reassessment of the theoretical foundation of this literature, as recently called for by Hennart (2007).

Although there have been significant theoretical developments in multinationality research, we contend that the general approach of these efforts has also contributed to the ambiguity in this literature. For instance, scholars typically employ arguments from multiple theoretical perspectives to support the particular model they advocate in efforts to investigate thoroughly the normative value of multinationality for performance. For example, the key elements for hypothesizing a relationship between multinationality and performance are arguments about the behavior of the two components of a firm's profit: revenue and cost, and their relationship to the extent of the firm's international presence (Bowen, 2007). This approach often encourages researchers to employ multiple theoretical perspectives in their efforts to be exhaustive and comprehensive in addressing the costs and benefits associated with firm multinationality (e.g., Contractor, Kundu, & Hsu, 2003; Lu & Beamish, 2004).

Similarly, Hitt, Bierman, Uhlenbruck, and Shimizu (2006) developed a model based on resource-based, transaction cost economics, and organizational learning theories as well as on elements of financial portfolio/diversification theory and information processing theory. Their integrative framework is based on compelling logic, yet it becomes difficult to link the results from such an approach back to the confirmation, extension, or refutation of any particular theory. As a result, a unified or overarching theory of multinationality has not emerged. In this study, we take a different approach. Specifically, we adopt a particular explanation of multinationality based on internalization theory and,

through a meta-analysis, we attempt to refine the theory in light of the research that has accumulated to date. We also incorporate recent theoretical developments in the relevant literature, but our intent is to integrate these developments within internalization theory.

Firm-Specific Assets, Multinationality, and Firm Performance

As stated previously, internalization theory is based on two interdependent propositions: choosing cost-effective foreign locations for specific MNE activities and internalizing markets up to the point at which the benefits of further internalization exceed or are equal to the costs (Buckley, 1988). As such, internalization theory primarily focuses on the firm-specific assets (i.e., proprietary assets), such as technological know-how, production and management skills, patents, brands, and goodwill, that are transferable within a firm across borders. The existence of these assets constitutes a necessary but not sufficient condition for their cross-border transfer within an MNE. In a perfect market, it will be efficient for firms to either license their advantage or produce at home and export. Therefore, it is due to market imperfections for either final or intermediate goods that the efficiency of hierarchy will exceed the costs of market transactions. Thus, as Buckley and Casson succinctly stated, "When markets in intermediate products are imperfect, there is an incentive to bypass them by creating internal markets . . . internalization of markets across national boundaries generates MNEs" (1976: 33).

In our effort to further develop this explanation, we focus on the nature and role of firm-specific assets. Williamson (1995) maintained that asset specificity is the most important dimension to consider in describing transactions, since investments in durable, specialized assets that cannot be redeployed from existing uses and users, except at a significant loss of productive value, are transaction-specific. Contracting for goods and services that are produced with the support of transaction-specific assets poses serious problems, because classical market contracting gives way to bilateral trading, which in turn leads to unified ownership (hierarchies) as asset specificity builds up. Thus, as a starting point, we rearticulate the theoretical foundations of internalization theory by testing the predictions of transaction cost theory in the context of the MNE form as a special case. As such, our first hypothesis is intended to assess and establish the

generalizability of the basic relationship between firm-specific assets and multinationality:²

Hypothesis 1. The level of firm-specific assets is positively related to firm multinationality.

The internalization theory assumption is that firms are profit-maximizing entities and that managers are "boundedly rational." On the basis of the relative efficiency of a hierarchy as compared to a market, managers will select the governance mechanism that will provide optimal returns. Internal transactions enable a firm to overcome certain problems associated with market transactions, thereby increasing the returns available for the firm's assets (Teece, 1986). Thus, the transaction cost theory prediction is that firms that follow the theory's prescriptions and align their organizational forms will economize on transaction costs, which in turn should translate into enhanced performance (Williamson, 1985). Geyskens et al.'s (2006) meta-analysis of 200 studies from a wide range of disciplines supported this prediction. Accordingly, the rationale for firm internationalization and its positive effects on performance can be attributed to the exploitation of market imperfections, as these imperfections provide opportunities for internationally diversified firms to gain a competitive advantage in cross-border use of their intangible assets (Kogut, 1985; Rugman, 1979).

Recently, however, scholars have argued that there is "no valid theoretical rationale that would predict a generalizable MP [multinationality-performance] relationship" (Verbeke et al., 2009: 149). Likewise, Hennart argued that "there is no theoretical support for the existence of a universal and positive relationship between M and P" (2007: 424). Hennart's criticism is particularly insightful, addressing issues related to scale economies, MNE network flexibility, and organizational learning. We focus more narrowly on his theoretical concerns dealing directly with the issue of firm-specific assets. Hennart observed that Hymer's explication of how MNEs arise from market imperfections addresses final output markets and firms' monopolistic advantages. However, and in contrast to Hymer, Hennart noted that internalization theory does not conceptualize unique firm-specific assets as necessarily conferring monopolistic advan-

² In line with internalization theory, we focus on two types of intangible assets: R&D intensity, as a proxy for technology assets such as technological know-how and patents; and advertising intensity, as a proxy for marketing assets, such as brand name, reputation, and goodwill (Lu & Beamish, 2004; Morck & Yeung, 1991).

tages, and “hence does not guarantee supernormal profits, since many of the ‘unique’ products sold by MNEs will have close substitutes” (2007: 429).

We contend that recent developments in resource-based theory can provide additional precision to internalization theory, as the resource-based view explicitly focuses on the nature of firm-specific assets. In this respect, our perspective is similar to that of Foss (1996a, 1996b). We maintain that although the existence of MNEs can be explained using internalization theory based on Coasian transaction costs arguments (e.g., Coase, 1937), the role of firm-specific assets in the multinationality-performance relationship can be explored by investigating the sources of competitive advantage using a Penrosian knowledge-based approach (e.g., Penrose, 1959). Resource-based theory shares the internalization theory assumptions that firms are profit maximizing and controlled by boundedly rational managers (e.g., Conner, 1991; Leiblein, 2003). From the resource-based perspective, firms are viewed as having moved through distinct trajectories resulting in unique bundles of resources and, to the extent that these resources are immobile, these differences may be sustainable. In keeping with Hennart’s concern, resource-based theory suggests that uniqueness does not necessarily imply competitive advantage or abnormal “rents.” In fact, Barney (1991) indicated that resources have the potential for sustained competitive advantage only when they are valuable, rare, imperfectly imitable, and nonsubstitutable. However, the high returns depend upon neither uniqueness nor even rarity in the absolute sense. It is theoretically possible for a number of equally efficient producers to earn rents, so long as an efficiency differential remains between them and other producers (Peteraf, 1993). Thus, firm resources may well be linked with abnormal rents when they are not easily replaced or replicated by other firms and not necessarily when they provide monopolistic advantages. In fact, a recent meta-analysis of 125 studies provides strong evidence to support that the resource-performance relationship is stronger for those resources that meet resource-based theory criteria (Crook, Ketchen, Combs, & Todd, 2008).

Integrating the resource-based view definition of strategic resources within internalization theory to denote the characteristics of firm-specific assets helps resolve tensions in internalization theory by providing additional clarity regarding the nature and role of firm-specific assets. As detailed earlier, a firm’s proprietary assets, such as technological know-how, production and management skills, patents, brands, reputation, and marketing skills, have often been employed in the literature as stra-

tegic resources that lead to competitive advantage in international markets (e.g., Hitt, Bierman et al., 2006; Lu & Beamish, 2004). From an internalization theory perspective, multinationality provides the most efficient governance structure for transferring these valuable, rare, inimitable, nonsubstitutable resources across country borders within a firm and for these transfers to have positive impacts on firm profitability. Therefore, we maintain that firm multinationality is a channel through which these firm-specific assets are exploited efficiently to generate returns in international markets. Thus, we propose the following:³

Hypothesis 2. Firm multinationality mediates the relationship between firm-specific assets and firm performance.

