

Why Do Firms Divest?

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Abstract

In this paper, I examine how lower-cost production and new market opportunities influence the divestment decisions of firms. I argue that lower-cost production and new market opportunities in foreign markets can provide a better use of existing firm resources and posit that these opportunities are likely to influence firm divestment of home country operations. The empirical results from a panel of 190 US firms over a twenty year period (1981-2000) show that lower-cost production and new market opportunities influence the divestment decisions of firms. However, the results also reveal several interesting moderating influences on the hypothesized trade-offs and differences across the growth strategies of firms in low and high R&D intensive industries. By considering how and when investment in lower-cost production and new market opportunities impacts firm divestment decisions, this study examines divestment not only as a choice managers make when dealing with poor or struggling operations, but also as a response to better opportunities for firm resources in other markets. By focusing on the trade-offs managers make across product and geographic markets, this paper examines the role divestment can play in firm growth and expansion strategies.

Keywords: Divestment, Investment, Corporate Strategy, Trade-offs

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INTRODUCTION

In this paper, I examine divestment not only as a choice managers make when dealing with poor or struggling operations, but also as a response to better opportunities for firm resources in other product and geographic markets. While there has been much focus on divestment that results from poor firm performance (Harrigan, 1981, Duhaime & Grant, 1984, Hitt & Ireland, 1986, Ravenscraft and Scherer, 1987, Montgomery & Thomas, 1988, and Hoskisson et al, 1994) and from firms refocusing on their core activities (Duhaime & Grant, 1984, Markides 1992a and 1992b, Bergh, 1997, Chang & Singh, 1999), there has been less focus on divestment that may result from better opportunities for firm resources. Firm strategies that involve both investment and divestment can play an important role in firm growth because they can create more efficient uses of firm resources and better prospects for firm growth. While divestment can certainly involve difficult decisions regarding reduced employment levels and/or consolidation of firm operations, it can also play an integral role in a firm's broader strategy to grow and remain or regain competitiveness. Further, understanding how investment and divestment fit into a firm's broader strategy can provide important insights into trade-offs that many managers are likely to face in today's global competitive environment.

To analyze how better opportunities for firm resources may impact firm divestment, I focus on lower-cost production and new market opportunities. I argue that when lower-cost production and new market opportunities in foreign markets can provide a better use of existing firm resources, these opportunities are likely to influence firm divestment of home country operations. I exploit the geographic expansion of firms to analyze when and why foreign investment opportunities are likely to replace a firm's activities in its home market. For lower-cost production opportunities, I examine the impact of efficiency-seeking investments which involve relocating firm value chain activities and reallocation of firm resources. For market opportunities I consider how constraints on managerial time and attention can result in trade-offs in resource uses across markets.

The empirical results from a panel of 190 US firms over a twenty year period (1981-2000) show that lower-cost production and new market opportunities influence the divestment decisions of firms. However, the results also

reveal several interesting moderating influences on the hypothesized trade-offs and differences across the growth strategies of firms in low and high R&D intensive industries. Whether and when home country activities are divested depends on multiple characteristics and prior choices of firms, including the motivation for the investment, the extent of international activities of a firm and the type of industry in which a firm competes. By focusing on trade-offs across markets, this paper contributes to our understanding of growth and divestment by examining why and when better opportunities for firm resources are likely to influence firm divestment decisions. Further, this paper highlights the role of both investment and divestment as important components of firm growth strategies.

DIVESTMENT AND OPPORTUNITIES

Managers must decide how to allocate their resources and capabilities. They make decisions regarding the investment and allocation of organizational resources and these choices determine the future direction of a firm (Schendel and Patton, 1978). Some of the more complex choices managers make involve decisions about restructuring, diversifying and divestiture (Bowman and Hurry, 1993). Extant literature on divestiture has shown that firm divestment decisions are influenced by prior firm resource investments, firm performance, firm size, firm R&D intensity and the diversification level of a firm (see, for example, Hill, 1983, Duhaime and Grant, 1984, Ravenscraft and Scherer, 1987, Hitt and Ireland, 1986, Markides 1992a, 1992b and 1995, Lang et al., 1995, Hoskison et al, 1994, Gibbs, 1993, Bergh, 1997, or Haynes et al, 2003). In these studies, both divestment of entire product markets (exit) and contractions in the extent of activities a firm pursues within a product market have been analyzed. While prior studies have examined how firm divestment decisions may be a response to poor or struggling operations, what has not been sufficiently examined in the literature on divestment is how better opportunities for firm resources may also impact the divestment decisions of managers. This is important to consider because divestment decisions can be influenced by managerial decisions to invest in better opportunities for firm resources in other product and geographic markets. For example, an important part of firm strategies to become more efficient in production across markets involves rationalizing existing operations. The opportunity to invest in cheaper production can provide firms with a better use of existing firm resources if less efficient operations are divested or contracted. Further, for firms to successfully exploit market opportunities for core products across geographic markets, they may need to divest more

peripheral activities to allow sufficient managerial time and attention to successfully expand core product market activities. This opportunity to expand market coverage of core products can provide firms with a better use of existing resources.

In this paper, I consider the trade-offs firms make across product and geographic markets to examine how lower cost production and new market opportunities influence firm divestment decisions. I consider how these opportunities provide growth and expansion strategies for firms that involve both investment and divestment. Importantly, these growth strategies involve managerial decisions about firm resource allocation, and trade-offs across different uses for firm resources. A focus on trade-offs across markets is not new – recent studies on product diversification by Levinthal and Wu (2007) and Helfat and Eisenhardt (2004) highlight trade-offs managers make when they decide to shift resources from one product market to another. Levinthal and Wu (2007) focus on capacity constrained capabilities, which they define as capabilities that must be allocated among alternate uses¹ and show that firms with superior capabilities in a low value (existing market) context are more likely to choose to diversify to new product markets and divest from prior product markets. The trade-offs in their model take into account both changes in external opportunities across different product markets and internal growth and constraints on firm specific capabilities. Helfat and Eisenhardt (2004) also focus on trade-offs across product markets, and bring in the element of time. They define inter-temporal economies of scope as efficiencies that come from transferring excess resources from an existing business that the firm is partially or completely exiting to a new business across different periods of time. Their model argues that inter-temporal economies drive market exit and entry over time, and provides insights into firm redeployment of assets. In this paper, I am also interested in managerial decisions about firm resource allocation. However, I am interested in more than just reallocation across product markets. Geographic expansion can impact a firm's existing product and geographic market activities and provide firms with opportunities to increase sales or to produce more efficiently. Of course, not all foreign investment will result in divestment of a firm's home country operations. Studies in the international economics literature show that foreign opportunities can either augment or replace a firm's home country operations. As developed more below, I focus on those opportunities that provide a better use of existing firm resources and argue that firms making these types of

¹ Levinthal and Wu give the example of superior management capabilities – while these capabilities can certainly improve productivity across all segments of a firm, a management team also has to allocate its limited time and attention.

investments are likely to divest operations in their home country. In my hypotheses, I extend the focus on trade-offs across product and geographic markets to examine when and why managers are likely to divest home country activities while they are also investing in efficiency-seeking and market expansion opportunities. I start by considering efficiency seeking investments.

Lower-Cost Production Opportunities:

Several studies in the international trade literature argue that firm investments abroad and at home compete for the same firm resources (see Lipsey et al., 2000, Blonigen, 2001, Head and Reiss, 2001 and Brainard and Riker, 2001). These studies highlight an efficiency-seeking motive and suggest that foreign operations can change a firm's exit option to become a reconfiguration option across geographic markets. Because foreign countries can provide opportunities for firms to take advantage of cheaper input costs (including labor and raw materials costs, for example), foreign investment can lead to a relocation of a firm's production activities. As firms try to cut costs to access cheaper factors of production in foreign markets, they are likely to contract or close parent operations in their home country to realize these benefits. Blonigen (2001) found that foreign auto parts production replaces home country production by Japanese firms. Examining final goods production, Head and Ries (2001) also found that foreign investment replaces home country production. These ideas and findings correspond with the business practice of offshoring, or relocating parts of business processes from one country to another to reduce costs. They also correspond with Vernon's (1966) ideas about product life cycles and the need to move manufacturing activities out of industrialized countries as industries become more mature and products become more standardized. In addition, these arguments correspond with Helfat and Eisenhardt's (2004) focus on inter-temporal economies of scope. However, an important difference is that firms are not likely to exit from operations in their home country until after they have established production capabilities in foreign markets. (Firms are not likely to stop all sales in their home markets while making these trade-offs in geographic investment locations.)

