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RESEARCH ARTICLE

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The Industry-focused International Strategy

Prevalence and Profile

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Abstract:

- Many firms facing low-cost international competition can reposition into niches. This study examines one such niche: industry-focused international firms, defined as companies that produce, sell, and expand internationally within one industry. Analysis of the global pharmaceutical industry finds a group comprising of about 20% of the firms that pursue this strategy. This strategy is distributed internationally, but not uniformly.
- It is relatively more prevalent among firms based in emerging countries compared to industrialized nations. These firms invest in R&D in order to create deep specialized expertise that they exploit internationally.

Keywords: Strategy · Focus · Niche · International

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Introduction

Strategists can deal with increasing international low-cost competition by repositioning their firm into viable niches. They can benefit from learning about tried niches, which would reduce the risk of moving into them. If they had this knowledge, managers could develop the resources needed to be effective in a particular niche. But since the number of types of niches possible is large and their needed resources are not known, managers find it extraordinarily difficult to identify, prepare, and move into them.

Focus is one of the three generic business strategies, together with low-cost and differentiation, articulated by Porter (1980). Firms may focus on different dimensions. We define a focused firm as one that specializes in a function of the value chain, in a narrow set of customers (Porter 1980), on existing markets such as in a defender strategy (Miles and Snow 1978), in limited product variety (Hannan and Freeman 1984), and/or a limited geographic area. Thus focused firms may specialize in one or more of these dimensions while possibly having a broader scope on others.

This study examines industry-focused international firms. These firms produce, sell, and expand internationally within one industry. In their chosen field, they develop know-how that helps them overcome foreign entry barriers. They expand abroad to capture international growth opportunities, international risk diversification, factor cost differences, and greater market power within their niche. At the same time, by restricting their industrial scope, they avoid diversification into other industries where they have little relevant expertise and fewer synergies exist.

Macroeconomic trends suggest a general movement towards greater industry focus, as the fraction of firms that are industrially diversified has declined over time, and towards increased international expansion, as the fraction of firms with international sales has increased over time (Denis et al. 2002).

Strategic group theory suggests that an industry may contain different sets of firms pursuing similar strategies that are separated by mobility barriers (Porter 1980; Mascarenhas and Aaker 1989). An industry may conceivably have a strategic group composed of industry-focused international firms.

The industry-focused international strategy may generate higher returns under specific conditions. Research suggests that a firm's market valuation is discounted because of industrial and international diversification due to inefficient internal capital allocation, coordination difficulties, monitoring and agency costs between managers and investors (Denis et al. 2002). However, international diversification may improve market valuation (Doukas and Lang 2003) provided it is based on exploiting intangible assets through internalization (Morck and Yeung 1991). Thus there is a need to examine if and how the industry-focused international strategy is based on intangible assets.

This study of 164 pharmaceutical firms from 24 industrialized and emerging nations finds a group that pursues this strategy comprising about 20% of all firms. The findings suggest that the strategy is commonly and internationally practiced, but not uniformly distributed. This strategy is relatively more prevalent in emerging countries than in industrialized nations. Further, the study finds that the strategy is based on less debt and more equity funding and investing in R&D to develop and exploit deeper, specialized know-how.

Literature Review

Research on focused firms has been gradually emerging over time in various industries including newspapers, brewing, music recording, book publishing (Carroll 1984), offshore drilling (Mascarenhas 1996), wineries (Swaminathan 2001), and venture capital (Norton and Tennenbaum 2002; Echols and Tsai 2005).

Research has begun to clarify the attributes of focused firms and how they compete. Focused firms tend to emphasize exclusivity and reputation for quality (Swaminathan 2001). They may specialize in a stage of the value chain where they seek to excel and build a reputation (Mascarenhas 1996; Norton and Tennenbaum 2002; Echols and Tsai 2005), while outsourcing other activities in which they do not have an edge (Mascarenhas 1997). They maintain close ties to customers in order to better understand and fulfill their special needs (Simon 1992). And they develop personal networks to share and receive information in order to increase specialized expertise and reduce risk (Norton and Tennenbaum 2002; Echols and Tsai 2005). They can have a customer-focus or product-focus (Carroll 1984, 1985; Carroll and Wade 1991; Swaminathan and Carroll 2000; Swaminathan 1995, 2001; Freeman and Hannan 1983; Norton and Tennenbaum 2002; Echols and Tsai 2005).