Firm-specific assets as a moderator of the multinationality-performance relationship. With its primary focus on economizing on the costs of business transactions, internalization theory assigns a direct role to firm-specific assets in explaining firm multinationality, as detailed in the previous section. Nevertheless, how firms increase their value in international markets may well be a function of the interaction between firm multinationality and possession of intangible assets (Morck & Yeung, 1991). Under this alternative conceptualization of the role of firm-specific assets as a moderator of the multinationality-performance relationship, intangible assets are presumed to have some characteristics of public goods in that their value is enhanced in direct proportion to the scale of a firm’s markets. Since these knowledge assets are based largely on proprietary information and thus cannot be exchanged at arm’s length, for a variety of reasons arising from the economics of information as well as from their public good properties, they are indeed information-based; production skills, marketing skills, and so on are examples. Therefore, these intangible assets behave like public goods in that their value increases as a firm becomes more multinational. Accordingly, firm value should be positively correlated with multinationality *in the presence of firm-specific assets* (Morck & Yeung, 1991). Moreover, intangible assets that firms possess should depreciate little when applied to multiple markets, and therefore exploitation of firm-specific assets should be greater with the scope of

³ We should note that resource-based theory provides an explanation for a direct link between strategic resources and performance for those resources that meet the theory’s criteria (Crook et al., 2008). We focus on this issue in the subsequent sections.

their use within the same firm (Lu & Beamish, 2004). As a mechanism for exploiting the value of intangible assets, multinationality should generate more value as the intangible assets become more substantial. In other words, the value of firm-specific assets, intangible ones in particular, should increase with degree of multinationality because the efficiency of and returns to their exploitation are greater when their scope of use is greater.

An additional argument supporting the moderating effect of firm-specific assets on the multinationality-performance relationship is based on knowledge-based theories. Given its foundation in transaction costs, internalization theory is primarily concerned with the relative efficiency of a governance choice focused on a given transaction. We relax this assumption by considering that any given transaction is partially embedded in both past and future transactions. Accordingly, as an efficient organizational vehicle for transferring knowledge across borders (Kogut & Zander, 1993), an MNE accumulates a capacity to effect these internal transfers with repeated transactions—more specifically, transfers of firm-specific assets internationally. Tallman referred to this advantage as the “ownership of the architectural capabilities to transfer and transform unique technologies more efficiently” (2003: 496). Adopting this assumption has two important implications for the interaction between multinationality and firm-specific assets. First, this architectural capacity allows an MNE to become more proficient and efficient in exploiting its firm-specific assets as it expands. Second, with the growing network and reach of the MNE’s international presence, the firm essentially creates future strategic options for growth as new firm-specific assets are generated (Kogut & Zander, 1995). As a consequence, the MNE not only becomes more efficient as its geographic scope expands, but can also appropriate a greater proportion of the total possible rents of any given firm-specific asset.

Therefore, extending internalization theory, we maintain that firms should achieve differential benefits from the interaction of their international expansion and firm-specific assets. In particular, firms with high R&D and advertising intensity will achieve greater gains from multinationality than firms with low R&D and advertising intensity because the former can generate abnormal returns from multinationality through the exploitation of market imperfections due to their more efficient structure and better governance. Accordingly, we propose the following:

Hypothesis 3. Firm-specific assets moderate the relationship between multinationality and

performance in such a way that the multinationality-performance relationship is stronger as the level of firm-specific assets (R&D and advertising intensity) increases.

The contribution of internalization theory to understanding of the MNE form can be fully identified by imposing restrictions on the general statement that imperfect markets will be internalized until the benefits are equaled by the costs in relation to particular markets at specific points of time and across limited economic space (Buckley, 1988). Accordingly, an important gap in internalization theory concerns the specification of the circumstances in which markets will not be efficient because of contracting problems and associated transaction costs, and how these special conditions enhance the returns available from a firm’s assets. Different types of market imperfections in intermediate markets that generate significant benefits to internalization have been identified in the internalization literature (Buckley & Casson, 1976; Teece, 1986). In particular, “the strongest case” in which these kinds of imperfections arise concerns the markets for various types of knowledge (Buckley & Casson, 1976: 39). Thus, to go beyond the general predictions of internalization theory and to provide a foundation for normative criteria useful for management and public policy, the type and nature of market imperfections must be given closer scrutiny. Accordingly, it is critical to identify those instances in which a profit-seeking foreign firm that replaces arm’s-length market transactions with internal transactions has higher returns available from its assets.

Since the value of intangible assets is based largely on proprietary information, and the benefits of internalization arise from the avoidance of imperfections in an external market, the extent to which firm-specific assets confer rents should depend on the nature of market imperfections in the environment in which a firm operates. Although this issue has largely been ignored in the literature, industry- and country-specific factors are undeniably relevant to internalization decisions, as there are certain market environments in which the incentive to internalize is particularly strong and the benefits connected with the possession of certain types of firm-specific assets are greater (Buckley & Casson, 1976). For instance, the possession of firm-specific assets can be especially relevant to MNE performance in less developed country markets and in business environments that are characterized by rapid and systemic technological change.

In this study, we examine the moderating impacts of firm-specific assets on the multinationality-

performance relationship in different industry and home country environments to assess the predictive power of internalization theory. As such, we maintain that our definition of the nature of firm-specific assets should formalize, refine, and test the boundary conditions of internalization theory (cf. Buckley, 1988). In short, we expect to observe the moderating effects of firm-specific assets on the multinationality-performance relationship posited above to be stronger as the characteristics of firm-specific assets are matched to country and industry contexts. Specifically, we expect R&D assets to have the strongest impact on the multinationality-performance relationship in manufacturing and high technology-based industries, whereas the strongest impact of advertising intensity on the multinationality-performance relationship should be observed in service and low technology-based industries. Manufacturing and high technology-based industries are characterized by rapid and systemic technological change. On the other hand, the production of knowledge through R&D in these industries involves lengthy projects requiring long-term commitment and investments (Teece, 1986). Because the effects of contracting problems and associated transaction costs are more significant in manufacturing and high technology, the gains for knowledge internalization could be more substantial in these industries than in services and low technology. But the market for know-how might work quite satisfactorily in services and low technology-based industries because patents and know-how licensing (i.e., market rather than hierarchy) should enable an innovating firm to obtain maximum possible returns from innovation.

In services and low technology-based industries, advertising intensity may play a more pronounced role in the multinationality-performance relationship because of the unpatentable, tacit, and non-codifiable nature of marketing skills and know-how. Transaction cost problems often arise in these industries in the transfer of marketing skills and know-how because of difficulties associated with disclosing value to buyers in a way that is convincing and that does not destroy the basis for exchange (Buckley & Casson, 1976). However, marketing skills and know-how cannot often be patented and codified, since these types of assets have significant tacit components (Teece, 1986). Therefore, for firms in services and low-technology industries, patents and know-how licensing (i.e., market transactions) may not be optimal for obtaining maximum possible returns from marketing assets.

Furthermore, in the aggregate, we expect that the moderating effects of firm-specific assets on the multinationality-performance relationship will

provide stronger explanatory power for MNEs from advanced economies than for those from developing economies. This expectation is largely based on the assumption that MNEs from developed countries are more likely to avoid external market imperfections, and these firm-specific assets are historically more prevalent in advanced economies (Wan & Hoskisson, 2003). Thus, MNEs from developed countries should generate higher returns from their intangible assets than their developing counterparts because of the higher levels of firm-specific assets and their higher tendency to internalize these assets. In other words, we maintain that MNEs from developed economies not only possess higher levels of rent-yielding assets owing to their home country advantages, but are also more likely to internalize firm-specific advantages owing to market imperfections. In turn, the interaction between firm-specific assets and their greater use in larger geographic scope should yield more substantial returns for MNEs from developed economies than for those from developing countries. Thus, we propose the following hypotheses:

Hypothesis 4a. The relationship between multinationality and performance is stronger for R&D-intensive MNEs in manufacturing industries than for R&D-intensive MNEs in service industries.

Hypothesis 4b. The relationship between multinationality and performance is stronger for R&D-intensive MNEs in high technology-based industries than for R&D-intensive MNEs in low technology-based industries.

Hypothesis 5a. The relationship between multinationality and performance is stronger for MNEs with high advertising intensity in service industries than for MNEs with high advertising intensity in manufacturing industries.