Foreign subsidiary investments that are motivated by efficiency-seeking rationales are likely to involve trade-offs across geographic markets and result in divestment of existing, higher-cost home country activities. These efficiency seeking investments form the basis of the first hypothesis, which proposes that:

H1: Firms are likely to divest home country subsidiaries when they invest in lower cost production subsidiaries abroad.

New Market Opportunities:

New market opportunities present firms with more complex choices. Existing studies across the international economic, international business and strategy literatures reveal conflicting arguments and findings about whether new market opportunities will replace or augment a firm's home country activities. Using these arguments, I explore when and why new market opportunities may result in divestment. I start by considering new foreign market opportunities that are not likely to result in divestment. I then consider arguments about constraints on managerial time and attention to focus on when and why new market opportunities can lead to divestment of firm activities.

In addition to the efficiency seeking motivation discussed above, there are several studies in the international economics literature that argue that foreign investment can augment a firm's home country production activities. These studies focus on the fact that goods produced in a firm's home market can be exported to the foreign locations in which the firm is investing – which can cause a firm to expand its output in its home market to accommodate this increase in demand. Because firms can serve foreign markets through a distribution network with after-sales service, foreign market expansion can be a precondition for exporting more goods produced in a firm's home market. There are several empirical studies that use country level data and show evidence of a positive relationship between FDI and exports (see, for example, Lipsey and Weiss, 1981 and 1984 for US firms, Lipsey, Ramstetter and Blomstrom, 1999 for Japan, Swedenborg, 1979, 1985 and 2001 for Sweden and Blomstrom et al. 1988 for European nations). As has been pointed out by Grubert and Mutti (1991) a basic problem with many of these studies that examine the relationship between home and foreign production is that the determinants of FDI often coincide with the determinants of exports. This problem of endogeneity has been controlled for by employing various instrumental-variable techniques in papers by Svensson, (1996), Blomstrom et al., (1988), Grubert and Mutti, (1991), and Clausing, (2000). In general, after controlling for the endogenous relationship, these studies still confirm the earlier finding that foreign investment can augment home country production activities.

Firm level arguments in the international business and strategy literatures also suggest that foreign

investment may augment a firm's home country activities. The internalization theory in the international business literature (as developed by Buckley and Casson (1976), Caves (1971) and Dunning (1980), among others) argues that the firm-specific assets a firm has developed in its home market provide firms with unique growth opportunities in foreign markets. This theory argues that firms with valuable proprietary assets will expand abroad via foreign direct investment (versus licensing, for example) to exploit their firm-specific intangible assets. While research in the international economics literature suggests that firms will be establishing service and distribution subsidiaries in foreign markets, the internalization theory is less specific in this respect. Firms expand into foreign markets to further the profits they receive from intangible assets they already possess – this could involve manufacturing, distribution, or any value chain activity that is needed by the firm to exploit its intangible assets. The important idea in the internalization theory is that foreign expansion abroad will extend the application of a firm's resources to additional markets. Because these investments are exploiting capabilities that have been developed in their home market, the issue of constrained resources is not prominent in this literature. Rather, because a firm owns the proprietary know-how, it is assumed that these resources and capabilities can be applied and transferred quite easily across the various geographic markets in which a firm competes. Similarly, the resource based view in the strategy literature suggests that firms will develop and nurture scarce, valuable, difficult to imitate and non-substitutable capabilities that provide resource barriers to competition (Wernerfelt, 1984, Barney, 1991). Firms will expand or diversify into additional markets because broadly applicable knowledge should create value relative to firms that diversify for other reasons (Teece, 1980). Overall, these studies suggest that foreign subsidiary investment that is motivated by firms seeking new geographic markets for their existing products are not likely to replace a firm's home country activities. In fact, because of the potential for increased demand for a firm's products, these arguments suggest that market seeking investments could increase a firm's home country activities. This would likely occur after foreign investments have been made (as an increase in demand in foreign markets would be needed before home country activities would be increased).

While the arguments and findings that new market opportunities can augment a firm's home country activities are important, there are also circumstances in which new market opportunities can provide a better use of firm resources and replace a firm's home country activities. For example, there are strategic reasons that suggest that firms may divest existing activities while investing in new market opportunities. As mentioned above, Levinthal

and Wu (2007) focus on capacity constrained capabilities and argue that managers will reallocate resources to find the optimal use for these resources. In fact, as firms become more diversified across product and geographic markets, this reallocation of resources is more likely to become a necessary component of firm expansion strategies. Levinthal and Wu (2007) give the example of constraints on managerial resources that cause reallocation. Roberts and McEvily (2005) also show how the need for additional complementary resources can result in a reduction of a firm's market share for its existing products when a firm is introducing new products. They focus on the downside associated with new product expansion and argue that it takes time to acquire and assimilate additional resource capacities, which can result in resource cannibalization and have a negative impact on existing product lines. Applied to the current context, these arguments suggest that as diversified firms with high levels of international investments are continuing to invest abroad, they will need to make trade-offs across product and geographic markets to reallocate resources across those markets that have the best prospects and the least issues of cannibalization. Firms with lower levels of product and geographic market expansion are not as likely to be faced with potential resource cannibalization and the need to allocate resources across activities because they won't face the same competing pressures across their investments.² Instead, it is diversified firms with high levels of geographic investment that are pursuing continued growth across geographic markets who are more likely to be faced with the need to reallocate their product and geographic investments to better exploit capacity constrained resources and optimize performance across all of the markets in which they are competing.

Arguments in the internalization theory and resource based view discussed above suggest that firms will exploit their core resources and capabilities as they expand abroad. However, the reasoning here would suggest that when firms have already both expanded abroad and pursued related and/or unrelated expansion, these firms may find that it is harder to manage more peripheral investments than more core expansion across all markets. Montgomery and Wernerfelt (1988) argue that the value of a resource declines as a firm uses it in more distant applications. They argue that the optimal decision for firms is to apply excess capacity to the closest entry opportunities. Because the creation of new products and new knowledge depends on a firm's existing products

² While these firms could certainly face declining performance in their older product lines, they aren't as likely to face the need to rationalize and reallocate resources across multiple markets, nor is it going to be rational for them to move out of and into markets until they have more confidence in their firm capabilities within certain product and geographic markets.

along with the underlying path-dependent knowledge and capabilities (Helfat and Raubitschek 2000), re-focusing either on activities that are more core to a firm or on activities that provide better growth opportunities will impact the performance of firms. Empirically, studies have found that firms focus more on their core capabilities when faced with global competitive pressures. For example, Scherer and Huh (1992) found that large technology intensive firms invested more aggressively in long-term R&D when faced with import competition in their home market, and Bowen and Wiersema (2005) found that firms responded to increased foreign based competition by reducing the diversity of their business portfolios. These arguments go beyond the low-cost, efficiency seeking motivation above because they allow for managers to reallocate resources given different opportunities that exist across existing product and geographic markets. Firms may decide to focus more on their core activities across all markets to become more competitive, or they may decide to move additional resources into countries that are more profitable.

