ROLE OF RIVALS IN FOREIGN DIVESTMENTS OF
INTERNATIONAL HEALTHCARE SYSTEMS

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By

Charlotte Louise Hildebrand

Dissertation Committee:

Kiyohiko Ito, Chairperson
John E. Butler
Sonia Ghumman
Liming Guan
Ronald Heck

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This dissertation is dedicated to my irreplaceable friends-mentors lost in combat and in peace.

CW4 David Guerin
CPT Kimberly Hampton
COL Jonathan Lake
SSG Heath Craig
CW3 Eric Totten
CW2 Christopher Donaldson
SSG Christopher Howick
SGT Jeffery Wiekamp
SGT Bryan Brewster
SGT John Griffith
CW3 Richard Swiger
MAJ Daniel Bunn
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ABSTRACT

This study bridges the research gap between oligopolistic reaction and foreign divestment strategy. Based on a 40 year dataset that captured the divestment decisions of the largest American international healthcare systems operating foreign hospitals, the relationship between the number of rivals operating in a focal country and the number of previous rival divestments is analyzed on healthcare system divestment and market exit timing. The findings suggest that in the same host country a focal healthcare system’s decision to divest is positively related to both the number of rivals and their previous divestment decisions of their competitors. In the timing of the decisions, the more rivals operating in a host country, the faster the divestment decisions are. The divestment decisions of rivals, however, decelerated the decisions of focal hospitals to divest. Support exists for oligopolistic reaction in foreign divestments.
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CHAPTER 1. INTRODUCTION

This study provides a linkage between oligopolistic reaction (Knickerbocker, 1973) and foreign divestment strategy in the international business literature. The coupling is intended to increase the understanding of managerial decision-making by exploring the factors within the competitive environment as potential determinants to corporate divestment decisions and market exit timing.

Dranikoff, Koller, and Schneider (2002) and Brauer (2006) found that although divestitures are among the most important strategic decisions firms make, their significance is under-represented in the literature. McDermott (2010) emphasized that an absence of data on foreign divestment by MNEs is a significant knowledge gap. This research seeks to close the gap by combining foreign divestment and oligopolistic reaction strategies to the international business literature. To this aim, foreign divestments are investigated over the last 40 years in the international healthcare market, which is a highly concentrated, oligopolistic structure with a small number of large companies competing in the same host countries (Cutler & Morton, 2013; Organization for Economic Co-operation and Development, 2005, 2012).

An oligopoly, for the purpose of this research, is defined as a market shared by two to 12 firms in an industry (Scherer, 1980). Characteristics of an oligopoly include a mature industry, enhanced firm profitability through consolidation, stable competitive rankings, high entry barriers, and non-price competition among the major rivals (Sethi & Judge, 2009). Oligopolistic reaction (Knickerbocker, 1973) is the firm’s competitive actions and reactions in foreign direct investment (FDI) in limited competitive environments. Market exit is the complete withdrawal of a firm from a host country (Song, 2014). Divestment refers to the deliberate closure, transfer, or sale of a major part of a firm’s operations resulting from fluctuating economic, political, and
social environments. The international divestment, or de-internationalization, is the reduction of a firm’s international operations through the divestment of foreign subsidiaries and foreign market exit (Benito, 1997, 2005; Benito & Welch, 1997; Boddewyn, 1979; Dhanaraj & Beamish, 2004; Hennart, Kim & Zeng, 1998).

While studies of oligopolies and the foreign investment decisions of firms can be found in international business literature, divestment research is rather limited. Over the last 40 years, major contributions made by Benito (1997, 2005), Benito and Welch (1997), Boddewyn (1976, 1979, 1985), and Brauer (2006) focused on multinational enterprise (MNE) divestments during national market recessions in the 1980s and 1990s in Japan, Europe, and the United States (US). While these divestment decisions spurred research on the topic in the past, few related studies exist that build on the previous divestment literature.

Similar to MNEs in prior divestment research, for-profit healthcare systems in the US experienced the considerable economic pressures of market consolidation, industry reform, competition, and regulatory changes. For-profit healthcare systems shifted strategic priorities to maintain costs and react to changes in the external environment. These strategies included a reduction of foreign investment and subsequent divestment decisions. The recent example of Tenet Healthcare announcing plans to divest nine facilities in the United Kingdom (UK) serves to highlight the ongoing divestment considerations of the leading healthcare systems (Barkholz, 2017).