A review of the literature suggests theoretical gaps and research needs. Research still needs to identify the prevalence of the strategy. If a strategy type is pursued frequently and widely, it suggests that the strategy has been tried, tested, and may be viable.

Research needs to examine the strategy in international contexts. This analysis will help understand the contexts that discourage or encourage the adoption of the strategy. It will also help managers anticipate where this type of competitor is likely to emerge in global competition. International expansion has been posited to require internalization of intangible assets to enhance its profitability (Morck and Yeung 1991), but the nature and development of intangible assets for this strategy is not clear.

Research also needs to examine the attributes of focused firms and relate them to the strategy pursued. Existing research has typically examined a single attribute in isolation without relating it to the strategy. However, some strategies may utilize and combine multiple resources, but evidence has been lacking. Creating sustained value has been posited to require firms to bring in, develop, and coordinate multiple resources (Collis and Montgomery 1995; Teece et al. 1997; Teece and Pisano 1998; Prahalad and Hamel 1990; Marino 1996). The identification of multiple resources would provide insights on how to develop the strategy.

The Pharmaceutical Industry

The pharmaceutical industry produces drugs to improve society's health and well-being. The pharmaceutical industry is a large, knowledge-intensive, global industry. The industry has worldwide annual sales of over $130 billion and is composed of over 200 firms based in many countries. The industry's environment may be characterized as fine-grained because of its many players and diverse, varyingly distributed and changing diseases. This environmental granularity and possibility for multiple niches is due to its comple-

xity, presence of generic and proprietary drugs, diverse diseases, many development technologies, and several drug delivery methods. Drug development technologies available, for example, are based on modern western science, traditional eastern medicine, biotechnology, combinatorial chemistry, genomics, and robotics. And drug delivery methods include oral, inhalable, and injectable, with differing time releases. Firms may specialize on one of these dimensions, such as biotechnology (Cockburn 2004).

The industry develops treatments for many diseases with varying geographic and socioeconomic contours, using multiple drug development technologies, for patients with differing income levels, in the face of conflicting government policies towards intellectual property rights and pubic access to health care, and rising research costs and cost containment pressures. Industrialized nations support intellectual property rights and patent protection. In contrast, many developing countries are more concerned with public access to medications and so permit product patents but not process patents in order to encourage development of substitute generic drugs. Pharmaceutical firms are facing increased cost-containment pressures to control drug prices from emerging third-party payers such as insurance companies and national governments. Large pharmaceutical firms face increasing pressure to develop drugs faster and cheaper, so they are resorting to alliances with smaller firms. Policy-makers, such as the Food and Drug Administration, have been streamlining the drug approval process to permit quicker introduction of new drugs and, as they come off patent, of generics. Prices of generic drugs have been declining over time (Without Author 1996). The key decision-makers on prescriptions are shifting from individual doctors to third-party payers such as insurance companies (Twomey and Stafford-Sigg 1997).

The industry's numerous firms differ in their international and industrial scopes, permitting analysis of the international specialist strategy. Some pharmaceutical firms have a domestic scope, such as Mylan Labs, a producer of generic and branded drugs. Other pharmaceutical firms are industrially diversified multinationals, such as Bayer that has activities also in agriculture, coatings and colorants, fibers, and plastics. And still others are focused international firms:

Amgen, a global biotechnology based firm, produces drugs based on advances in cellular and molecular biology. Swiss-based Alcon, spun off from Nestle, dominates the international market for ophthalmic medications and eye care. And Dr. Reddy's Laboratories from India has over 1500 scientists, seven patents including one to treat diabetes, and a presence in over 100 countries (Pilling 1999).

Hypotheses

The three hypotheses examine the likely attributes of industry-focused international firms. The first hypothesis examines the relative international prevalence of these firms in industrialized versus emerging countries. The remaining two hypotheses examine the type of financial resource that is sourced and how it is deployed to develop the industry-focused international strategy. In contrast to most existing research on focused firms, (Hitt et al. 1997) being an exception, this study examines multiple resources and inter-relates them to the strategy of industry focus and international expansion.

Relative International Prevalence

Industry-focused firms may not be uniformly distributed around the world. Industrialized countries have some pharmaceutical firms that are older and that have existed before international markets opened up, and so may have diversified industrially. If industrialized pharmaceuticals demand slows it may also encourage firms to seek growth by diversifying industrially.