A counter argument to this logic is that firms can build managerial capabilities that allow more effective management of international conglomerate diversification (Hitt et al., 1997). However, the Levinthal and Wu (2007) focus on capacity constrained capabilities suggests that there are limits to the extent of international and product market diversification that firms can effectively pursue – with reallocation likely being a necessary component for many multi-product and multi-geographic market firms. To examine these ideas, I focus on the interaction between diversification and new foreign investment for firms with higher levels of foreign expansion. I expect that new investment by diversified firms with high levels of foreign expansion will involve managerial decisions to reallocate resources across product and geographic markets. While it is not only home market subsidiaries that will be impacted by this logic, it is likely that home country activities will be among the worldwide subsidiaries that are affected by this logic (especially considering that most US firms still have the majority of their operations in their home country). Stated more formally, the second hypothesis focuses on market opportunities are posits that ..

H2: Product diversified firms with high levels of foreign expansion are likely to divest home country subsidiaries when they invest in foreign subsidiaries to access market opportunities.

Industry Influences:

In addition to a firm's own R&D intensity, another issue that may influence how foreign investment opportunities impact a firm's home country activities is the industry that the firm competes in, and more specifically,

the knowledge intensity of that industry (Markides, 1992b, for example). Annual reports on foreign direct investment from the United Nations show large differences between the investment levels of firms in high and low R&D intensive industries (see the annual World Investment Reports that summarize the worldwide flows of foreign direct investment). Historically, the majority of foreign investment comes from firms in the high R&D intensive industries of automobiles, electronics, chemicals (including pharmaceuticals), precision instruments and machinery. The Organization for Economic and Co-operation and Development refers to these industries (with an average five percent of sales devoted to research and development costs) as high R&D intensive industries. Further, Davies et al. (2001) have argued that firms in low R&D intensive industries are not likely to have many opportunities for exploiting firm-specific proprietary assets in related industries. Given the importance of cost pressures in these industries, investment in foreign markets is more likely being made to provide access to cheaper raw materials or labor than to provide access to foreign markets to exploit firm core competencies from its home market. This suggests that even for firms with higher relative R&D intensities compared to their industry competitors, home and foreign investment is more likely to replace home country investment for firms that compete in low R&D intensive industries. In contrast, Braunerhjelm and Oxelheim (2000) characterize competition in industries with high R&D expenditures as resting on product differentiation (while competition in low R&D intensive industries rests largely on country specific resources – where factors of production exhibit relatively low mobility across industries and products tend to be fairly homogenous). In high R&D intensive industries, firm proprietary assets have likely provided the firm with its competitive advantages in its home market. These arguments suggest that the foreign investments of firms in these industries are more likely to augment a firm's home country activities. Because prior studies show large differences in the international investments of firms in high and low R&D intensive industries, the influence of both firm and industry level R&D intensity are included in the analysis below.

Finally, several studies have argued that industry profitability and performance will influence firm diversification (see Rumelt, 1982, Chang, 1992, Lang and Stulz, 1994 or Delios and Beamish, 1999, for example). When a firm is in an unprofitable or poorly performing industry, this impacts the opportunities available in that market context. As discussed above, Levinthal and Wu's (2007) model suggests that firms will seek new product markets when faced with low value (existing product market) contexts. Further, Maksimovic and Phillips (2001) have shown that firms sell assets in their less productive divisions, and become more focused in their main industry when

prospects in that industry improve. These findings suggest that opportunities in a firm's industry can influence both diversification and divestment decisions. Accordingly, home country industry opportunities are also likely to influence firm divestment decisions and will be included in the analysis below.

DATA AND METHODS:

I created a panel of US manufacturing firms and gathered information on these firms' home and foreign country operations. All publicly-traded manufacturing firms that are listed in the Compustat Database from 1977-2000 and that provide information on their R&D expenditures are included in the sample (this results in a sample size of 190 firms).³ This sample is an unbalanced panel because some firms in the sample were acquired in the second half of the 1990s. All financial figures used in the analysis below are real annual figures deflated to the base year 1977 using US Department of Commerce, Bureau of Economic Analysis GDP deflators.

DIVEST. The dependent variable is a count of the number of subsidiaries a firm divested in each year in its home market (the US). I consulted the Directory of Corporate Affiliates for each firm in my sample for each year from 1981-2000 to create this measure. This directory lists divisions (defined as internal organizations of the company, not incorporated), subsidiaries (defined as a business owned by the company 50% or more), affiliates (defined as a business owned by the company less than 49%) and joint ventures (defined as two or more companies sharing responsibility and ownership of an entity) for each parent company. I focused on the subsidiaries (where the parent firm owns more than 50% of the domestic subsidiary) to create the dependent variable. For most firms, this is where the majority of their operations are listed. I focused on subsidiaries because this directory does not provide ownership percentages for many of the "affiliates." I am specifically focusing on the operations where a firm has the most control. Finally, I did not include divisions in the dependent variable because subsidiaries are generally listed under divisions. Subsidiary closures in the US can thus represent either exit from a business line (if a firm closes all subsidiaries listed under a division) or contraction in activities in a business line in a firm's home market. I tracked

³ US firms were included in the sample as long as they reported data in at least three-quarters of the years, or at least 15 of the 20 years in this study. If a US firm did not report R&D data during five consecutive years (where I would be unable to create a stock variable), I did not include it in the sample. This yielded a sample size of 190 firms. Given this constraint on the data, the results in this paper are based on firms that were in existence for 15 years during the time period of the study. This does not mean that large firms dominate the sample or that there is a bias in favor of firms that have large R&D expenditure. Rather, there is variation in both the levels of R&D expenditures and size of firms across the sample. Further, some firms never expand abroad.

the subsidiaries of each firm over time by consulting each annual directory.⁴ Unfortunately, additional information on the size, number of employees or total sales of each subsidiary is not consistently reported in this Directory. So, no weighting of subsidiaries is possible.

PERFORMANCE was measured using a firm's market value divided by sales. Market value was calculated by multiplying each firm's end of year stock price times the total number of outstanding shares. In addition, accounting based measures of performance were calculated using two different measures: return on assets (ROA) and return on sales (ROS). I divided net income by total assets and total net sales, respectively, to create these variables. The data for these variables come from Compustat. All of these performance variables yielded similar results in terms of statistical significance though only the market value divided by sales variable is reported below.

DIVERSIFICATION (DT). Firm diversification is measured using the following entropy index (Jacquemin and Berry, 1979, Palepu, 1985, Davis and Duhaime, 1992):

$$DT = \sum_{i=1}^N P_i \ln(1/P_i)$$

where P_i is the share of the i th segment in the total sales of the firm. The measure takes into considerations two elements of diversification: first, the number of segments in which a firms operates, and second the relative importance of each of the segments in the total sales of the firm. This measure is a weighted average of the shares of the segments, the weight for each segment being the logarithm of the inverse of its share (Palepu, 1985). This index has been found to have good construct validity relative to other diversification measures (Chatterjee and Blocher, 1992 and Hoskisson et al, 1993). This diversification index was calculated using segment tape data from Compustat. Financial Accounting Standards Board (FASB) regulation 14 requires that firms report data for any business segment making up more than ten percent of a firm's consolidated revenues, operating income or identifiable assets. The basis of segmentation is left to the discretion of the firm, but it is generally differentiated at the 4-digit SIC code level. Starting in the year 1999, a new FASB regulation (FASB 131) went into effect. In essence, this rule change liberalized the segment reporting requirements. This causes problems for studies that use

⁴ Unfortunately there are some problems with the data in this Directory. Occasionally, a subsidiary of a firm will disappear for a couple of years and then reappear with the same name and address – most likely due to reporting problems, not divestment and subsequent investment in the same establishment. Every effort was made to correct for these reporting errors (by comparing the subsidiary information over time) so as to not overstate divestment activities. The analysis below was re-run after dropping firms with disappearing subsidiaries, and the results remained very similar.

the segment data tapes before and after this change. In the present analysis, only the final year is impacted by this change (as my time period ends in 2000 and I use lagged values of all independent variables). However, I ran all of the models below excluding the year 1999 for all independent variables to ensure that my results were not impacted by the reporting changes. (Dropping the final year did not impact the overall sample results.)