Hypothesis 5b. The relationship between multinationality and performance is stronger for MNEs with high advertising intensity in low technology-based industries than for MNEs with high advertising intensity in high technology-based industries.

Hypothesis 6a. The relationship between multinationality and performance is stronger for R&D-intensive MNEs from advanced economies than for R&D-intensive MNEs from developing economies.

Hypothesis 6b. The relationship between multinationality and performance is stronger for MNEs with high advertising intensity from ad-

vanced economies than for MNEs with high advertising intensity from developing economies.

Firm strategic resources vis-à-vis multinationality. A fundamental issue in corporate strategy is the examination of factors that determine the success or failure of firms in international settings (Rumelt, Schendel, & Teece, 1994). In this regard, multinationality research has made a significant contribution to the field of strategic management with its explicit focus on the complex relationship between multinationality and firm performance (Hitt, Hoskisson, & Kim, 1997; Lu & Beamish, 2004). Although past research has investigated the performance implications of multinationality in combination with various strategic resources (e.g., Tallman & Li, 1996), a critical issue that remains largely ignored in the extant literature is whether it is the possession of strategic resources or firm multinationality that ultimately drives superior firm performance (Delios & Beamish, 1999). Using a path-analytic approach, we investigate this important theoretical question: Is there value intrinsic to firm multinationality above and beyond the strategic resources that firms possess in international markets?

As detailed in the previous sections, internalization theory provides a strong rationale regarding the existence of MNEs, as well as why such firms might be expected to perform well in international markets (Rugman, 1986). Internalization theory primarily focuses on the direct effects of a specific set of proprietary assets on multinationality. In this study, we extend this theoretical perspective by focusing on the indirect mediating and moderating effects of firm-specific assets through multinationality on firm performance. However, from a resource-based perspective, the critical issue of interest is the direct role of these strategic resources in enhancing firm performance in international markets (Barney, 1991; Peteraf, 1993). Accordingly, we examine the effects of multinationality and strategic resources on performance to assess whether multinationality has an effect on performance that goes above and beyond the effects of firms' strategic resources after product diversification, international experience, age, and size have been controlled for.

In our model, we include product diversification as a control variable because the linkage between product diversification and performance is perhaps the single most studied relationship in the management strategy literature. Also, several studies have indicated that product diversification is related to both multinationality and performance (e.g., Hitt et al., 1997; Palich, Cardinal, & Miller, 2000; Tallman & Li, 1996). International experience is a function

of the extent to which a firm has operated in international markets previously (Fang, Wade, Delios, & Beamish, 2007). Firms with extensive experience have general knowledge about operating in international environments. This form of knowledge can be valuable, as it contributes to a firm's capability to manage international operations and select among diverse market opportunities (Johanson & Vahlne, 1977). Given its value, international experience is a knowledge resource that firms can use to create competitive advantage (Fang et al., 2007). Therefore, international experience was also included as a control variable in this study. Firm age is considered to be a determinant of performance because young firms typically have a higher failure rate than old firms, owing to liabilities of newness. Older firms are typically more experienced, command greater reliability and legitimacy, benefit from learning, and are associated with first mover advantages (McDougall & Oviatt, 1996). Finally, firm size is positively associated with performance because it is typically indicative of a broad resource base. Larger firms are beneficiaries of scale and scope economies as powerful market players, capable of preemptive moves that prevent later entrants from gaining access to suppliers, markets, customers, and other scarce assets (Gaba, Pan, & Ungson, 2002). Larger scale also enables firms to have more resources with which to invest in innovations, pursue aggressive expansions, and bear the costs and risks of internationalization. This discussion of strategic firm resources and important control factors leads to our final hypothesis:

Hypothesis 7. Multinationality has a positive effect on firm performance, given control for the effects of strategic firm resources.

METHODS

Data Collection

To ensure the representativeness and completeness of our database, we used a four-stage sampling procedure to identify studies to be included in the meta-analysis. In the first stage, the ABI/INFORM and Science Direct databases were searched for studies published prior to 2008 with the following search terms: "multinationality," "degree of internationalization," "international diversification," and "internationalization." Second, an issue-by-issue search was conducted for 14 major journals in international business, management, marketing, and finance.⁴

⁴ *Academy of Management Journal, American Economic Review, Econometrica, Journal of Finance, Journal*

Third, we examined the reference sections of all major reviews of research previously published on the topic to identify any studies that we might have overlooked in the previous two stages (e.g., Annavarjula & Beldona, 2000; Bausch & Krist, 2007; Hitt, Tihanyi et al., 2006; Thomas & Eden, 2004). Finally, requests were posted on AIB and Academy of Management listservs to elicit unpublished research in an effort to address the “file-drawer” problem (Rosenthal, 1995).

Studies were selected for inclusion in the meta-analysis on the basis of four criteria (Lipsey & Wilson, 2001). First, the meta-analysis included only those empirical studies that reported sample sizes and an outcome statistic (e.g., r , univariate F , t , χ^2) that allowed the computation of a correlation coefficient with the formulas provided by Hunter and Schmidt (1990: 272). Second, a study had to report on relationships involving one or more operationalizations of multinationality and financial performance.⁵ Third, only those studies that measured constructs at the firm level were included so that results from research that had vastly divergent goals were not aggregated (Hunter & Schmidt, 1990). Fourth, studies were considered independent only when they reported correlation coefficients from different samples. Accordingly, a number of studies could not be included because (1) they focused on the impacts of multinationality on market-based performance measures (e.g., stock value) or operational performance (e.g., operational efficiency), (2) the results were based on data used in other studies that were already included, or (3) their results were reported only in multivariate models.⁶ Upon completion of the literature re-

trieval procedures, we had obtained a total of 120 independent samples reported in 111 studies.

Procedures recommended in Lipsey and Wilson (2001) were followed for the development of the final database. First, to reduce coding error we prepared a coding protocol specifying the information to be extracted from each study. An initial draft of the coding protocol was revised on the basis of feedback from four international business scholars regarding the appropriateness of the coding scheme. Then, a coding form was prepared for coders who recorded the extracted data on the variables of interest, including outcome statistics (i.e., effect size estimates), study sample sizes, statistical artifacts (i.e., measure reliability statistics), and study characteristics. Two coders knowledgeable about the multinationality-performance literature coded each study. The intercoder reliability estimate ranged between .92 and .97, suggesting that the reliability of the coding process was high (Perreault & Leigh, 1989). Remaining discrepancies were resolved through discussion and consensus reached. Table 1 lists all studies included in the meta-analysis and the coded information used in data analysis.

Data Analysis

Following recent meta-analytic reviews (Crook et al., 2008; Geyskens et al., 2006), we conducted this meta-analysis according to the guidelines provided by Hunter and Schmidt (1990). We corrected the effects obtained from each study for measurement error by dividing the correlation coefficient by the product of the square root of the reliabilities of the two constructs. The objective of this step is essentially to correct for imperfections of research methods used in the primary studies (Hunter & Schmidt, 1990). Then, the reliability-corrected correlations were transformed into Fisher's z -coefficients in an effort to account for the skewness of the distribution of sample correlation coefficients (Rosenthal, 1994). Subsequently, we averaged and weighted the z -coefficients by an estimate of the inverse of their variance ($N - 3$) to give greater weight to more precise estimates and reconverted the results to correlation coefficients (Hedges & Olkin, 1985). Finally, we also tested for possible availability bias using both procedures recommended by Lipsey and Wilson (2001).

of Financial and Quantitative Analysis, International Business Review, International Marketing Review, Journal of International Business Studies, Journal of International Marketing, Journal of World Business, Management International Review, Multinational Business Review, RAND Journal of Economics, and Strategic Management Journal (cf. Dubois & Reeb, 2000; Palich et al., 2000).

⁵ One of the major limitations of this stream of research involves the inability of researchers to ascertain to what extent performance led to multinationality or multinationality led to performance (Bowen, 2007). To address this issue, we only included in the meta-analytic database those studies that examined two types of multinationality-performance relationships: (1) prior multinationality related to subsequent performance and (2) contemporaneous (cross-sectional) associations (cf. Orlitzky, Schmidt, & Ryans, 2003). We thank an anonymous reviewer for this suggestion.