Khanna and Palepu (1997) suggest that emerging markets have relatively poor communications infrastructure creating product uncertainty, limited venture capital, limited managerial skills, difficulty in adjusting work forces to downturns, regulatory uncertainty, and weak contract enforcement. Large diversified groups in emerging markets may be able to overcome these limitations through their strong corporate reputation, internal venture capital, internal management development program, employee transfers across divisions in case of downturns, and close historical ties to government officials. However, statistical analysis suggests that, on average, diversified groups add no special value relative to focused firms in emerging markets (Khanna and Palepu 1997). As equity capital markets have sprung up in emerging markets they have been a source of capital to new firms. In the pharmaceutical industry, consumers face less product uncertainty because of the need for drug approvals. Universities in emerging markets have also been producing a growing number of managers and scientists that are absorbed by pharmaceutical firms. Demand for pharmaceuticals displays a secular increase tied to growth in demographics and income, and is not subject to cyclical industry downturns with the need to reduce the workforce.

Emerging markets have opened later in the cycle in this industry. In the mature stage of the industry cycle, when the major opportunities have been taken, there are pressures to specialize. Emerging market firms face domestic and foreign pharmaceutical demand growth in similar markets. They are likely to specialize in the pharmaceutical industry and expand domestically and abroad rather than diversify into other industries because slowing pharmaceutical demand. They may expand internationally sooner in smaller domestic emerging markets in their pursuit of growth.

Developing countries may not have many pharmaceutical firms, which are knowledge intensive and are more likely to arise in industrialized countries and emerging markets.

Hypothesis 1: In the pharmaceutical industry, firms from emerging countries will be more likely than firms from industrialized nations to be industry-focused international firms.

Next, we develop hypotheses for two variables, the type of funding and its investment in research, that are each expected to result in both industrial focus and internationalization as well as be consistent with each other. Type of funding (equity or debt) is a major decision about the financial resources that are brought in (Mascarenhas 2012). Investment in research reflects how funds are deployed to develop intangible assets. Raising funds should not be viewed in isolation, since how the funding will be deployed by the firm often affects the type of funding that can be accessed. Debt capital may not be as forthcoming as equity capital if the funding is to be used to fund proprietary research even it is in the existing industry. Pharmaceutical research has a long cycle where initially

there may not be profits to repay fixed debt obligations. It also aims to generate specialized assets and know-how intended to treat particular diseases, but which provide limited collateral protection desired by debt holders in case of bankruptcy. Bankers may not understand the complexities of specialized pharmaceutical research because of bounded rationality, and be reluctant to lend for this purpose. Pharmaceutical firms may also utilize promising results in ongoing research to obtain additional equity financing through private and public placements. The drug industry has a financial leverage ratio (Debt/Market Equity) of 14 % compared with 36 % for the total US equity market (Damodar 2011).

Funding

To grow rapidly and gain market share fast, firms need external funding in order to invest more funds that they can generate internally (Penrose 2009). They may need financing to bridge the interim between product/market development and future sales. Investments are needed in R&D, marketing, or building distribution. New or growing customers often need to be financed. Thus financing is broadly useful, and the type of funding (debt or equity) pursued shapes a firm's strategy. In particular, we argue below that equity funding will encourage firms to focus on one industry and to expand internationally.

Firms may use equity financing for expanding into related areas and debt financing for unrelated diversification (Kochar and Hitt 1998). Expansion into related areas involves development and application of firm-specific knowledge-intensive assets and synergies to generate competitive advantages. If debt financing were to be used and a bankruptcy occurs, lenders would recover a small portion of their loan from firm specific assets deployed in related areas. The inability of lenders to control and monitor the specialized activities of the borrowing firm in this situation creates an agency or moral hazard problem (Jensen 1986). Since lenders do not wish to fund highly firm specific assets involved in related areas, the use of equity financing will be preferred in these cases (Balakrishnan and Fox 1993). Equity holders can monitor and control specialized activities of an industry-focused firm through board governance.

Lenders will be more likely to lend to firms that diversify their business risk by expanding to other industries. Such firms will be perceived to have more stable earnings and will be given higher debt limits. Their higher debt capacity is due to the coinsurance effect arising from uncorrelated cash streams of different business units (Lewellen 1971). This additional debt capacity, and higher financial leverage, may motivate greater industrial diversification (Singh et al. 2001; Kochar and Hitt 1998).