SIZE. Firm size was calculated using the log of a firm's total assets. (Using firm revenues for the size variable yields similar results)

R&D/Sales: Following other studies, a firm's R&D expenditures are used as a proxy for the technical know-how of the firm. Because the effect of R&D expenditures can persist over time, an R&D stock measure (which includes both accumulated and current period expenditures) was used to proxy for a firm's technical know-how. Following Griliches and Mairesse (1984), a depreciation rate of 15% was applied to a firm's previous year's expenditures going back four years. This value was then divided by a firm's total sales to create an R&D intensity measure for each firm in each year.

FDIInd and FDIDev: Because of the difficulties of obtaining detailed foreign subsidiary time series data that might reveal either the motivation for a firm's foreign investment or the business function of the investment, I use the location choices of firm foreign investments to proxy for the lower cost production and new market opportunities of firms. Though generalized, differences across the developing and industrialized country locations suggest that US manufacturing firms are more likely to invest in developing countries to gain access to cheaper inputs, which proxies for the lower-cost production opportunities discussed above. Further, given the differences across these country groupings, US manufacturing firms are more likely to invest in industrialized countries to exploit knowledge they have created in their home country, which proxies for the new market opportunities discussed above. There is some evidence using employment data that provides support for these proxies. Blomstrom et al (1997) found that foreign subsidiaries in developing countries are associated with smaller home country employment for US multinationals. This suggests that foreign subsidiary investment in developing countries replaces home country production (and firms serve their home markets from production in these developing countries). Blomstrom et al's (1997) lack of significant results for industrialized countries suggests that investment in these types of countries may be motivated more by exploiting intangible assets and increasing rents for existing capabilities through expansion abroad. Admittedly, these proxies are very generalized. Certainly, there are instances where investment in developing

countries is made with a market-seeking intention. However, given the lack of detailed subsidiary information that is publicly available, I proceed under the caveat that these variables will provide general trends regarding the impact of lower cost production and new market opportunities in foreign markets on a firm's home country activities.

Information on the foreign operations of firms that is fairly consistently reported over time can be found in the Directory of Corporate Affiliates (the same source used to create the dependent variable). As discussed above, this Directory lists divisions (defined as internal organizations of the company, not incorporated), subsidiaries (defined as a business owned by the company 50% or more), affiliates (defined as a business owned by the company less than 49%) and joint ventures (defined as two or more companies sharing responsibility and ownership of an entity) for each parent company for both home and foreign operations. Similar to the dependent variable, I focused on the subsidiaries of a firm (where the parent firm owns more than 50% of the domestic subsidiary) to create my foreign investment variables. For most firms, this is where the majority of their operations are listed. I specifically focused on the operations where the firm had the most control. I tracked the foreign subsidiary investments of each firm over time by consulting each annual directory. Unfortunately, similar to the domestic information, the foreign information is very inconsistent in the reporting of performance or financial information (like value of assets or sales, or number of employees), and therefore no weighting of this variable to reflect size or performance is possible. Also, there is almost no reporting of the business functions that are performed by these subsidiaries. On the positive side, because firms list both their domestic and foreign operations in the Directory of Corporate Affiliates, this source provides a comparable measure for a firm's domestic and foreign subsidiaries.

To explore the lower cost production and new market opportunities that are the focus of hypotheses one and two, a firm's total number of foreign subsidiaries was broken down to a firm's number of new industrialized country foreign subsidiaries (NewFDIInd) and a firm's number of new developing country foreign subsidiaries (NewFDIDev) for each year from 1981-2000. Following other studies, industrialized countries included the US, Canada, Western European countries, Japan, Australia, and New Zealand. All other countries are classified as developing countries (including Mexico, most Asian countries (not Japan), Central and South American countries, Eastern European countries, ex-Soviet bloc countries, Russia and African countries). As the directories for each year were examined, the data reflect new entry and allow me to explore the global reconfiguration of activities by the

US firms in the sample. Domestic firms that are not multinationals and thus have no subsidiaries abroad are included in the sample; a portion of these firms became multinationals during the twenty year time period of this study.

To examine hypothesis two (which focuses on the foreign investments of product diversified firms with higher levels of international subsidiary investments), I need to analyze the impact of new industrialized country investment given different levels of foreign activity by firms. To examine different levels of a firm's foreign investment activity, I considered a firm's total number of foreign subsidiaries and separated firm years into quartiles. The quartile splits were made by observation, not firms; accordingly, firms can and do change quartiles over the time period of this study. The first quartile subsample contains firms with no foreign subsidiaries and these benchmark firms were included in the second, third and fourth quartiles when the subsamples were analyzed in Tables Four and Five. I then created an interaction term between my product diversification entropy measure and the new foreign investment variable for firms with the highest levels of foreign investment activity to test hypothesis two. To help avoid problems with multicollinearity, I mean centered the variables before interacting them.

Control Variables: The Dollar real exchange rate (RER) is used to control for exchange rate effects. By including the real exchange rate, I am controlling for relative production costs in the US and foreign countries. This variable is intended to capture cycles in FDI due to changes in labor costs abroad (Barrell and Pain, 1996). A higher real exchange rate is expected to have a positive impact on home country divestment, as it may encourage foreign investment. I also created annual dummies to capture macroeconomic variation across the time period under consideration and ran the models with these yearly dummies. The results are very similar to those reported below. As I was unable to include both the RER and annual dummy variables in one model, I only report the RER variable results.

I also include a one-year lagged firm median Tobin's q value to control for industry performance. To capture industry prospects, these median Tobin's Q values were calculated for each firm's primary four digit SIC code (using Compustat data). All firms that report the same primary 4 digit SIC code were included in this calculation. Chung and Pruitt's (1994) approximation for Q was used to create these values for each firm.⁵

⁵ NBER q ratios (which were calculated following the more complex and involved Lindenberg and Ross (1981) approximation) are available for US publicly traded firms up to the year 1991. I downloaded these NBER Q values for the firms in my sample and compared the Chung and Pruitt (1994) approximation. The correlation between these two Q ratios was .95. Given this high correlation, I used the Chung and Pruitt approximation in this paper.

Insert Tables One and Two about here

Table One describes each of the variables and gives information on data sources. Table Two summarizes the expected sign for each of the independent variables and provides summary statistics of the main variables. Table Three provides the product moment correlations. Though the dependent variable has a mean of .98, there is a high standard deviation for this variable (2.66). Looking at the sample reveals that for 71% of the firm year observations, there is no divestment activity in the firm's home country. Though this could suggest that many firms are not divesting at all, there are actually only a handful of firms that report no divestment of home country activities over the entire time period of the study. Finally, while there are some differences across high and low R&D intensive industries, the means and standard deviations are quite similar (with no statistically significant differences across the high and low R&D industry samples for the dependent variable).

Insert Table Three about here

Method:

Because the dependent variable is a count of new divestments for each firm, I use a negative binomial specification to analyze my data. All independent variables are anticipated to impact a firm's divestment fairly rapidly, following Jain (1985), who found that firm performance began to suffer approximately one year prior to divestment. A one-year lag is therefore used to analyze the influence of all independent variables in the analysis below.⁶ Using subscript *i* for firms and *t* for time, the estimation equation takes the following form:

$$\text{DIVEST}_{it} = \beta_1 \text{Size}_{it-1} + \beta_2 \text{DIVERSIFICATION}_{it-1} + \beta_3 \text{R\&D/ASSETS}_{it-1} + \beta_4 \text{LEVERAGE}_{it-1} + \beta_5 \text{ROA}_{it-1} \\ + \beta_6 \text{MedIndustryQ}_{it-1} + \beta_7 \text{NewFDIInd}_{it-1} + \beta_8 \text{NewFDIDev}_{it-1} + \beta_9 \text{RER}_{it-1} + u_{it}$$

⁶ Using lags also incorporates the temporal aspects of the relationship between home and foreign activity investments. For efficiency seeking investments, firms are unlikely to divest operations in their home country before they have the capabilities to produce in more efficient locations. Using a 2-year lag does not significantly impact the overall results (though it does impact the useable observations and fit of some of the models reported below).