The research directly contributes to a new field of literature regarding oligopolistic reaction and foreign divestments. Second, the database for this research provides a 40 year collection of foreign divestment decisions by multinational healthcare systems never previously analyzed. Given the negative stigma with divestments as corporate failures and the political
sensitivities involved, obtaining information on FDs is difficult and contributes to the lack of literature on divestments (Burt, Dawson, & Sparks, 2003; McDermott, 1989; Palmer, 2004). Lastly, this research extends the literature on service industries and their oligopolistic and divestment actions. Nigh, Cho, and Krishnan (1986) noted that service industries may uncover different patterns of international competition. While the divestments in the banking and retail industries have received academic attention, research on the healthcare industry is limited (exception includes studies in the nursing home industry by Lin, 2015).

This research proceeds with a literature review of foreign direct investment, foreign divestment, and oligopolistic reaction research which serves as the basis for the hypothesis development. It is followed by a review of the hypotheses, explanation of the data, and methodology for the testing of the hypotheses. It concludes with the results and discussion of the findings.
CHAPTER 2. LITERATURE REVIEW

Foreign Direct Investment

The theory of FDI deals with the firm-level decision making strategies in which a firm in one country seeks business interests in and managerial control of another to reduce costs or gain other strategic advantages. Foreign investments include greenfield development, joint ventures, contracts, or mergers and acquisitions (M&A). Hymer (1960) and Kindleberger (1973) first articulated that local firms should be better informed about the local environment than foreign firms and therefore have a marked advantage. If the market is imperfect and foreign firms possess certain advantages over local firms, FDI can be economically viable. Later, Buckley and Casson (1976, 1981) and Hennart (1982) explained internalization theory and explained how MNEs are more efficient by organizing “exchanges” within their firms rather than absorbing the additional costs and risks found in the market transactions (Rugman, 1980).

Dunning’s (1977) eclectic theory consolidated much of the earlier research on foreign investment into the ownership-location-internalization paradigm that described both internal and external factors that lead to strategic moves abroad for international production. Johanson and Vahlne (1977) developed the Uppsala model (also known as the Scandinavian model) in which firms incrementally increase commitments to foreign markets as they gain more experience through gradual acquisitions, integration, and use of knowledge about host countries and their operations. They base their theory on Aharoni (1966) and described psychic distance as the uncertainty found in foreign markets and the internationalization process. They created a model to reduce the uncertainty risk (Johanson & Vahlne, 2006).

Like Johanson and Vahlne (1977), Davidson (1980) explained that prior experience in a host country may increase the firm's priority for projects in that country. Inexperienced firms
prefer geographically close markets more often than firms with broader international operating experience. Firms that already have domestic and foreign subsidiaries enjoy the learning effects that lower organizational barriers to entry (Amit, 1986). Firms with overseas access gain intelligence about their foreign markets which may assist in streamlining foreign market entry (Gupta & Govindarajan, 1994).

The string of international business literature on FDI, market entry, and more recently, market exit helps set the baseline for this study. Internal and external factors influence firm decisions on how best to operate overseas. Next the literature on foreign divestment and oligopolistic reaction is explored to lay the foundation to bridge the research gap.

**Foreign Divestment (FD)**

Two earlier contributions on the reverse of FDI theory include Porter’s (1976) domestic “barriers to exit” and the decline phase of Vernon’s (1966) international product lifecycle. Their academic contributions toward understanding the challenges on why firms divest have more recently expanded to research on entry mode and exit mode choices. For example, entry mode choices result from firm learning, prior experience, and host market attractiveness (Ahsan & Musteen, 2011). The entry mode choices influence subsequent subsidiary exits (Song, 2014). Prior entry and prior exit decisions of an MNE have little influence on how firms subsequently enter a market (Chan, Makino, & Isobe, 2006).

Boddewyn and Torneden (1973) first defined foreign divestment (FD) as “a reduction of ownership percentage in an active direct foreign investment that can be voluntary or involuntary in nature. Boddewyn (1983a, 1983b) emphasized the differences between foreign investment and divestment decisions in applying Dunning’s eclectic theory and Vernon’s product lifecycle model to divestments. He noted that FD decisions are different because the information levels
are higher after a firm operates in a host country and the role of the potential buyer is magnified. Other differences included a greater centralization for decision making, less rationality, and stronger emphasis on new leadership to implement the divestment strategy.