Debt financing is not likely to encourage overseas expansion because there are difficulties of contracting for debt internationally. Debt has high international agency costs (the costs of writing debt covenants, monitoring, auditing, language differences, varying legal systems, and different asset structures) so, all things equal, it is less likely to be used than equity to fund international expansion (Burgman 1996). Therefore, the use of debt in firms' capital structures may not encourage international expansion (Lee and Kwok 1988; Burgman 1996).

These arguments lead to the following hypothesis:

Hypothesis 2: In the pharmaceutical industry, firms with less debt and more equity funding will be more likely to be industry-focused international firms.

R&D Intensity

We argue below that R&D intensity will encourage firms to focus on one industry and to expand internationally.

Research intensive firms in the pharmaceutical industry increasingly focus on particular customers/patients in order to study, understand, and conduct clinical trials on existing disease conditions. This research aims to discover and develop new products/processes that will prevent and treat these diseases. This disease expertise and product knowhow can differentiate them from competitors and potentially give them monopoly power in their chosen space. Investment in research may also result in a continuing stream of new products and processes to stay ahead of imitators and sustain superior profitability.

In the face of declining R&D productivity, pharmaceutical companies have been trying to increase output by increasing efficiency, narrowing focus, and targeting research to specific diseases (Shaywitz and Taleb 2008). Nobel laureate Sir James Black noted in an interview that focused R&D efforts with little outside interference and a long time frame are useful for developing new drugs (Jack 2009). Jean-Pierre Garnier, the CEO of GlaxoSmithKline, argues that firms need to invest in focused R&D, utilizing both internal and external sources of inputs, improving processes such as international clinical trials, building a strong culture of innovation and developing a passion for excellence (Garnier 2008).

Higher research intensity is likely to encourage an industry focus. Research and development has been linked to industrial focus (Hitt et al. 1997). Firms that make credible strategic commitments to high levels of innovation to excel in that chosen area are likely to be focused (Corts 2000). Rotemberg and Saloner argue that innovative firms remain narrow while less innovative firms broaden their industrial scope (1994). GE is seeking to develop deeper industry knowledge by keeping its managers longer within an industry as it narrows its industrial scope. It has realized that in complex industries, such as medical devices space, closer relationships and understanding of its customers, longer commitments, and deeper domain knowledge are needed to develop specialized products to win sales (Linebaugh 2012).

Research intensity should also encourage international expansion. Firms expand internationally to leverage their R&D know-how resources to geographic areas where a disease is present as well as to amortize their R&D costs over a wider geographic sales area (Caves 1971, 1982; Horst 1972). This R&D based know-how generates new products/processes for foreign multinational companies to differentiate themselves from and gain an edge over domestic firms which are more familiar with their local environments.

In the pharmaceutical industry, firms that are research intensive may expand abroad to seize arbitrage opportunities associated with varying regulatory regimes, availability of inputs, and cost structures. They can augment their research expertise by utilizing multiple national drug discovery approaches, such as using western scientific methods and eastern medicines natural compounds and/ expertise that resides in different countries. Firms that are research oriented may also expand abroad to conduct clinical trials con-

currently to reduce drug development time and cost. While there may be differences in research level by segment targeted, on average, firms pursuing this strategy are expected to have a higher research intensity. These arguments lead to the following hypothesis.

Hypothesis 3: In the pharmaceutical industry, firms with higher R&D intensity will be more likely to be industry-focused international firms.

Methodology

The study examines industry-focused firms in a knowledge-intensive industry, pharmaceuticals. This analysis allows examining the characteristics of industry-focused firms relative to other firms while controlling for the industry. It is also a fragmented industry with many distributed players allowing a statistical analysis in a global context.

Personal interviews were conducted with ten executives from pharmaceutical firms and health maintenance organizations as well as physicians to identify industry trends, variables affecting the product and international expansion of firms, relevant variables for inclusion, and interpret the study's findings.

The hypotheses, which were in part developed from arguments based on the pharmaceutical business context, are examined in the international pharmaceutical industry. To examine the research hypotheses, line of business, financial, product, customer, and international data are needed for numerous firms in an industry. The data come from Worldscope/Disclosure Partners and are compiled by multi-lingual analysts. Worldscope obtains data from firm filings with stock exchanges, government ministries, newspapers, and annual reports to shareholders, and directly from the companies. All data are quality controlled through a series of balance and stress tests and continuously monitored. Data are presented in a unified format that facilitates comparisons across companies and countries. The companies are identified by their SIC codes.