Where $Size_{it-1}$ is measured as the log of firm assets, $DIVERSIFICATION_{it-1}$ is a measure of a firm's diversification level, $R\&D/ASSETS_{it-1}$ is a measure for a firm's technological know-how, $LEVERAGE_{it-1}$ is a measure of a firm's debt level, $Performance_{it-1}$ is measured as market value divided by sales, $MedIndustryQ_{it-1}$ is a measure of industry performance, $NewFDInd_{it-1}$ is a measure of a firm's new foreign investments in industrialized countries, $NewFDIDev_{it-1}$ is a measure of a firm's new foreign investments in developing countries, RER_{it-1} is an exchange rate control and u_{it} is an error term.

I ran my models with and without firm fixed effects. Because of the panel nature of my data, I use firm effects to control for unobserved firm heterogeneity. I ran the negative binomial models with firm effects in two ways. First, I included firm fixed effects. In the negative binomial specification, this approach conditions out the firm effects – which makes it very difficult to assess the marginal effect of the covariates (Greene, 2000). My second approach, which is reported below, was to estimate my models including individual firm dummies for each firm in my sample (Penner-Hahn and Shaver, 2005). The sign and significance of all of the results for the foreign investment variables are very similar across the firm fixed effect and individual firm dummy approaches. In fact, the foreign investment and diversification variable results that are reported below are quite robust to a number of alternate methods of specifications (including using OLS regression, the first differences of all variables and using a random effects approach). Because the results are similar and the marginal effects are easier to interpret, I report the results for the specifications using individual firm dummies below (with year effects being captured by the exchange rate variables across the panel).

To test for differences across the high and low R&D intensive industries, I also ran firms in high and low R&D intensive industries separately in the analysis below. I use the OECD's definition of "high R&D intensive industries"⁷ to create the high and low R&D intensive industry groupings used below. The high R&D intensive industry grouping includes firms in the chemical, electric equipment, industrial machinery, precision instruments and transportation industries. The industries that are left make up a group called the low R&D intensive industries (and include firms in the textiles, food, paper and paper products, rubber products and fabricated metals industries.)

⁷ Based on OECD data, these industries tend to have higher than 5% of R&D spending as a percent of sales ratios (<http://www.oecd.org>).

Finally, there have been significant reductions to trade barriers over the two decades that are considered in this study through trade agreements like the Uruguay Round of the GATT and the North American Free Trade Agreement (NAFTA). Reports from the US General Accounting Office (GAO) have documented significant trade increases in the 1990s. Because these agreements affect the movements of goods by lowering tariff and non-tariff barriers, they can influence both the overall foreign investment strategies of firms and firm specific importing and exporting decisions across countries. To ensure that the ratification of these trade treaties is not impacting my results, I also ran the analyses separately for the 1980s and 1990s to see if there were significant differences across these time periods.

RESULTS

The empirical results for the entire sample are reported in Table Four and the results for each of the industry groupings (low and high R&D-intensive industry groupings) are reported in Table Five. In Table Four, Columns 1 and 3 show the results considering only those variables that have been identified in prior studies (Column 1 does not include firm fixed effects while column 3 does). Columns 2 and 4 report the results for the full sample, including the two foreign investment variables that are the focus of this paper. Columns, 5, 6, 7 and 8 show the results for the quartile subsamples and the interaction between firm diversification and new foreign investment for those firms with high levels of foreign expansion (in column 8) Table Five shows the results when firms in low and high R&D intensive industries are run separately. The coefficient, the t-value and the marginal effects are included for each variable in each column. The variables behave fairly consistently whether my model includes firm fixed effects or not. Because of this, I focus on the results that include firm effects to help control for unobserved firm effects across my models.

Insert Table Four about here

Column 3 in Table Four includes only those variables that have been previously examined in prior studies on divestment (including firm effects). The coefficient estimate of firm size is highly significant. Similar to prior

findings, this suggests that larger firms are likely to divest activities. The positive relationship between the diversification entropy measure and the dependent variable also mirrors prior findings and shows that firms with higher diversification levels are likely to divest activities. When all firms are considered together (referencing columns 1, 2, 3 and 4 in this table), high debt and poor performance also significantly impact divestment decisions by firms, as prior literature would suggest.

Insert Table Five about here

The variables of interest in this study examine the impact of lower cost and new market investment on a firm's home country operations. In hypothesis one, it was argued that firms are likely to divest home country subsidiaries when they invest in lower cost production subsidiaries abroad. To test this hypothesis, I consider new subsidiary investments by firms in developing countries (NewFDIDev). Tables Four and Five show interesting results regarding the impact of these investments. Starting with Table Four, when considering the entire sample, new firm investments in developing countries do not significantly impact firm divestment decisions. This is true across models with and without firm effects (columns 2 and 4, respectively). When the quartile subsamples are run separately (columns 5, 6 and 7 in Table Four) new investment in developing countries continues to be insignificant. While these results would make it seem like cheaper production opportunities in foreign countries may not impact home country divestment, some interesting differences appear when the sample is split into low and high R&D intensive industries. In Table Five, the same models from columns 4, 5, 6 and 7 in Table Four have been run on firms in low and high R&D intensive industries separately. Looking at the low R&D intensive industry firms first, columns 1 (for all firms) and 2 (for firms with the lowest quartile foreign activity level) show that new subsidiary investments in developing countries (NewFDIDev) is positive and significant. This suggests that new investment in lower cost production opportunities by firms in low R&D intensive industries does significantly impact the divestment decisions of firms. As can be seen in columns 1-4 in Table Five, it is new investments by firms with lowest levels of foreign activities that are driving this result (as NewFDIDev is not significant for firms in quartiles 3 and 4). From the results reported in Tables Four and Five, hypothesis one receives support for firms in low R&D intensive industries only. Further, it is

only the new developing country investments of firms with low levels of international investments that impact firm divestment decisions.

Hypothesis two argues that new market seeking investments by product diversified firms with high levels of foreign investment are likely to result in divestment. To test this hypothesis, I consider the interaction between a firm's diversification entropy measure (Diversification) and new subsidiary investments in industrialized countries (NewFDIInd). By considering an interaction term between the diversification entropy measure and new foreign investment, I can examine the impact of new market opportunity investments in foreign markets for firms with different levels of product diversification. By including this interaction term for the subsample of firms that have high levels of foreign investment (quartile four firms), I can examine the subset of firms for which the arguments in Hypothesis 2 are relevant. It should be noted that the quartile distinctions are based on a firm's level of international activity (not level of diversification).⁸ In Table Four, column 8 includes the interaction term for firms with the highest levels of international activity (NewFDIInd x Diversification). As can be seen in this table, this interaction term is not significant. I also ran each of the other quartile subsamples with this interaction term, and none of these was significant either. To be thorough, I also ran the interaction term in the models for fourth quartile firms when they were split into low and high R&D intensive industry groupings (the subsamples reported in Table Five). These results are not shown below because, again, none of the interaction terms was ever significant.

While the interaction term is not significant, it should be noted that with or without the interaction term, the results in Table Four show that there are significant effects from both the main effects of new investment in industrialized countries and product diversification. When the results are separated into low and high R&D intensive industries in Table Five, it becomes apparent that the significant effect from industrialized country investment is driven by firms in high R&D intensive industries (new industrialized country investments are never significant for firms in low R&D intensive industries). This finding would argue that a reallocation of resources is happening between industrialized and home country activities and that a firm's extent of international activities influences when firms pursue growth strategies that involve both investing and divesting. The main product diversification entropy variable

⁸ Some of the firms in the lowest quartiles have high levels of product diversification (which means that their product diversification is only occurring in the US market). Some of the firms in the fourth quartile, those with the highest levels of foreign investment activity, have fairly limited product diversification (which means that they are only active in one main industry across all geographic markets)

is also significant for firm with high levels of international expansion. These results argue that the main effects from both of these product and geographic variables significantly influence the divestment decisions of firms. More detailed subsidiary level information in both the home and foreign countries could provide more insight into the trade-offs firms are making across product and geographic markets and to better test some of the arguments building up to hypothesis two.