⁶ We contacted the authors of 73 studies that reported multivariate results (e.g., regression coefficients) with

requests to provide the necessary information in an effort to include these studies in the database. These efforts yielded 6 additional studies that were subsequently included in the meta-analysis.

TABLE 1
Summary of Studies Included in the Meta-analysis

Study	Firm-Specific Assets: R&D and Advertising Intensity ^b	Industry Type: Manufacturing vs. Services	Industry Type: High vs. Low Technology-Based ^c	Home Country Economy
Agarwal (1994)	Low R&D intensity	Manufacturing	—	U.S. (advanced)
Andersen & Foss (2005)	—	Manufacturing	High technology	U.S. (advanced)
Aulakh, Kotabe, & Teegan (2000)	—	Mixed	—	Brazil, Chile, and Mexico (developing)
Autio, Sapienza, & Almeida (2000)	—	Manufacturing	High technology	Finland (advanced)
Bae & Jain (2003)	High R&D intensity	Mixed	—	U.S. (advanced)
Barkema & Vermeulen (1998)	—	Mixed	—	Netherlands (advanced)
Best (1997)	—	Manufacturing	—	U.S. (advanced)
Black (1997)	—	Manufacturing	—	U.S. (advanced)
Bloodgood, Sapienza, & Almeida (1996)	Low R&D intensity	Manufacturing	—	U.S. (advanced)
Brammer, Pavelin, & Porter (2006)	—	Mixed	Low technology	U.K. (advanced)
Brock & Yaffe (2008)	—	Services	Low technology	U.S. and U.K. (advanced)
Buhner (1987)	—	Mixed	—	Germany (advanced)
Capar & Kotabe (2003)	—	Services	—	Germany (advanced)
Carpenter & Sanders (2004)	Low R&D intensity	Mixed	—	U.S. (advanced)
Carpenter (2002)	—	Manufacturing	—	U.S. (advanced)
Carpenter, Sanders, & Gregersen (2001)	Low R&D intensity	Mixed	—	U.S. (advanced)
Chang & Wang (2007)	High R&D intensity	Mixed	—	U.S. (advanced)
Chari, Devaraj, & David (2007)	Low R&D and low advertising intensity	Mixed	—	Mixed
Chen & Martin (2001)	—	Manufacturing	High technology	U.S. (advanced)
Chiao, Yang, & Yu (2006) ^a	Low R&D and low advertising intensity	Manufacturing	High technology	Taiwan (developing)
Christophe & Lee (2005)	High R&D and high advertising intensity	Manufacturing	—	U.S. (advanced)
Colombo (1995)	High R&D intensity	Manufacturing	High technology	Mixed
Declercq, Sapienza, & Crijins (2005)	—	Mixed	—	Belgium (advanced)
Delios & Beamish (1999)	Low R&D and low advertising intensity	Manufacturing	—	Japan (advanced)
Delios & Beamish (2000)	Low R&D and low advertising intensity	Manufacturing	—	Japan (advanced)
Dhanaraj & Beamish (2003) ^a	High R&D intensity	Mixed	—	Canada (advanced)
Dibrell, Davis, & Danskin (2005)	—	Manufacturing	Low technology	U.S. (advanced)
Doukas & Kan (2006)	—	Mixed	—	U.S. (advanced)
Elango (2000)	Low R&D and high advertising intensity	Manufacturing	—	U.S. (advanced)
Ellstrand, Tihanyi, & Johnson (2002)	—	Manufacturing	—	U.S. (advanced)
Forman & Hunt (2005)	—	Manufacturing	High technology	U.S. (advanced)
Gaur (2007)	Low R&D and high advertising intensity	Services	—	India (developing)
Genc & Castaner (2004)	—	Services	Low technology	Europe, U.S., and Japan (advanced)
Geringer, Beamish, & daCosta (1989)	—	Mixed	—	U.S. and Europe (advanced)
Geringer, Tallman, & Olsen (2000)	—	Manufacturing	—	Japan (advanced)
Gerpott & Jakopin (2005)	High R&D intensity	Services	High technology	Europe (advanced)
Goerzen & Beamish (2003)	Low R&D and low advertising intensity	Mixed	—	Japan (advanced)
Goerzen & Beamish (2005)	High R&D and low advertising intensity	Manufacturing	—	Japan (advanced)
Gomes & Ramaswamy (1999)	—	Manufacturing	High technology	U.S. (advanced)
Gomez-Mejia & Palich (1997)	High R&D and high advertising intensity	Mixed	—	U.S. (advanced)

TABLE 1
(Continued)

Study	Firm-Specific Assets: R&D and Advertising Intensity ^b	Industry Type: Manufacturing vs. Services	Industry Type: High vs. Low Technology-Based ^c	Home Country Economy
Grant (1987)	—	Manufacturing	—	U.K. (advanced)
Grant, Jammine, & Thomas (1988)	—	Manufacturing	—	U.K. (advanced)
Hashai, Delios, & Brookfield (2007)	Low R&D and low advertising intensity	Manufacturing	Low technology	Europe, U.S., and Japan (advanced)
Herrmann & Datta (2002)	Low R&D and low advertising intensity	Manufacturing	—	U.S. (advanced)
Herrmann & Datta (2005)	Low R&D intensity	Manufacturing	—	U.S. (advanced)
Hitt (2006)	—	Services	Low technology	U.S. (advanced)
Hitt, Hoskisson, & Kim (1997)	High R&D intensity	Manufacturing	—	Mixed
Hsu & Boggs (2003)	High R&D intensity	Mixed	—	U.S. (advanced)
Hsu & Liu (2007)	Low R&D intensity	Manufacturing	High technology	Taiwan (developing)
Itto-Gilles (1998)	—	Mixed	—	Mixed
Jantunen, Puumalainen, Saarenketo, & Kylabeiko (2005)	—	Mixed	—	Finland (advanced)
Jeong (2003)	—	Manufacturing	—	U.S. (advanced)
Jung (1991) ^a	—	Mixed	—	U.S. (advanced)
Kennelly & Lewis (2004) ^a	—	Manufacturing	—	U.S. (advanced)
Kim, Hoskisson, & Wan (2004)	—	Manufacturing	—	Japan (advanced)
Krist, Bausch, & Rosenbusch (2006)	High R&D intensity	Manufacturing	—	Germany (advanced)
Kumar & Gaur (2007)	—	Mixed	—	India (developing)
Lee, Hall, & Rutherford (2003) ^a	Low R&D and low advertising intensity	Manufacturing	—	U.S. (advanced)
Li (2001)	—	Mixed	—	China (developing)
Li (2005)	Low advertising intensity	Services	—	U.S. (advanced)
Li, Holmes, & Hitt (2005)	Low R&D intensity	Manufacturing	High technology	U.S. (advanced)
Li & Qian (2005)	High R&D intensity	Mixed	—	U.S. (advanced)
Li, Shi, & Li (2007)	High R&D intensity	Manufacturing	High technology	U.S. (advanced)
Lin, Er, & Winston (2005)	—	Mixed	—	Singapore (developing)
Lu & Beamish (2001)	Low R&D and high advertising intensity	Mixed	—	Japan (advanced)
Lu & Beamish (2004)	Low R&D and high advertising intensity	Mixed	—	Japan (advanced)
Luo, Zhou, & Liu (2005)	—	Mixed	—	China (developing)
Lyles, Saxton, & Watson (2004)	—	Mixed	—	Hungary (developing)
Majocchi & Zucchella (2003)	Low R&D and high advertising intensity	Manufacturing	—	Italy (advanced)
Mauri & Sambharya (2001)	—	Manufacturing	High technology	U.S. (advanced)
McDougall & Oviatt (1996)	—	Manufacturing	High technology	U.S. (advanced)
Nachum (2004)	—	Mixed	—	Mixed (developing)
Nazar (1999) ^a	—	Manufacturing	—	U.S. (advanced)
Olusoga (1993)	—	Mixed	—	U.S. (advanced)
Osegowitsch (2003)	—	Manufacturing	—	Mixed (advanced)
Qian (1996)	—	Mixed	—	U.S. (advanced)
Qian (2002)	High R&D and high advertising intensity	Manufacturing	—	U.S. (advanced)
Qian & Li (2002)	—	Mixed	—	U.S. (advanced)
Qian & Li (2003)	High R&D and high advertising intensity	Manufacturing	High technology	U.S. (advanced)
Ramaswamy (1995)	—	Manufacturing	High technology	U.S. (advanced)
Reuer & Leiblein (2000)	—	Manufacturing	—	U.S. (advanced)
Riahi-Belkaoui & Picur (1998)	—	Mixed	—	U.S. (advanced)
Roth (1995)	—	Manufacturing	—	U.S. (advanced)
Roth & Ricks (1994)	—	Manufacturing	High technology	Japan, U.K., and U.S. (advanced)
Ruigrok, Amann, & Wagner (2007)	—	Manufacturing	—	Switzerland (advanced)
Ruigrok & Wagner (2003)	—	Manufacturing	High technology	Germany (advanced)
Sambharya (1995)	—	Manufacturing	—	U.S. (advanced)
Sambharya (1996)	—	Manufacturing	—	U.S. (advanced)