Most studies of international activities of firms are based on firms from one country, and thus potentially subject to country-of-origin bias. The data used in this study cover pharmaceutical firms from many countries, controlling for the industry and single country-of-origin bias. The study's data come from Worldscope which reports data on 199 public and private pharmaceutical firms that are headquartered in 24 industrialized and emerging countries. These rich data allow examination of many industry firms based in multiple countries, providing a richer global picture. Data on firms from multiple countries are useful to examine the effect of the origin of industry focused international firms and to assess how the findings are sensitive to the international context.

Worldscope provides data on sales, whether or not a firm has international sales, SGA expenditures, R&D expenditures, the number of employees, and a description of its products and customers. The data available cover a ten year period. Table 1 shows the geographic distribution of these firms across the 24 countries.

Table 1: Pharmaceutical firms studied by country of origin

Home country	Number of firms
United States	59
Japan	44
United Kingdom	17
France	11
India	9
Germany	7
Switzerland	7
Italy	6
South Korea	6
Sweden	6
Australia	4
Canada	4
Indonesia	3
Pakistan	3
Denmark	2
Norway	2
South Africa	2
Chile	1
China	1
Finland	1
Ireland	1
Israel	1
Poland	1
Turkey	1
Total	199

Variables

The following list of variables, comprising the dependent variable (INDUSTRY-FOCUSED INTERNATIONAL FIRM), the hypothesized variables (LEVERAGE, RESEARCH INTENSITY), and control variables (FIRM SIZE, SGA (Selling, General, and Administrative Expenses) INTENSITY, and COUNTRY OF ORIGIN) were defined and measured. Care was taken to use variable measures that utilize data that are available and comparable across countries. Other variables were correlated with these variables and not employed, such as firm age with firm size.

Industry-Focused International Firm. Dummy variable equal to 1 if a firm produced and sold only in the 3-digit SIC Code 283 and had international sales from 1 to 100% of total sales, 0 otherwise. SIC code 283 includes medicinal, biological, and diagnostic products. The 3-digit industry classification is sufficiently broad to capture related products, while screening out unrelated diversification. This definition also allows firms to pursue their own specialty areas within a 3-digit classification, while allowing analysis of common patterns of the industry-focused international strategy. A narrower 4-digit industry classification would have excluded related fields and resulted in few observations, perhaps even 1, in each category. The measure of international involvement employed is

highly correlated and results do not change materially when using other measures, such as the percentage of international sales or the number of countries which are less observable for firms based in different countries. An entropy measure of diversification that utilizes the number of and distribution of activity across segments/countries was also considered, but not employed because the underlying data were not available for the cross-national firms studied. It was important to study firms based in multiple countries to control for a country's development which turned out to be statistically significant.

Leverage. Ratio of the book values of the firm's debt to total capital. Leverage increases the risk of bankruptcy. Debt holders are interested primarily in the ability to repay the loan and interest, while equity investors are more interested in the growth and profitability potential of the business.

R&D Intensity. Firm's research and development expenditures divided by sales. Research and development activities help to generate new drugs that are more effective, have fewer side effects, or provide new cures. Stepped up R&D spending can lead to a broader product line and hasten new product development and market introduction. The successful development of new drugs can help to reduce price competition (Without Author 1996).

Firm Size. is measured by the number of employees. No difference is observed when using the natural log transformation. This variable is included to examine if global focused firms rely on scale economies or abundant resources in their strategy. Larger size implies scale economies in various activities (purchasing, manufacturing, R&D). Larger size also provides a firm with greater clout when dealing with larger third-party prescription buyers in the pharmaceutical industry. Sales, another common size measure, is in the denominator of the Research and SGA Intensity variables so is not used in order to reduce definitional dependency among independent variables. Assets was not used because it is sensitive to national accounting conventions. No material changes in result are observed when using sales or total assets instead of employees as a measure.

SGA Intensity. Firm's selling, general, and administrative expenses divided by sales. This variable is included because focused firms may emphasize a direct sales force to understand their customers' needs in order to focus their research efforts. They may also use a sales force and promotion to educate and convince customers when launching new products.

Industrialized Country. Dummy variable equal to 1 if a firm is headquartered in an industrialized country (greater than $9600) defined in the *World Development Report* (United States, Japan, United Kingdom, France, Germany, Switzerland, Italy, Sweden, Australia, Canada, Denmark, Norway, Finland, or Ireland), 0 otherwise (the remaining countries where pharmaceuticals were headquartered were emerging economies as classified by Hoskisson et al. 2000). This variable is included to control for possible profile differences between firms based in industrialized and emerging countries. This catego-

rization is based on multiple underlying dimensions of economic, education, and health care development so a per capita income continuous measure was not employed.