Regarding the control variables, real exchange rates were included as a control in all of the models that include foreign investment. They are always negative and significant. When year dummies are included in each of the models, the main results remain very similar (and some year dummies are significant)

To consider the economic significance of the results, Tables Five and Six also report the marginal effects. The marginal effects are the percent change in expected count of divestments for a standard deviation increase in each variable. As can be seen from these marginal effects, the investment variables that are considered in this study have an important economic effect on firm divestment decisions. The results in column 7 in Table Four reveal that for a standard deviation increase in foreign subsidiary investment in industrialized countries for firms with high levels of international investments, a firm's expected mean divestments increase by 17.2%, holding all other variables constant. Considering Table Five, the results from column 2 reveal that a standard deviation increase in foreign subsidiary investment in developing countries for firms with low levels of international investment in low R&D intensive industries increases a firm's expected mean divestment by 18.6%, while column 8 reveals that a standard deviation increase in foreign subsidiary investment in industrialized countries for firms with high levels of international investment in high R&D intensive industries increases a firm's expected mean divestment by 9.4%. While size and diversification have larger marginal impacts than the foreign investment variables, unlike the size and diversification variables, the impact of the foreign investment variables can be negative or positive. This shows that it is important to examine what a firm is doing in foreign markets to understand how and when home country activities will be impacted by that investment

Regarding my robustness checks, I do not report the models separately for the 1980s and 1990s because breaking down the sample into two time periods (the 80s and the 90s) does not reveal many changes, and none of the changes in the coefficients is statistically significant. (Wald tests reveal that the coefficients are not significantly different across the 1980s and 1990s.) The one difference worth mentioning is that the significant variables

discussed above are slightly less significant (meaning significant at a .10 level instead of .05) in the 1980s and more significant in the 1990s. This could suggest that trade liberalization (and trade agreements like NAFTA and GATT) is providing more opportunities for firms to continue pursuing the foreign investment strategies they were already pursuing in the 1980s. As noted above, the results did not change when the final year was dropped from the sample to ensure that FASB changes in segment reporting requirements did not impact the findings.

DISCUSSION AND IMPLICATIONS:

This study builds on the notion that corporate strategic decisions, like divestment, need to be analyzed within the broader context of a firm's overall strategy across the multiple product and geographic markets in which that firm operates. Importantly, firm growth and expansion strategies may involve both divestment and investment. While this study confirms prior findings that poor performance, high debt and diversification all impact firm divestment decisions, it also shows that investments that provide more efficient uses of firm resources and growth opportunities in foreign markets have an impact on firm divestment decisions. By focusing on these trade-offs, this paper highlights the role of both investment and divestment in firm growth and expansion strategies.

In this paper, I argue that lower-cost production and new market opportunities in foreign markets can provide a better use of existing firm resources and suggest that these opportunities are likely to influence firm divestment of home country operations. In general, the findings in this paper show that better opportunities impact divestment decisions by firms. However, the results also reveal several interesting moderating influences on the hypothesized trade-offs. For example, for firms in low R&D intensive industries, the results show that lower cost opportunities through developing country investments significantly impact home country divestment for firms with low levels of international expansion. In contrast, market seeking opportunities through industrialized country investment is not a significant determinant of home country divestment decisions for firms in low R&D intensive industries. These results are consistent with the idea that low R&D intensive industry products are more efficiently produced outside the US in countries with cheaper factors of production. Firm growth strategies that focus on more efficient and lower cost production are likely to involve reallocating firm activities to markets with cheaper inputs. This makes intuitive sense when thinking about the expansion of firms in the textiles or paper products industries, for example. Manufactured goods in these industries are certainly cheaper to produce in countries like Mexico than the US. For

example, the Scott Paper Company sought to make efficiency improvements at its paper and pulp plants in the 1980s. After opening mills abroad, the company shut down and consolidated mills in the US. The results in this paper also hold when the sample is broken down into the 1980s and 1990s (with stronger results in the 1990s), which suggests that firms in low R&D intensive industries are using this type of strategy more extensively after the passage of NAFTA and the Uruguay Round of the GATT.

For firms in high R&D intensive industries, the results show that the impact of foreign investment opportunities on a firm's home country activities is different for firms with low and high levels of international expansion. For firms in high R&D intensive industries, the sign of the coefficient for market seeking opportunities through industrialized country investment is negative for firms with a low level of international expansion and positive for firms with a higher level of international expansion. At low levels of international expansion, firms in high R&D intensive industries may be trying to exploit what they have created in their home market. Industrialized country investments provide new markets for the proprietary assets and products of these firms. As a firm is entering new markets to exploit its existing products, this foreign expansion does not impact managers' decisions to divest from home country activities. The foreign expansion activities of firms in the chemical, electric equipment and precision instruments industries provide examples of this type of expansion strategy. These firms have generally expanded first into other industrialized countries and sold similar products in both their home and other industrialized markets – where consumers can afford the products and where there is similar enough demand that there is a market for the products. Considering the firms in the sample, there are many examples of firms in high tech industries growing both at home and abroad. 3M invested heavily in foreign sales and distribution subsidiaries (while maintaining its manufacturing operations in the US). During the time period of this study (up to 2000), most pharmaceutical firms exported far more than they import to their subsidiaries abroad. Merck and Eli Lilly, for example grew in both home and foreign markets for much of the time period of this study. The boom in mining around the world also boosted Caterpillar in both its home and foreign markets as Caterpillar has invested in subsidiaries in both the US and abroad. With low levels of international expansion, firms do not appear to be impacted by issues of capacity constrained resources and are able to earn additional rents by exploiting proprietary assets created in their home market.

The result that market seeking foreign investments replace a firm's home country activities for firms with

high levels of international expansion suggest that firms in high R&D intensive industries use foreign markets differently once they have more operations abroad. After firms in high R&D intensive industries have increased their foreign commitments, they may be faced with the need to reconfigure and restructure operations to reduce redundancies, to better rationalize how country and regional markets are served, to compete with other global firms in their industries, or to reallocate resources across geographic markets. Issues of capacity constrained resources and managerial choices about reallocating resources to their best use are much more salient for firms with high levels of international expansion. For decades, firms like Ford or IBM created operational replicas of themselves when they entered new countries. Until the mid-1990s, for example, Ford operated separate vehicle engineering organizations in North America and Europe. For many years, this meant that Ford was expanding and opening subsidiaries abroad. In the 1990s, many US automobile manufacturers started making their operations more globally integrated. This meant that Ford, and other US auto manufacturers closed and/or consolidated operations in the US. Though not reflected in the time period of the study, many chemical firms reveal this same trend today with chemical manufacturing facilities being moved outside the US to developing countries (especially to China) where energy is cheaper and growth rates are faster. Given the opportunities available across markets and the limits on managerial time and attention, firms make trade-offs across markets when they have higher levels of international investment, regardless of the potential interaction with product diversification. This makes sense when thinking about the choices that rational managers are likely to make given different resources, sets of opportunities and growth prospects across the various markets in which a firm competes. Overall, the results for firms in high R&D intensive industries show that foreign market seeking investments both replace and augment a firm's home country activities and that the extent of a firm's international investment impacts which relationship dominates.