Divestment literature began and continues to move in the direction of voluntary verses forced divestments (Boddewyn, 1976). McDermott (1989) divided voluntary divestments into two categories: defensive voluntary and offensive voluntary. Defensive voluntary actions occur when a firm suffers a decline in competitiveness from internal financial constraints or loss of market share. Offensive voluntary divestments usually occur after firms acquire several subsidiaries. Poor fitting subsidiaries are subsequently sold to enrich the firm after their sale.

Cairns, Doherty, Alexander, and Quinn (2008) built on the research of Boddewyn and McDermott and developed two other types of FD to include corporate crisis and positive restructuring. The same vein of voluntary divestment research is followed under both negative and positive firm conditions.

*Divestment Decisions.* Like FDI, researchers emphasize that divestments are a significant part of corporate strategy (Calvet, 1981; Benito & Welch, 1997). Corporate growth and divestment are logical outcomes of the same process of FDI (Jones & Hill, 1988). FD literature also investigates the rationale behind divestment decisions. Young, Hood, and Firn (2001) identified different forms of restructuring and divestment that included financial, portfolio, organizational, and spatial dimensions. They can also result from misguided investments (Kruse, 2002). Firms reduce and contract investments when encountering high levels of risk (Blake & Moschieri, 2014). Market exit decisions result from lower-cost production and new market opportunities (Berry, 2010), operational flexibility (Fisch & Zschoche 2012), and strategic misfit and poor international performance (Sousa & Tan, 2015).
Researchers also studied the effects on firm performance after firms entered and exited foreign markets (Engel & Procher, 2013; Hryckiewicz & Kowalewski, 2011; Hui, 2017).

Divestments can occur as a business transitions in favorable markets, not only during a declining stage. Boddewyn (1979) found that divestment occurs as a result of financial considerations, but a strategic dimension exists as firms divest subsidiaries that are profitable, but do not “fit” with the current priorities or operating environment. Over-diversification, or corporate focus hypothesis, may result in divestment in order to simplify operations (Comment & Jarrell, 1995).

Benito (2005) used the integration-responsiveness framework with the divestment propensities of foreign subsidiaries and found divestments depended on the global strategy of the parent corporation. Divestment decisions may result in optimal resource allocation (Hamilton & Chow, 1993; Hennart, Roehl, & Zeng, 2002). Berry (2010, 2013) considered why and when US MNEs divest. She found that firms respond to both product and geographic market conditions when making divestment decisions regarding their foreign operations. An assessment of changing internal and external risks and opportunities may result in the redistribution of corporate assets over time that lead to divestments.

Divestment Timing. The processes of acquiring and divesting assets must be synchronized by the firm to create value (Sirmon & Hitt, 2009). Boddewyn (1985) explained that FD occurs as a result of condition-motivation-precipitating circumstances; an event happens that triggers the divestment decision. He identified key foreign divestment factors: financial considerations, poor pre-investment analysis, adverse environmental conditions, lack of fit and resources, structural and organizational factors, external initiating pressures, and foreignness and national differences. Mata and Freitas (2012) found that as firms age, the market exit rates of foreign firms increase
while domestic firms decrease. Rational, behavioral, and organizational explanations are all needed to understand firm delays in their time to exit decisions (Elfenbein & Knott, 2015).

In addition, with respect to the timing of divestments, Cairns et al. (2008) discovered that a new CEO appointment could speed the divestment process. Differentiating between court driven exits (mainly bankruptcies) and voluntary liquidations, the time to exit also depended on the stakeholders in distressed firms (Balcaen, Manigart, & Ooghe, 2011). Balcaen et al. (2011) noted that the addition of competitors in the market pressured firms toward divestment, but the scope of their analysis did not include the competitive environment as an underlying cause of distress. Dai, Eden, and Beamish (2017) contended that exit rates, a firm’s failure to survive in a host country, are hastened by firm vulnerability across three dimensions: “exposure (the extent to which an external threat is experienced proximally), at-risk resources (the value of an MNE’s global portfolio in the host country that would be extremely hard to replace if damaged), and resilience (capacity for coping with harm) (1478)”.

In sum, the current literature on FD timing does not include the signaling effects of the presence or absence of competitors operating in a host market, but does acknowledge that the timing of divestment decisions is a dynamic process. The FD literature explores both the positive and negative aspects of divestment, but little research includes the role of competitors in a firm’s decisions to divest and does not include the theories associated with oligopolistic reaction.