Findings

For the 199 pharmaceutical companies examined, there were missing variable values for 35 firms. For the remaining 164 firms, 31 (19%) were industry-focused international firms. These industry-focused international firms make up about one in five firms among the pharmaceutical firms studied. This proportion of industry-focused international firms to all firms studied is significantly greater than zero (at the 0.005 level). These findings suggest that the industry-focused international strategy is commonly practiced and internationally distributed. No significant differences were observed in firm size or industrialized country origin between the 35 firms with missing values and the remaining 164 firms analyzed.

Table 2 shows the descriptive statistics and correlation matrix among independent variables that will be used in the multivariate analyses below. Neither the low correlations (all below 0.50) nor the variance inflation factors (all below 5) suggest the presence of multicollinearity. The highest correlation (0.35) is between SGA INTENSITY and R&D INTENSITY, which is significant in the models below. No material changes were observed when SGA INTENSITY is dropped from the model.

To examine the hypotheses, logit analysis was performed with the dependent dummy variable INDUSTRY-FOCUSED INTERNATIONAL FIRM. Logit analysis helps to distinguish international focused firms from all other firms. The logit regression is a model used for the prediction of a certain event, in this case the likelihood of a firm being industry-focused and expanding internationally. This logit analysis helps to identify the attributes and profile of focused international firm by examining the impacts of multiple variables jointly. Multiple discriminant analysis, was also considered but not used, since its parameter estimation is less robust under conditions of variable non-normality (Press and Wilson 1978) and requires additional information on more groups and how they may differ from one another. Cluster analysis was not employed because it does not interrelate multiple attributes to an independent variable and does not provide statistical significance tests.

Table 2: Mean, standard deviations, and pearson correlations

	Mean	S.D.	1	2	3	4	5
1. Industry-focused international firm I	0.16	0.36					
2. Firm size	8815	18660	0.15				
3. R&D intensity	19.22	60.53	0.14	0.17			
4. SGA intensity	30.87	14.05	0.13	0.05	0.35		
5. Leverage	58.0	103.95	−0.05	0.10	0.05	0.10	
6. Industrialized country	0.84	0.369	−0.15	0.16	0.16	−0.08	−0.14

Table 3: Logit model showing profile of industry-focused international firms

Independent variables	Standardized coefficient (t-statistic)
Leverage	−1.733**
	(−2.39)
R&D intensity	0.182**
	(2.17)
Firm size	0.681
	(1.49)
SGA intensity	1.375
	(1.52)
Industrialized country	−1.272***
	(–5.11)
Log likelihood	−88.435***

*$p<0.10$; **$p<0.05$; ***$p<0.01$ level

The independent variables included were LEVERAGE, R&D INTENSITY, FIRM SIZE, SGA INTENSITY, and INDUSTRIALIZED COUNTRY. Table 3 reports the standardized coefficients (betas), the coefficient estimates multiplied by the quotient of the independent variable's standard deviation and the dependent variable's standard deviation, that may be compared directly.

International Prevalence

Hypothesis 1 suggests that firms from emerging countries will be more likely than firms from industrialized nations to be industry-focused international firms. The coefficient for INDUSTRIALIZED COUNTRY is negative (−1.272) and significant at the 0.01 level. The evidence is consistent with Hypothesis 1. Thus the distribution of industry-focused international firms is not uniformly distributed internationally. By implication, restricting the study to firms from one country would likely bias the coefficient estimates.

Funding

Hypothesis 2 suggests that firms with less debt and more equity funding will be more likely to be industry-focused international firms. The coefficient for financial leverage (−1.733) is negative and significant at the 0.05 level. Thus the evidence is consistent with Hypothesis 2.

R&D Intensity

Hypothesis 3 suggests that higher R&D intensity will be positively related to industry-focused international expansion. The results suggest that R&D intensity (0.182) is positively related to industry-focused international firms, significant at the 0.05 level. Thus the evidence is consistent with Hypothesis 3.