There are several studies in the international economics literature that have considered the relationship between employment in foreign and home countries. Lipsey et al. (2000) found that US firms reduce employment at home in response to increased labor intensive production in developing countries. Brainard and Riker (2001) find that foreign affiliate employment abroad in both low and high income affiliate locations is a substitute for employment in the US, though the magnitudes are low, and Harrison and McMillan (2006) find that employment in low-income affiliates crowds out US employment while employment in high income affiliates moves in the same direction as employment in the US. The results in these studies are similar to this study in that developing country employment

has a substitute relationship with home country employment. However, none of the studies that focus on home country employment have analyzed how firm-level investment strategies may impact the relationship between home and foreign operations or employment. The present study complements and extends the studies in the international economics literature by focusing on firm growth strategies and examining the trade-offs that managers make across product and geographic markets. By disaggregating the influence of high and low R&D intensive industries and examining how different levels of international investment and different investment location choices of firms influence home and foreign activity substitute and complementary relationships, the findings in this study add important firm level strategic variables that are not considered in the economic literature. By showing that there are different influences for the same industrialized country location choice for firms with high or low levels of international investment, the present study highlights how firm strategic decisions and motivations for foreign investment moderate the substitute and complementary relationships between a firms' investments in home and foreign activities.

Though current political debates on trade policy focus on firms that are primarily offshoring activities through their foreign investments (and closing down manufacturing plants in the US), the results in this paper suggest that the actual foreign investment strategies of US firms have much more complex relationships with home country activities and importantly, these findings show that there are different impacts on the home country activities of firms depending on firm and industry characteristics, and the foreign investment location choices of firms. For policy makers worried about the giant "sucking sound" of jobs relocating to cheaper foreign locations after trade has been liberalized, the results in this paper offer two insights. First, there are no statistically significant differences across firm investment patterns from the 1980s and the 1990s. This suggests that the influence of the recent GATT and NAFTA trade agreements has likely been to accelerate the pace of firm reorganization rather than to cause firms to divest in the US. Second, the results show that foreign investment has both substitute and complementary aspects. While firms in low R&D intensive industries replace home country investment with cheaper foreign investment through initial expansion abroad, the relationship between home country divestment and foreign country investment is not significant at more advanced levels of international expansion. For firm in high R&D intensive industries, lower levels of expansion abroad has a complementary relationship with home country investment, suggesting that more jobs are created in these industries even though firms are expanding abroad. At a more advanced level of investment, the relationship between home and foreign country investment is a substitute one, suggesting that there

may be limits to how much firms can continue to grow in all markets in which they are active. These results suggest that firms with more extensive operations abroad may need to reorganize their operations in the most efficient locations to globally integrate their operations and serve both home and foreign markets more competitively. These diverse results for firms in different industries with various levels of international expansion also suggest that aggregate pronouncements regarding the effects from firm foreign investment choices on home country investment only a partial explanation for the firm investment choices we actually see.

Finally, the present study provides the first analysis (of which I am aware) that considers the influence of a firm's foreign investment strategies on its home country subsidiary divestment decisions. This study offers some important insights into the differential effects that market and efficiency seeking foreign investments can have on home country operations. These results should certainly be augmented and extended in future studies to provide more insight into the influence of foreign investments on home country activities as firms reconfigure and reorganize across multiple product and geographic markets. Both exit and divestment are areas in strategic management that are under-studied and need additional research (Helfat, 2004). While this study uses a comparable measure for investment activity in home and foreign markets, a more detailed measure could distinguish size and performance across these counts. Further, the approach in this study uses a very generalized proxy to capture firm motives for lower cost production and new market opportunities. While the results show interesting differences across industrialized and developing countries, future research should use more detailed foreign subsidiary level data to better reflect motivations for firm entry across these two location groupings. Though very difficult to obtain, information on both the foreign and domestic subsidiaries' business function, goods output (primarily distributing or producing intermediate or final goods, for example) and how this changes over time would provide further useful insight into the issues under consideration in this study.

Table One: Operationalization and Sources of Variables:

Variable:	Operationalization:	Source:
Divest _t	A firm's number of new divestments in the US in year t	Directory of Corporate Affiliates
Size _{t-1}	Log of a firm's total assets. These assets have been inflation adjusted using GDP deflators.	Compustat
Diversification _{t-1}	Total product diversification is measured using an entropy Measure for each firm for each year using Compustat's Segment tapes. Firms were then broken into quartiles to examine over-diversifiers.	Compustat
RD/Sales _{t-1}	The stock of a firm's R&D represents its technical know-how. R&DStock is the total value of 100% of a firm's current year expenditures on R&D, plus R&D spending from the four previous years depreciated at a 15% rate. Yearly firm level financial data are inflation adjusted using GDP deflators	Compustat
Debt _{t-1}	The market value of a firm's short and long term debt. Inflation adjusted Debt (using GDP deflators) has been divided by a firm's inflation adjusted assets.	Compustat
Performance _{t-1}	Performance was measured using a firm's market value (stock price times the number of outstanding shares) divided by sales. Return on Assets (ROA) and return on sales (ROS) were also tested separately. These measures yielded similar results in terms of the significance levels.	Compustat
MedianIndustryQ _{t-1}	The median Tobin's Q value for all the firms reporting the same primary SIC code as the firm's primary 4 digit SIC code. Chung and Pruitt's (1994) approximation for Q was used to calculate Q.	Compustat
NewFDIInd _{t-1}	The total number of new foreign investments for each firm in each year in industrialized countries (see text for an explanation of which countries are included)	Directory of Corporate Affiliates
NewFDIDev _{t-1}	The total number of new foreign investments for each firm in each year in developing countries (see text for an explanation of which countries are included)	Directory of Corporate Affiliates
RER _{t-1}	Dollar Real Exchange Rate. using a base year of 1977 (1977=100)	International Financial Statistics (IMF)

Table Two: Expected Signs and Summary Statistics of Variables

Variable	Sign	Obs	Mean	Std. Dev.	Min	Max
Divest		3453	.98	2.66	0	19
Size	(+)	3611	6.34	1.95	.89	10.77
Diversification	(+)	3394	.51	.49	0	1.92
RD/Sales	(-)	3494	.044	.44	.0001	15.52
Debt	(+)	3473	.28	6.27	0	232.27
Performance	(-)	3555	1.03	1.08	.001	18.96
MedianIndQ	(-)	3724	1.12	.66	-.03	5.77
NewFDIInd	(-)	3417	.16	2.81	0	19
NewFDIDev	(+)	3417	.02	3.13	0	6
RER	(+)	3800	112.55	20.09	89.76	154.93

Table Three: Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Divest	1.0									
2. Size	0.19	1.0								
3. R&D/Sales	0.01	.11	1.0							
4. Diversification	0.11	.37	-.11	1.0						
5. Debt	0.01	-0.03	-.01	.01	1.0					
6. Performance	0.05	0.38	.15	.16	-.01	1.0				
7. MedianIndustryQ	-0.01	0.01	.38	-.10	-0.01	0.05	1.0			
8. NewFDIInd	0.10	0.05	-.01	0.01	-0.01	-0.01	-0.05	1.0		
9. NewFDIDev	-0.04	-0.02	-.04	-0.01	0.01	-0.07	-0.06	0.39	1.0	
10. RER	-0.06	-0.18	-.05	0.06	-0.01	-0.10	-0.03	-0.01	0.03	1.0

Table Four: Results from Negative Binomial Analysis of the Relationship of Investment on Divestment