**Oligopolistic Reaction**

In comparison with divestment research, the oligopolistic reaction literature is more abundant. Knickerbocker (1973) aided in the understanding of how rival firms imitate each other in their FDI decisions through oligopolistic reaction. Under conditions of growth in an overseas
economy, US firms match the investments of competitors into the same host market which helps explain international flows of FDI.

Flowers (1976) looked at industry structures of Canadian and European firms in the US to test the oligopolistic reaction theory of FDI. He discovered a tendency toward a rise in entry concentration with seller concentration in the home country. FDI entries clumped together after the leading firm in the industry made an investment. Yu and Ito (1988) noted that in an oligopolistic industry, firms' FDI motivations are based on the behavior of rivals and host country or firm related factors. Home market industry leaders invest overseas most commonly in clusters of foreign subsidiaries, seemingly in response to the actions of a rival’s initial investment (Maitland, Rose, & Nicholas, 2005). Gardberg, Genc, and Yin (2017) applied oligopolistic reaction to the retail industry and found that a major retailer’s presence motivated other firms to also enter the host country.

Several studies based on institutional theory describe market entry decisions in terms of mimicry. Firms copy the behaviors of other firms within their industry. More specifically, firms tend to imitate large, successful or similar-sized rivals, whose behaviors are easily observable or perceived to be important to the focal firm due to their social legitimacy (Haveman, 1993; Haunschild & Miner, 1997). Gimeno, Hoskisson, Beal, and Wan (2005) discovered firms in the telecom industry imitated each other’s international entries. Hansen and Hoenen (2016) highlighted that oligopolistic reaction is driven by the concern to match other firms’ actions and to avoid a permanent loss of competitive advantage. Akhigbe and Martin (2000) also noted a pattern of firms expanding internationally after the first entry of a current competitor and found that cross-border acquisitions increased stock prices.
Pre-emptive investments and competitive signaling (Kogut, 1989) also help understand FDI decisions in oligopolies. In industries with few firms, competitors can recognize the impact of their actions and anticipate their rival’s counter moves (Gwynne, 1979). Order-of-entry effects commonly favor first movers or early entrants. The signaling can lead to different strategies: follow the leader (Flowers, 1976; Knickerbocker, 1973), “exchange of threats” or tit-for-tat (Graham, 1978, 1990), collective rationality and institutional isomorphism (DiMaggio & Powell, 1983), integration-responsiveness (Benito, 1997).

Order-of-entry effects commonly favor first movers due to early brand loyalty, technological leadership, and preemption of competition (Lieberman & Montgomery, 1988; 1998). Conversely, there are also factors that favor later entrants, such as their possibility to free-ride on the pioneer’s innovation costs, their exposure to lower technological and market uncertainties, or a potential reluctance of the pioneers to innovate when in the course of time customers’ needs or technology change (Lieberman & Montgomery, 1988). Oligopolistic rivalry can also lead to mutual destruction or “hyper-competition” (D’Aveni, 1995).

In more recent research, Alcácer, Dezsó, and Zhao (2013) modelled how rivalry and differential knowledge accumulation among competitors affect an MNE’s geographic expansion across time and markets. They developed three categories of reaction: collocation, avoidance, and stronger-chases-weaker. Their findings discovered a bunching effect and second-mover advantages in market entries. Other researchers have also demonstrated that being first-to-market is not always a profitable strategy (Cottrell & Sick, 2002; Lieberman & Montgomery, 1998; Stalter, 2002; Suarez & Lanzolla, 2005; Tellis & Golder 2001). Kopel and Loffler (2008) even identified circumstances under which a firm with a first-mover advantage may get leapfrogged by a follower.
Rivalistic interaction does not always have to be hostile and can include tacit or explicit collusion or avoidance. Graham (1978) first looked at how large firms operate and shift from rivalistic to non-rivalistic modes of behavior over time. Karnani and Wernerfeldt (1985) explained multiple point competition as firms competing against each other simultaneously in several markets (different geographical markets for the same product). The most frequently observed situation in their research is mutual foothold equilibria which is less costly and requires more trust between the two firms that ultimately share the market.