TABLE 1
(Continued)

Study	Firm-Specific Assets: R&D and Advertising Intensity ^b	Industry Type: Manufacturing vs. Services	Industry Type: High vs. Low Technology-Based ^c	Home Country Economy
Sanders & Carpenter (1998)	Low R&D intensity	Mixed	—	U.S. (advanced)
Shiue, Chung, & Yen (2005)	High R&D and low advertising intensity	Manufacturing	High technology	Taiwan (developing)
Shrader, Oviatt, & McDougall (2000)	—	Mixed	High technology	U.S. (advanced)
Siddharthan & Lall (1982)	—	Manufacturing	—	U.S. (advanced)
Simmonds & Lamont (1996)	—	Mixed	—	U.S. (advanced)
Strike, Gao, & Bansal (2006)	High R&D and high advertising intensity	Mixed	—	U.S. (advanced)
Tallman & Li (1996)	—	Manufacturing	—	U.S. (advanced)
Tallman, Geringer, & Olsen (2004)	High R&D intensity	Manufacturing	—	Japan (advanced)
Thomas (2006)	—	Mixed	—	Mexico (developing)
Thomas, Arthur, & Hood (2007)	—	Mixed	—	Mexico (developing)
Thomas & Eden (2004)	High R&D intensity	Manufacturing	—	U.S. (advanced)
Tihanyi, Johnson, Hoskisson, & Hitt (2003)	—	Mixed	—	U.S. (advanced)
Vermeulen & Barkema (2002)	—	Manufacturing	—	Netherlands (advanced)
Wan & Hoskisson (2003) ^a	—	Mixed	—	Mixed (advanced)
Wan (1998)	—	Mixed	Low technology	Hong Kong (developing)
Wan, Yiu, Hoskisson, & Kim (2008) ^a	—	Services	Low technology	Japan (advanced)
Wiersema & Bowen (2008)	High R&D intensity	Manufacturing	—	U.S. (advanced)
Wolf & Egelhoff (2001)	—	Mixed	—	Germany (advanced)
Wolff & Pett (2006)	—	Manufacturing	—	U.S. (advanced)
Yeoh (2004)	—	Mixed	High technology	U.S. (advanced)
Zahra & Garvis (2000)	—	Manufacturing	—	U.S. (advanced)
Zahra, Ireland, & Hitt (2000)	—	Manufacturing	High technology	U.S. (advanced)
Zhou, Wu, & Luo (2007)	—	Manufacturing	—	China (developing)

^a Two correlation matrixes were obtained from this study.

^b Study samples have been categorized into two groups (high and low R&D intensity, high and low advertising intensity) based on the median split of means reported in original studies. Specifically, an average R&D ratio of 3 percent (1.1 percent for advertising intensity) and below was considered a “low” and a ratio greater than 3 percent (1.1 percent for advertising intensity) implied a “high” level of R&D intensity (advertising intensity).

^c Industries were classified according to the U.S. National Science Foundation System (cf. Zahra, Ireland, & Hitt, 2000).

In the last step of the data analysis, we constructed a meta-analytic correlation matrix for using aggregated study effects for theory testing (Viswesvaran & Ones, 1995). For a construct to be included in the multivariate path analysis in a meta-analysis, multiple study effects that relate that construct to every other construct in the model forwarded in the meta-analysis should be available. Thus, we also conducted meta-analyses relating all variables to one another using data from all primary studies in our database providing this information. Specifically, we calculated mean correlations adjusted for sample size for each pair of constructs to construct a correlation matrix for relationships involving firm-specific assets (i.e., R&D intensity and advertising intensity), firm multinationality, control variables (i.e., product diversification, firm size, international experience, and age), and financial performance. Since correlations involving in-

teractions are seldom available, we were not able to include the interaction effects in our path model (cf. Geyskens et al., 2006). As an alternative, we employed subgroup analysis for pairwise relationships to test the predictions of Hypotheses 3 through 6. Importantly, in constructing our meta-analytic matrix, we noticed that no sample included all variables of interest, and the number of samples contributing to each meta-analytic correlation was far fewer than the total number of samples.

RESULTS

Bivariate Correlations

Table 2 summarizes the number of study effects, cumulative sample size, corrected mean correlations, standard errors, and 95% confidence intervals around the average corrected correlations for

TABLE 2
Overview of the Multinationality-Performance Relationship

Relationships	Number of Effects ^a	Total Sample Size	Corrected Mean r^b	Standard Error	95% Confidence Interval	Availability Bias ^c
Asset specificity–Multinationality	84	42,628	.14**	.005	.13 to .15	1,123
R&D intensity–Multinationality	57	27,991	.17**	.006	.16 to .19	784
Advertising intensity–Multinationality	27	14,637	.07**	.008	.05 to .08	85
Multinationality–Financial performance	346	104,074	.10**	.003	.09 to .11	5,308
ROA	83	27,610	.07**	.006	.06 to .08	416
Sales	74	17,251	.19**	.008	.18 to .21	874
ROS	51	16,807	.07**	.008	.05 to .08	179
Overall profitability	37	10,944	.09**	.010	.07 to .11	144
Sales growth	35	7,780	.11**	.011	.09 to .13	138
ROE	28	8,680	.12**	.011	.09 to .14	125
Tobin's Q	12	7,812	.11**	.011	.08 to .13	45
ROI	10	2,752	.04**	.019	.01 to .08	2

^a The sum of the total number of effects is not equal to 346 because the table includes information concerning relationship for which at least ten study effects were available.

^b The corrected mean correlation coefficients (r 's) are the sample-size-weighted, reliability-corrected estimates of the population correlation coefficients.

^c Availability bias refers to the number of unpublished studies reporting null results needed to reduce the cumulative effect across studies to the point of nonsignificance (Lipsey & Wilson, 2001).

** $p < .01$

each pairwise relationship, as well as the availability bias for each relationship included in the table. Providing support for Hypothesis 1, we obtained significant, positive, reliability-corrected mean correlations for the relationship between asset specificity and firm multinationality ($r = .14, p < .01$). In addition, the bivariate results indicate that R&D intensity ($r = .17, p < .01$) has a more significant effect on firm multinationality than advertising intensity ($r = .07, p < .01$). Moreover, the bivariate analysis also confirms the widely held belief that multinationality engenders positive dividends for firms, on the basis of meta-analysis of a total of 346 effects obtained from 120 independent samples reported in 111 studies ($r = .10, p < .01, N = 104,074$). As reported under the heading "Availability Bias" in Table 2, a large number of unpublished studies (5,308) would be required to reduce this cumulative effect across studies to the point of nonsignificance. To gain further insights, we also investigated the linkages between multinationality and various measures of performance. As shown in Table 2, results reveal that multinationality has positive effects on sales ($r = .19, p < .01$), return on equity (ROE; $r = .12, p < .01$), sales growth ($r = .11, p < .01$), Tobin's Q ($r = .11, p < .01$), overall profitability ($r = .09, p < .01$), return on assets (ROA; $r = .07, p < .01$), return on sales (ROS; $r = .07, p < .01$), and return on investment (ROI; $r = .04, p < .01$).