Dependent Variable: New Divestment_{it}

	All firms (1)	All firms (2)	All Firms (3)	All Firms (4)	Q2 Firms ^a : (5)	Q3 Firms ^a : (6)	Q4 Firms ^a : (7)	Q4 Firms ^a (8)
Size _{it-1}	.31*** (6.56) [58.42]	.30*** (4.98) [52.44]	.28*** (4.11) [42.3]	.17** (2.30) [38.81]	.31*** (3.02) [37.0]	.28** (1.96) [41.8]	.16* (1.65) [21.4]	.17* (1.77) [23.8]
Diversification _{it-1}	.28*** (2.85) [14.9]	.27*** (2.65) [14.5]	.52*** (2.65) [22.9]	.47*** (2.16) [20.2]	.21 (.31) [4.6]	.49* (1.73) [23.9]	.61** (2.01) [30.6]	.59** (1.99) [30.1]
R&D/Sales _{it-1}	-4.21 (-1.21) [-12.2]	-4.09 (-1.18) [-12.08]	-4.01 (-.96) [-11.7]	-4.38 (-1.36) [-11.66]	-3.52 (-.81) [-13.3]	-3.27 (-.69) [-11.4]	-4.34 (1.41) [12.01]	-4.31 (1.55) [12.10]
Debt _{it-1}	.18* (1.87) [5.5]	.18* (1.83) [5.3]	.16* (1.71) [5.2]	.17* (1.77) [4.9]	.15 (1.59) [4.9]	.16 (1.42) [6.3]	.16 (1.55) [4.5]	.16 (1.43) [4.4]
Performance _{it-1}	-.03* (-1.91) [-10.45]	-.03* (-1.88) [-10.42]	-.02* (-1.69) [-10.1]	-.03* (-1.72) [-10.1]	-.02 (-1.01) [-9.9]	-.03* (-1.82) [-11.5]	-.03* (-1.84) [-12.2]	-.03* (-1.82) [-12.4]
MedianIndQ _{it-1}	-.09 (-.69) [-4.8]	-.10 (-.68) [-5.7]	-.07 (-.61) [-4.9]	-.11 (-.70) [-6.0]	-.13 (-.56) [-7.0]	-.09 (-.39) [-5.1]	-.07 (-.44) [-5.7]	-.06 (-.42) [-5.2]
NewFDIInd _{it-1}		.08* (2.13) [9.8]		.13* (1.85) [17.25]	-.17* (-1.63) [-11.8]	.08 (1.21) [4.2]	.19** (2.15) [17.3]	.18** (2.11) [17.2]
NewFDIDev _{it-1}		-.03 (-.78) [-2.3]		-.02 (-.51) [-2.1]	.04 (1.58) [3.3]	.01 (.67) [1.1]	-.03 (.78) [-3.9]	-.03 (.72) [-3.3]
NewFDIInd _{it-1} x Diversification _{it-1}								.03 (1.11) [5.65]
RER		-.01*** (-2.75) [-12.1]		-.01** (-2.1) [-11.1]	-.01* (-1.61) [-9.7]	-.01* (-1.78) [-9.8]	-.01*** (-2.48) [-16.4]	-.01*** (-2.21) [-15.7]
Intercept	-.76 (-.88)	1.56*** (-4.21)	-5.32*** (-7.45)	-7.61*** (-8.20)	7.39*** (-4.62)	7.58*** (-5.32)	7.91*** (5.88)	7.98*** (5.94)
X2 covariates	194.4***	188.59***	585.08***	572.29***	247.37***	224.83***	240.64***	242.37
Firm Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes
N	3112	2831	3112	2831	1399	1420	1485	1485

***p<.01, ** p<.05, * p<.10, robust standard errors (t-values) [marginal effects (which are the change in the expected count for a SD increase in the independent variables)]

^a Quartiles based on a firm's total number of foreign subsidiaries were calculated to investigate the influence of different levels of foreign operations. (The quartile split is by observations not firms and firms can and do change quartiles over the time period.) Benchmark firms with no foreign operations (those firms in the lowest quartile) were included in each of the quartiles. Missing values cause the number of observations to differ across these quartiles.

Table Five: Results Separating Firms in Low and High R&D Intensive Industries

Dependent Variable:	Firms split into Low and High R&D Intensive Industries ^a :							
	Low All firms (1)	Low Q2 firms (2)	Low Q3 Firms (3)	Low Q4 Firms (4)	High All Firms (5)	High Q2 Firms (6)	High Q3 Firms (7)	High Q4 Firms (8)
Size _{it-1}	.41*** (2.78) [51.4]	.39*** (3.71) [54.22]	.38* (1.75) [41.1]	.42* (1.78) [41.57]	.11* (1.86) [24.3]	.11* (3.02) [37.0]	.29* (1.90) [21.7]	.28* (1.77) [28.4]
Diversification _{it-1}	.55*** (2.14) [24.8]	.11 (1.42) [11.2]	.59* (1.71) [22.8]	.81** (2.19) [29.2]	.62** (2.03) [26.7]	.14 (.54) [4.6]	.61* (1.68) [36.7]	.84*** (2.52) [44.9]
R&D/Sales _{it-1}	-4.47 (-.99) [-19.1]	-2.41 (-.77) [-8.91]	-3.94 (-.96) [-13.03]	-4.77 (-1.36) [-15.62]	-3.24* (-.81) [-11.5]	-3.52 (-.81) [-13.3]	-3.27* (-.69) [-11.4]	-4.34* (1.41) [12.01]
Debt _{it-1}	1.44* (1.87) [4.56]	1.98* (1.96) [5.21]	.89* (1.72) [4.52]	.68 (1.18) [3.7]	.13 (1.51) [3.4]	.14 (1.48) [4.8]	.12 (1.31) [3.7]	.15 (1.59) [4.3]
Performance _{it-1}	-.01 (-1.16) [-11.8]	-.01 (-.83) [-5.72]	-.01 (-1.48) [-9.0]	-.01 (-1.63) [-10.7]	-.01* (-1.75) [-18.5]	-.02* (-1.01) [-9.9]	-.03* (-1.67) [-19.6]	-.03* (-2.33) [-20.3]
MedianIndQ _{it-1}	-.05 (-.28) [-5.5]	-.16 (-.42) [-8.4]	-.13 (-.48) [-8.6]	-.03 (-.70) [-4.0]	-.14* (-1.68) [-8.6]	-.20* (-1.86) [-8.1]	-.06 (-1.39) [-2.3]	-.12* (-1.64) [-8.5]
NewFDIInd _{it-1}	.03 (.78) [1.8]	.03 (.84) [2.3]	.02 (.78) [3.7]	.02 (.89) [3.6]	-.03* (-11.8) [-10.8]	-.15* (-18.6) [-11.8]	.04 (.95) [3.1]	.09** (1.97) [9.4]
NewFDIDev _{it-1}	.09* (1.91) [16.31]	.12** (-2.09) [-18.6]	.05 (.54) [3.9]	-.02 (-.31) [-1.2]	-.03 (-.67) [-1.6]	-.02 (-.78) [-3.3]	.01 (.65) [1.54]	-.03 (-.78) [-1.10]
RER	-.01* (-1.86) [-15.4]	-.01 (-1.29) [-4.4]	-.01* (-1.66) [-11.2]	-.01* (-1.92) [-16.3]	-.01* (-1.75) [-11.3]	-.01* (-1.68) [-9.7]	-.01* (-1.81) [-9.8]	-.01*** (-2.32) [-16.4]
Intercept	-3.56*** (-3.65)	-3.23*** (-3.16)	-3.51*** (-2.87)	-2.98*** (-2.67)	-7.65*** (-6.45)	7.39*** (-5.87)	7.58*** (-6.53)	7.91*** (6.32)
X2 covariates	255.3***	132.9***	121.91***	98.97***	326.79***	120.25***	109.18***	150.43***
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1109	541	545	553	1722	848	857	860

***p<.01, ** p<.05, * p<.10, robust standard errors (t-values) [marginal effects (which are the change in the expected count for a SD increase in the independent variables)]

^a The high R&D intensive industry grouping includes firms in the chemical, electric equipment, industrial machinery, precision instruments and transportation industries. The low R&D intensive industries include firms in the textiles, food, paper and paper products, rubber products and fabricated metals industries.

^b Quartiles based on a firm's total number of foreign subsidiaries were calculated to investigate the influence of different levels of foreign operations. (The quartile split is by observations not firms, and firms can and do change quartiles over the time period.) Benchmark firms with no foreign operations (those firms in the lowest quartile) were included in each of the quartiles. Missing values cause the number of observations to differ across quartiles.

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