Industry-focused international firms are not significantly different from other firms in size (0.681). This contrasts with the pure industrial and international diversification strategies that are associated with larger firm size (Denis et al. 2002). This finding is incon-

sistent with the view the specialists are driven by scale economies (Krugman 1981), but consistent with prior research findings that international specialists may be large or small (Mascarenhas 1999). Israel Makov, CEO of Teva Pharmaceuticals, noted in an interview that the firm's global supply network, which is reflected in the firm's international scope, is more important for reducing costs than volume economies.

SGA intensity (1.375) does not significantly predict the development of industry-focused international firms. Interviews suggested that industry-focused international firms at times use the sales forces of their partners when entering foreign countries, rather than their own sales force.

Sensitivity Analysis

We performed tests to assess the robustness of the findings against other possible explanations. Since the high research intensity of focused firms in the pharmaceutical industry may have been due to the higher research intensity of this industry relative to others, we included dummy variables for industries in which a firm participated. We also included a dummy variable for a firm's country of origin. No material changes were observed.

Conclusion

Managers facing increasing global competition can benefit by repositioning into viable niches for which they are prepared. Prior research suggests that the industry-focused international strategy is pursued in multiple settings and may improve profitability if based on intangible assets that are exploited through internalization. Thus there is a need to uncover how to build these intangible assets. Identification of the needed resources to establish a niche can help other firms to execute this strategy.

This study examined the likely attributes of the industry-focused international strategy. The study finds in the pharmaceutical industry a group made up of about 20 % of the firms that pursues this strategy. This strategy is commonly pursued and internationally distributed. These firms need not crowd out one another because their proprietary research may be focused on different specialized areas and their geographic contours may not be identical. The study also finds that the strategy, while recurring internationally, is not uniformly distributed. Firms from emerging markets are more likely to be industry-focused international firms than firms based in industrialized countries.

The study finds that in order to develop the industry-focused international strategy, managers are likely to utilize equity funding and invest it in research. Equity capital, rather than debt, lends itself to funding proprietary assets that are specific to a single industry, because it does not have the same agency costs and does not require the same collateral protection. Equity financing is also suitable for funding international expansion because it does not have the high international monitoring and transaction costs of cross-border debt.

Research helps to develop expertise on particular diseases and improve products/processes that better satisfy patient needs. These specialized assets can generate customer value and, if proprietary and difficult to imitate, will also offer competitive advantages.

These specialized assets facilitate international expansion through internalization and give firms an edge when entering foreign markets.

Further, equity funding and its investment in research are consistent with and reinforce each other. Equity financing does not have the agency/monitoring costs of debt that is problematic when trying to develop uncertain, long-lead time specialized assets through research.

In summary, the industry-focused international strategy is based on pursuing and coordinating both equity funding and its investment in research. The strategy is more comprehensive and less imitable because it is based on multiple, coordinated actions.

The study has implications for managers. Managers trying to cope with increasing international low-cost competition face the challenges of identifying and building a viable niche. The findings here, together with prior research, suggest that the industry-focused international strategy may be such a niche. Managers can prepare for this strategy by developing and coordinating equity funding with investment in research. The industry-focused international strategy may be of particular interest to managers of firms in emerging markets, if they are constrained by smaller domestic market sizes and if they are founded late in industry cycle when there is a greater need to specialize.

Strategic group theory suggests that an industry may contain different sets of firms pursuing similar strategies that are separated by mobility barriers. This study suggests that one popular group in global industries is composed of industry-focused international firms. The strategy is based on equity funding and investment in research to create intangible assets that may create mobility barriers.

International business researchers have traditionally focused on the international activities of firms. The importance of the industry positioning dimension, as well as the underlying research and equity funding needed, found here suggests that a broader, multi-dimensional view is needed to realistically capture the strategic and managerial challenge confronting firms. A focus only on the international dimension would miss other dimensions that make up a multi-dimensional strategy.

Finally, the study identified the profile of industry-focused firms relative to other firms in general, not specific strategies. Comparisons between the attributes of specific strategies are needed. This study also did not examine performance differences between specific strategies. Future research needs to illustrate and elaborate on the various specific niches developed by industry-focused firms. It would be useful to examine other types of focused firms, such as those with a regional focus. This study examined the industry-focused international strategy in a knowledge-intensive environment with varying, special needs. The findings may be relevant to other such industries. Research is needed in coarse grained environments, with more homogeneous, stable needs, and less knowledge-intensive industries in order to compare the findings and uncover if focused international firms require different resources. These efforts will increase our understanding of the diverse strategies that are possible in the global economy and provide managers insights to make strategic choices to deal with international competition.

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