Firm-Specific Assets, Multinationality, and Firm Performance

Table 3 presents the meta-analytic correlation matrix employed in our path analyses. Since each entry in the matrix contains a sample-size-weighted, average correlation coefficient aggregated across available studies, this correlation matrix represents the culmination of 28 individual meta-analyses (i.e., 1 meta-analysis for each correlation coefficient included in the matrix). We used this correlation matrix as input for a LISREL estimation program to test the hypothesized relationships in Hypotheses 1, 2, and 7 through path analysis. In the estimation process, we employed the full information maximum-likelihood method to account for the simultaneity bias in the multinationality-performance relationship (cf. Geyskens et al., 2006). We tested for the precision of parameter estimates via the harmonic mean (i.e., $N = 2,352$), which was determined by using the sample sizes across effect size cells comprising each entry in the meta-analytic correlation matrix (Viswesmeran & Ones, 1995).

In addition to the bivariate analyses, we conducted multivariate analysis of the correlation matrix presented in Table 3 to test Hypothesis 1. Specifically, and in keeping with the predictions of internalization theory, we tested the generalizability of the basic relationship between firm-specific assets and multinationality by estimating a path

TABLE 3
Meta-analytic Correlation Matrix^a

Variable	1	2	3	4	5	6	7	8
1. Financial performance	1.0	346 (104,014)	45 (18,028)	23 (11,513)	40 (12,724)	9 (2,208)	12 (3,387)	44 (12,160)
2. Multinationality	0.10	1.0	57 (27,991)	27 (14,637)	59 (21,169)	11 (2,876)	19 (6,011)	51 (18,065)
3. Firm R&D intensity	0.12	0.17	1.0	28 (14,718)	24 (10,531)	3 (1,199)	5 (3,139)	23 (9,882)
4. Firm advertising intensity	0.05	0.07	0.12	1.0	11 (4,203)	3 (1,160)	4 (2,862)	14 (6,177)
5. Firm size (number of employees)	0.07	0.17	0.09	-0.04	1.0	8 (1,695)	10 (2,358)	14 (4,153)
6. Firm international experience	0.17	0.18	0.17	0.06	0.15	1.0	4 (682)	4 (1,831)
7. Firm age	0.14	0.04	0.07	0.03	0.18	0.07	1.0	6 (2,268)
8. Product diversification	0.01	0.08	0.10	-0.06	0.12	0.18	0.06	1.0

^a Off-diagonal entries on the lower left contain the average sample-size-weighted correlation (r) values. Off-diagonal entries in the upper right show the total sample sizes (N s) and the number of samples (k 's, in parentheses) from which the mean correlations were derived.

model in which R&D intensity and advertising intensity were included as independent variables, and multinationality as the dependent variable. In this model, we included several important organizational variables as controls, such as firm international experience, age, and size, to isolate the effects of firm-specific assets on firm multinationality (Autio, Sapienza, & Almedia, 2000; Hitt, Bierman et al., 2006). Table 4, model 1, presents the results for the path analysis. Since path analysis controls for redundancy in measures of independent variables, our multivariate analysis provides a more precise test of Hypothesis 1 than the bivariate analysis reported earlier. Supporting Hypothesis 1, the multivariate findings indicate that R&D intensity ($\beta = 0.13$, $p < .01$) and advertising intensity ($\beta = 0.05$, $p < .01$) have positive effects on firm

multinationality after the effects of firm size ($\beta = 0.14$, $p < .01$), international experience ($\beta = 0.13$, $p < .01$), and age ($\beta = 0.00$, $p > .10$) have been controlled for. Importantly, fit indexes suggest adequate fit for the model ($\chi^2 = 2.68$, $df = 1$, $p < .01$; root-mean-square residual [RMSR] = .01; adjusted goodness-of-fit index [AGFI] = .99).⁷

Supporting Hypothesis 2, the results of multivariate path analysis indicate that firm multinationality is a channel through which firm-specific assets are ex-

⁷ Although the chi-square statistics of the model were statistically significant, these estimates were sensitive to sample size. Therefore, we used the following fit indexes and cutoff values to evaluate the goodness of fit of models: RMSR < .06 and AGFI > .90 (cf. Geyskens et al., 2006).

TABLE 4
Multivariate Model Estimation Results

Predictors	Model 1 (Hypothesis 1)		Model 2 (Hypothesis 2)				Model 3 (Hypothesis 7)	
	Multinationality		Multinationality		Financial Performance		Financial Performance	
	β	t	β	t	β	t	β	t
Asset specificity								
R&D intensity	0.13	6.46**	0.17	8.19**			0.08	3.68**
Advertising intensity	0.05	8.99**	0.05	2.30**			0.02	1.22
Multinationality					0.06	2.30**	0.05	2.52**
Control variables								
Firm size	0.14	6.73**			0.03	1.62	0.03	1.57
International experience	0.13	6.56**			0.15	7.38**	0.14	6.72**
Firm age	0.00	0.22			0.13	6.21**	0.12	5.99**
Product diversification					-0.04	-1.73	-0.04	-1.90
Chi-square (df)	2.68 (1)		117.34** (6)				12.52** (1)	
RMSR	.01		.04				.01	
AGFI	.99		.93				.95	

** $p < .01$

ploited to generate high returns in international markets. As presented in Table 4, model 2, the coefficient estimates for the firm-specific assets-multinationality relationship were positive and highly significant for both R&D intensity ($\beta = 0.17, p < .01$) and advertising intensity ($\beta = 0.05, p < .01$). Moreover, the path coefficient for multinationality-performance was significant ($\beta = 0.06, p < .01$) in the presence of several control variables, such as firm size ($\beta = 0.03, p > .10$), international experience ($\beta = 0.15, p < .01$), age ($\beta = .13, p < .01$), and product diversification ($\beta = -0.04, p > .10$). Fit indexes also suggested adequate fit for the model ($\chi^2 = 117.34, df = 6, p < .01$; RMSR = .04; AGFI = .93).

In addition, we checked the indirect effects of R&D intensity and advertising intensity on financial performance to determine whether multinationality mediates the effects of firm-specific assets on performance. Interestingly, although the indirect effects of advertising intensity were not significant ($\beta = 0.00, p > .10$), the indirect impact of R&D intensity on performance was significant ($\beta = 0.02, p < .01$), demonstrating partial mediation for the R&D intensity-multinationality-performance link. In an effort to provide a stronger test of mediation for Hypothesis 2, we also estimated a revised model, in which we estimated the path coefficients for the direct effects of firm-specific assets (R&D and advertising intensity) on performance in addition to the path coefficients for the hypothesized relationships. Since the revised model is nested in model 2, chi-square differences could be used to test the significance of the changes in fit between the two models (Hu & Bentler, 1999). The revised model fit the data better than the first ($\Delta\chi^2 = 16.28, df = 2, p < .01$). Fit indexes for the revised model also indicated a good fit ($\chi^2 = 101.06, df = 4, p < .01$; RMSR = .04; AGFI = .90). Finally, the path coefficients in the revised model confirmed our previous findings in that R&D intensity ($\beta = 0.17, p < .01$) and advertising intensity ($\beta = 0.05, p < .01$) affect firm multinationality ($\beta = 0.05, p < .01$), which in turn enhances financial performance; and R&D intensity ($\beta = 0.08, p < .01$), firm size ($\beta = 0.03, p < .01$), international experience ($\beta = 0.14, p < .01$), and age ($\beta = 0.12, p < .01$) were significant predictors of financial performance in the revised model. The meta-analytic results also indicate that, on the aggregate, advertising intensity ($\beta = 0.03, p > .10$) and product diversification ($\beta = -0.04, p > .10$) do not have direct effects on financial performance.

Firm-specific assets as a moderator of the multinationality-performance relationship. We examined the hypothesized effects of Hypotheses 3–6 using subgroup analyses. Specifically, we calcu-

lated average reliability-corrected correlations for each level of moderator variable and compared these subgroup means using z-transformed values of effect sizes (Hunter & Schmidt, 1990). Importantly, we also tested for the homogeneity of the effects obtained for the multinationality-performance relationship using the procedures recommended by Hedges and Olkin (1985). The statistically significant chi-square value ($\chi^2_{345} = 2,545.23, p < .01$) for the multinationality-performance relationship revealed variability across effect sizes, and this further supported the need to examine theoretically relevant factors that explain the variance (Hunter & Schmidt, 1990). Results are presented in Table 5.