Rose and Ito (2009) found that the firms' investment patterns are related to the number and identities of competitors, host country characteristics, and foreign experience. By carefully observing and then matching the worldwide movements of the competition, firms can avoid the risk of a sudden shift in global power by a rival. Rose and Ito (2008) looked at the oligopolistic behavior of the auto industry and found that avoidance is also an oligopolistic strategy. Their results suggest that the extent of prior multimarket contact with a particular rival may affect the likelihood that a firm will undertake new international investments, and that the nature of the effect differed according to the identity of the competitor. In a more highly concentrated industry, firms do not actively counter their competitors' FDI decisions.

The patterns of action-reaction and move-countermove in the literature, however, primarily focus on market entry decisions and have been applied on a limited basis to market exits or divestment strategies. It is expected that firms behave similarly in their divestment decisions. While firms may not follow-the-leader, they may follow the “first escapee” to leave a market. Firms may divest as the market equilibrium is disrupted and the herding protections are lost. The literature suggests that firms experience pressures to conform (Meyer & Rowan, 1977).
When firms conform to the norms of others via isomorphism, they may gain regulative, normative, and cognitive legitimacy (Scott, 1995).

**Research Gap**

The goal of this research is to empirically analyze the divestment decisions of international firms operating in an oligopoly. Boddewyn (1983b) explained that like FDI, divestments can result from an “exchange of threats”. The divestment by the original foreign direct investor may be followed by the imitator since the market equilibrium is disturbed. He also noted that the opposite could be true: divestments may not be imitated because the remaining firms gain more market share and can potentially earn higher profits. To date, the literature has not empirically tested how much the divestment decisions of rivals influence another firms’ divestments and to what degree the decisions impact firms’ market exit timing. Literature, in general, is sparse on why firms divest as part of a greater strategy (Berry, 2010).

Few researchers investigated the role of competitors in oligopolistic markets in divestment. Aguirregabiria and Suzuki (2014) used structural estimation methods to study dynamic oligopoly models of market entry and exit. Their research focused on fixed costs of incumbent firms and entry costs of new entrants. They did not, however, take into account the divestment decisions of rivals or number of rivals operating in the same market in their analysis of market exits. Nishiwaki’s (2016) research on oligopolies and market exit most closely parallels this study, but focused on a sunset industry and only included domestic business divestments, not foreign ones. His findings suggested merger induced divestments improved the total welfare of the firm. A research gap continues to exist in understanding the role of rivals in divestment patterns in international oligopolistic environments.
While mimicry helps describe a firm’s foreign investment patterns in similar industries and markets, to date the literature is limited on quantifying the influence of competitive behaviors on divestment decisions. To that end, the proposed research investigates more closely the effect of rivals on the market exit decisions and timing of firms.
CHAPTER 3. HYPOTHESES

Linking key findings from the literature, the research focuses on establishing a foundational understanding of oligopolistic reaction and divestment strategies by considering the competitive conditions in small, competitive markets. The three levels of this analysis are based on the factors identified in previous foreign investment and divestment research: the competitive environment, firm-specific resources, and host country characteristics.

The competitive environment and the divestment decisions of firms are specifically examined to include 1) the influence of the number of competitors operating in the same host country on foreign divestment and market exit timing and 2) the decision and timing of a firm’s divestment based on their rivals’ decisions to divest.

Divestment Decision

Role of rivals. Rivals may initiate FDI decisions in other countries in order to seek new markets and keep industry balance (Flowers, 1976; Graham, 1978; Knickerbocker, 1973; Yu & Ito, 1988). These decisions may also be less rational when firms exhibit “herding” behavior by converging on a particular country following a “safety in numbers approach” (Lung, 2000). Mutual inter-dependence leads to cooperation that increases profits in oligopolistic markets through collaboration (Scherer & Ross, 1990). Collusion among highly concentrated oligopoly members replaces oligopoly competition as a method for reducing perceived risk (Flowers, 1976). Thus, the more rivals that operate in the market, the more stable and profitable the market is. Based on the literature, I posit that multi-market contact by rival firms may result in oligopolistic equilibrium. Latecomers have a higher probability of survival than first movers (Mitchell, Shaver, & Yeung, 1994).
Hypothesis 1a. A firm’s decision to divest is negatively related to the number of rivals operating in the same host country.