To assess the extent to which firm-specific assets affect the multinationality-performance relationship (Hypothesis 3), we categorized study samples into four groups based on the average R&D intensity and advertising intensity ratios reported in the original studies (cf. Bausch & Krist, 2007). For subgroup analyses, a median value was calculated for both R&D and advertising intensity across studies, and then study samples were categorized as those that included firms with high versus low R&D intensity and those with high versus low advertising intensity. Supporting Hypothesis 3, we found strong support for the moderating effects of R&D intensity on the multinationality-performance relationship. As detailed in Table 5, multinationality was more strongly associated with financial performance for R&D-intensive MNEs than for those MNEs with low levels of R&D investments ($r = .11$ vs. $r = .07, p < .01$). However, just the opposite pattern was observed for the moderating effects of advertising intensity on the multinationality-performance relationship: the samples comprised of MNEs with low advertising intensity yielded a stronger effect size for the multinationality-performance relationship than those samples of MNEs with high levels of advertising intensity, contrary to our prediction in Hypothesis 3 ($r = .05$ vs. $r = .09, p < .01$, respectively).

Hypotheses 4a, 4b, 5a, and 5b essentially propose two-way interactions concerning the moderating effects of industry setting and firm-specific assets on the relationship between multinationality and performance. Drawing on internalization theory, we predicted that the moderating effects of firm-specific assets on the multinationality-performance relationship should be stronger as the characteristics of these firm-specific assets are matched to a firm's industry context. Therefore, the subgroup analyses employed to test these hypotheses focused on selected combinations of industry types and the nature of firm-specific assets. As presented in Table

TABLE 5
Moderating Effects of Firm-Specific Assets on the Multinationality-Performance Relationship

Moderators	Levels	Total Number of Effects ^a	95% Confidence Interval	Corrected Mean <i>r</i>	Summary of Results
R&D intensity (H3)	a. High R&D intensity	84	.10 to .12	.11**	a > b**
	b. Low R&D intensity	65	.05 to .08	.07**	
Advertising intensity (H3)	a. High advertising intensity	33	.04 to .06	.05**	b > a**
	b. Low advertising intensity	51	.08 to .11	.09**	
R&D intensity in manufacturing vs. service industries (H4a)	a. High R&D intensity in manufacturing industry	46	.10 to .12	.11**	a > b > d**
	b. Low R&D intensity in manufacturing industry	42	.04 to .06	.06**	
	c. High R&D intensity in service industry	2	-.10 to .23	.07	
	d. Low R&D intensity in service industry	4	-.06 to .03	-.02	
R&D intensity in high vs. low technology-based industries (H4b)	a. High R&D intensity in high-technology-based industry	11	.07 to .16	.12**	—
	b. Low R&D intensity in high-technology-based industry	5	.02 to .13	.07*	
	c. High R&D intensity in low-technology-based industry				
	d. Low R&D intensity in low-technology-based industry	10	.04 to .14	.09**	
Advertising intensity in manufacturing vs. service industries (H5a)	a. High advertising intensity in manufacturing industry	19	.05 to .12	.08**	c > b > d**
	b. Low advertising intensity in manufacturing industry	43	.07 to .10	.08**	
	c. High advertising intensity in service industry	2	.10 to .27	.19**	
	d. Low advertising intensity in service industry	3	-.09 to .00	-.04	
Advertising intensity in high vs. low technology-based industries (H5b)	a. High advertising intensity in high-technology-based industry	2	-.05 to .30	.13	—
	b. Low advertising intensity in high-technology-based industry	7	.01 to .09	.05**	
	c. High advertising intensity in low-technology-based industry				
	d. Low advertising intensity in low-technology-based industry	10	.06 to .08	.09**	
Advertising and R&D intensity in advanced vs. developing economies (Hs 6a & 6b)	a. Advanced economy firms with high R&D intensity	72	.11 to .13	.12**	a > c**
	b. Advanced economy firms with high advertising intensity	29	.07 to .10	.07**	
	c. Developing economy firms with high R&D intensity	10	.03 to .08	.06**	b > d**
	d. Developing economy firms with high advertising	5	-.02 to .03	.01	

** $p < .01$

5, the results largely confirm our expectations. Hypothesis 4a predicts that the strongest impact of R&D assets on the multinationality-performance relationship should be observed in manufacturing industries. Our results support this hypothesis since the highest mean correlations for the focal relationship were obtained from samples of firms that have high levels of R&D intensity in manufacturing industries ($r = .11$, $p < .01$). In regards to

Hypothesis 4b, because of sample size limitations we could not calculate the mean effect sizes for R&D-intensive firms in low technology-based industries, and overall, the number of effect sizes was low across the categories. Nevertheless, we obtained directional support for the significance of R&D intensity for the multinationality-performance relationship in high technology-based industries ($r = .12$, $p < .01$).

Regarding Hypothesis 5a, we found support for the prediction that the strongest impact of advertising assets can be observed in service industries, as the results indicate that the strongest correlations for the multinationality-performance relationship were obtained in this context ($r = .19, p < .01$). However, our results fail to support Hypothesis 5b as there were no studies conducted in service industries with firms that have high levels of advertising intensity. However, the findings suggest that firms with low advertising intensity can still enhance their performance in international markets in low technology-based industries ($r = .09, p < .01$).

In Hypothesis 6, we state that the predictions of internalization theory concerning the moderating effects of firm-specific assets on the multinationality-performance relationship will provide stronger explanatory power for firms from advanced economies than for firms from developing economies. To test this prediction, we categorized the original studies included in the meta-analysis into two categories: studies based on data obtained from advanced economy MNEs and those based on data from developing economy MNEs. We followed a United Nations classification for this categorization (cf. Nachum, 2004). Study results based on data from advanced economy MNEs with high R&D intensity yielded stronger effect sizes than those obtained from developing economy MNEs with high R&D intensity ($r = .12$ vs. $r = .06, p < .01$, respectively). Similarly, the average effect size obtained from MNEs with high advertising intensity from advanced economies was significantly higher than the average effect size obtained from MNEs with high advertising intensity from developing economies ($r = .07$ vs. $r = .01, p < .01$, respectively). Therefore, Hypothesis 6 was supported.

Firm strategic resources vis-à-vis multinationality. To test Hypothesis 7, we estimated a path model in which multinationality, R&D intensity, and advertising intensity were included as independent variables, and firm performance was the dependent variable. Firm international experience, age, size, and product diversification were included as control variables to isolate the effects of multinationality and strategic firm resources on performance. Table 4, model 3, presents the results of path analysis. Fit indexes suggest adequate fit for the model ($\chi^2 = 12.52, df = 1, p < .01$; RMSR = .01, AGFI = .95). The findings suggest that multinationality has a positive effect on performance that goes above and beyond the effects of firm characteristics and strategic resources, in support of Hypothesis 7. Specifically, we find that whereas the possession of strategic resources such as R&D intensity ($\beta = 0.08,$

$p < .01$) and advertising intensity ($\beta = 0.02, p > .10$) have positive effects on firm performance, multinationality also enhances performance in international markets ($\beta = 0.05, p < .01$) after the effects of firm size, international experience, firm age, and product diversification are controlled for. The managerial and research implications of the results are discussed in the following section.

DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

Internalization theory, arguably the most influential theory in international business scholarship, has been a major theoretical lens through which researchers have investigated the motivation and existence of the MNE form, as well as why MNEs are expected to perform well in international markets. In this study, we tested the predictions of internalization theory in the context of the multinationality-performance relationship through a meta-analysis of 120 independent samples reported in 111 studies. As such, we integrated the unique theoretical insights on internalization theory and the multinationality-performance relationship accumulated over the last three decades across a large number of studies, research contexts, and disciplines. In addition, we further developed and refined understanding of internalization theory with a focus on the complex relationships involving firm-specific assets, multinationality, and financial performance.

Our efforts contribute to the literature in the following ways: First, by meta-analyzing the results of a large number of studies, we were able to comprehensively test a number of propositions derived from internalization theory. As such, we provide insights into several empirical controversies about the role and nature of firm-specific assets. Moreover, scholars have argued that the theoretical and empirical support for the existence of a relationship between multinationality and performance is tenuous (Hennart, 2007; Verbeke et al., 2009). In this study, we draw upon the traditional models of internalization theory in which the assumption is that multinationality is related to performance because market imperfections provide opportunities for internationally diversified firms to benefit substantially from the cross-border use of their intangible assets within an MNE. In addition, the results of meta-analysis provide strong empirical evidence for a positive multinationality-performance relationship. Drawing on internalization theory, we also show that although multinationality fully mediates the advertising intensity-performance relationship, R&D intensity has both direct and indirect

effects through multinationality on firm performance. This important finding indicates that multinationality provides an efficient organizational form that enables firms to transfer their valuable, rare, inimitable, nonsubstitutable resources and assets across country borders within the firms and enables these transfers to have positive impacts on firm performance.

Furthermore, our examination also delineates the conditions under which firm-specific assets have the strongest impact on the extent to which multinationality relates to financial performance. As such, we fill an important gap in internalization theory concerning the specification of the circumstances under which markets will not be efficient because of contracting problems and associated transaction costs and how these special conditions enhance the returns available from a firm's assets (Buckley & Casson, 1976; Teece, 1986). In this regard, our findings indicate that although the benefits connected with the possession of R&D intensity are particularly strong in manufacturing and high technology-based industries, the strongest impact of advertising assets can be observed in service industries. This finding points to the importance of the match between the role and nature of firm-specific assets with industry context.

In regards to our findings concerning the effects of country context, the empirical evidence confirms that although advanced economy firms with high R&D and advertising intensity substantially benefit from multinationality, the benefits of multinationality for developing economy firms that possess firm-specific assets are more limited. This finding suggests that the rise of new types of MNEs from developing economies is not only driven by the exploitation of firm-specific assets in profitable ways in international markets. Rather, it may be possible that MNEs from developing economies use internationalization to explore and acquire new patterns of innovation, upgrade their capabilities, and gain access to new markets (cf. Guillen & Garcia-Canal, 2009; Verbeke et al., 2009). Thus, an implication of our findings is that scholars may need to begin to revise existing models or develop new models to explain the movement of developing country MNEs into developed country contexts. Moreover, further research is warranted to seek a better understanding of the firm-specific asset configurations that would help MNEs from developing economies be more successful in advanced and other developing economies (cf. Wan & Hoskisson, 2003). Thus, researchers need to incorporate the country dimension more explicitly into their future investigations. The focus of the current debate on

the regional strategies of MNEs is a significant step in this direction (e.g., Rugman, 2007).

In addition, our findings suggest that firm-specific assets require special attention from a methodological perspective. Our review of the internalization literature suggests that surrogate or proxy measures have often been employed to capture the internalization of intangible assets. For example, advertising intensity has been used as a proxy to capture the tacit and intangible nature of marketing skills under the assumption that these expenses generate the aforementioned firm-specific assets. Contrary to our expectations, the meta-analytic findings suggest that the effects of multinationality on performance decline with higher levels of advertising intensity. The finding implies that the value of marketing assets depreciates when applied to multiple markets, and the exploitation of these assets does not necessarily enhance performance with the scope of their use in the same firm. This may be due to the fact that market imperfections are perhaps less likely to occur in service industries, where marketing skills are more easily imitated. Alternatively, this finding may also suggest that advertising intensity fails to capture the tacit and intangible nature of marketing assets and that researchers should employ more refined measures of marketing assets. Similarly, R&D intensity is the most common proxy used to denote the existence of internalization advantages, implying that high degrees of R&D intensity indicate the presence of intangible assets that lead to competitive advantage in international markets. Given that our study emphasizes the role and nature of firm-specific assets, a deeper understanding of the effects of technology assets in the multinationality-performance relationship also warrants more attention to measurement issues. Although discarding the proxy measures may not be a realistic option given data limitation issues, alternative approaches that involve more direct assessments through company records and/or managerial perceptions regarding the extent to which firms internalize firm-specific assets may be as useful and accurate as the proxy measures.

Finally, after controlling for firms' international experience, age, size, and product diversification, we found evidence supporting the view that multinationality has intrinsic value that goes above and beyond the value of the strategic resources that the firms possess. This finding not only validates a decades-old assumption, but also opens the door for studying other variables that might stand alongside multinationality in having performance-related effects, as well as the mechanisms through which multinationality has effects on performance

beyond its effects based on the possession of firm-specific assets. For instance, Goerzen and Beamish (2003) indicated that it is not so much the degree of internationalization as the pattern of internationalization—that is, the configuration and coordination of activities abroad—that matters to firm performance (also see Roth, 1992). In addition, investigation of the multinationality-performance relationship *in conjunction with* other strategic decisions available to a firm, such as marketing program standardization, entry mode choice, scale of entry, and speed of internationalization, can also help in modeling the idiosyncratic differences among firms (cf. Lu & Beamish, 2004; Zahra, Ireland, & Hitt, 2000). Also, the exploration of the channels through which multinationality affects performance requires a careful examination of the process mediators of the multinationality-performance relationship. Thus, our study suggests that it is not necessarily the extent of internationalization, but how firms deploy and exploit their firm-specific, tangible and intangible assets (e.g., marketing, learning and innovation capabilities), that renders multinationality a viable strategy with positive performance outcomes.

Limitations

Despite its contributions, this study has several limitations that should be borne in mind when interpreting the findings presented here. First, any meta-analysis is constrained by the nature and scope of the original studies on which it is based (Hunter & Schmidt, 1990). For instance, we only focused on two firm-specific assets (i.e., R&D and advertising intensity). Although this approach is consistent with internalization theory and most related multinationality-performance research, other firm-specific assets, such as production and management skills and human and relational assets, could not be included in our analyses, since too few primary studies were available for relationships involving these variables. Thus, another implication of our findings is that there is a need to capture firm-specific assets that are much more closely linked to a resource-based conceptualization.

In addition, the cross-sectional nature of the original studies delimited our ability to make confident causal inferences pertaining to the multinationality-performance relationship (Bowen, 2007). To address this issue, we only included in the meta-analytic database those studies that examined two types of multinationality-performance relationships: (1) prior multinationality related to subsequent performance and (2) contemporaneous (cross-sectional) associations (cf. Orlitzky,

Schmidt, & Rynes, 2003). Thus, we can at least infer a cause and effect relationship, since we find that the causal variable of interest (i.e., multinationality) preceded the affected variable in time (i.e., performance), thus satisfying the first of Cook and Campbell's (1979) criteria. The criterion of covariation is also satisfied, since the multinationality-performance correlation coefficients were significant. Finally, we have included an assessment of a model based on resource-based theory, in which strategic resources and control variables were employed as predictors of performance (model 3 in Table 4). The effects of multinationality on performance were apparently not spurious in the presence of other variables. Nevertheless, since not all studies in the multinationality-performance literature could be included in the meta-analysis, improper inference due to a variable's omission from our analysis is always possible. Despite its limitations, our meta-analysis takes stock of what is known, answers some persistent questions in the multinationality literature, and points out directions for future research.

Conclusion

The present study provides a review and reexamination of important relationships involving multinationality, firm-specific assets, and performance through a meta-analysis. According to Rosenthal (1995: 190), the overall goal of the discussion of a meta-analysis is to answer the question, Where are we now that this meta-analysis has been conducted? In light of the discussion of the results presented herein, we believe we have made significant progress in assessing the effects of firm-specific assets on multinationality and financial performance, identifying the conditions under which firm-specific assets have stronger effects on the multinationality-performance relationship, and explaining the relationships involving multinationality, strategic firm resources, and performance, as well as providing fruitful directions for future research. We believe that, for all the depth and scope of the literature, researchers have only begun to explore the challenges related to international expansion and its performance implications. This meta-analysis should provide guidance to those intending to pursue research on these important issues.

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