Oligopolistic reaction. The oligopolistic equilibrium, I also posit, will ultimately be disrupted by changes in the competitive environment. Mutual forbearance hypothesis (Edwards, 1955) explains that competitors across several markets anticipate each other’s moves that can result in competitive retaliation that ultimately drive down profits. Flowers (1976) found that oligopolistic reactions and industrial concentration are related to FDI “clusters”. Flowers’ UK sample indicated that the oligopolistic reaction begins to decrease and additional firms either do not enter the market or quickly exit the market when it reaches saturation.

The incentive for internationalization may decrease with the increased number of competitors as a result of lost price control that occurs in more monopolistic environments (Buckley & Casson, 1976). According to recent findings in competitive dynamic research, a firm’s escalation behavior is decreased by larger rivals’ negative performance (Hsieh, Tsai, & Chen, 2015). When the competitive environment begins to shift toward divestment, I argue that firms operating in an oligopoly look to other firms to signal whether or not to divest.

Hypothesis 1b. A firm’s decision to divest is positively related to the prior divestment decisions of rivals operating in the same host country.

Divestment Timing

Role of rivals’ Presence. Firms can choose to exit a market sooner or later depending on changes in the competitive environment. As firms become more institutionalized and diffuse information, their organizational structures and processes may converge and grow more similar
If rivals continue to operate in the host country, this signals to other firms that the market remains profitable and that the host country is stable. First mover advantage results in competitors matching investments to decrease the perception of competitive threats (Lieberman & Montgomery, 1988). Karnani and Wernerfelt (1985) noted that competitors enter the same markets to demonstrate their responsiveness to competitive actions. As in Hypothesis 1, I posit that an equilibrium is reached and the motivation to divest is weakened with the presence of rivals. I expect that in markets with more competitors, the divestment decisions will be slower because companies will want to remain in the same markets that are presumably profitable as their competitors.

**Hypothesis 2a. The more rivals operating in the same market, the later a firm will divest.**

**Oligopolistic reaction.** When the competitive environment begins to shift as a result of new government regulations, changes in consumer demands, or more challenging economic conditions, firms operating in an oligopoly look to other firms to signal whether or not to divest. For example, a firm's escalation behavior is decreased by larger rivals' negative performance (Hsieh, Tsai, & Chen, 2015) which may trigger subsequent divestment of smaller firms as larger firms exit.

Beckert (2010) argued that institutional isomorphism may result in both convergence and divergence in institutional change. He notes that convergence occurs when successful firms are legitimized and serve as templates for other firms to emulate. On the other hand, firms may exhibit institutional divergence when firms discover that solutions by rivals are not legitimate and choose another course. Caves (1996), Chan et al. (2006), and Coviello, Ghauri, and Martin...
(1998) found that exits from a market can reduce competition and create opportunities for new entrants or they can signal a hostile market and discourage others from entering.

I expect that in an oligopoly the actions of other competitors may influence firms to divest sooner. Divestments should create an institutional convergence resulting in similar firm decisions to discontinue operations; thus, I posit that as rivals exit the market, this signals danger to the remaining firms and accelerates their decisions to divest from the host country.

*Hypothesis 2b. The more rivals divesting from the host country, the sooner a firm will divest.*
CHAPTER 4. METHODS

Data Sources

The negative stigma and the reluctance by firms to share information about their divestment decisions makes obtaining data difficult. I surmount this obstacle by compiling a 40 year dataset that observes the divestment decisions of US international healthcare systems operating foreign hospitals. In order to study the relationship between the rivals and divestment decisions, I constructed a sample of foreign subsidiaries operated by US healthcare systems from 1975-2017. For-profit healthcare systems in the US are the focal organization, and each foreign hospital they operated is the unit of analysis (total of 355 individual hospitals).

The data used in this research originated from several sources. I collected a significant part of the hospital data from the annual reports of the Federation of American Hospitals (FAH) from 1975 to 2016. The FAH, founded in 1966, represents over 1,000 investor-owned or managed community hospitals and health systems in the US. Each year, they produce a report that lists all the healthcare systems and their hospitals, including a section on foreign investments. The information is self-reported and consolidated by the FAH. The 24 healthcare systems used in the research were identified from the FAH annual reports and represent healthcare systems with at least one foreign subsidiary since 1975.

Other data from the FAH annual reports included healthcare system-specific information on headquarters location and size of the organization (number of hospital beds in the system). Extracted data from the reports were used to calculate the number of divestments from a host country and the number of rivals in the host country. Annual reports are missing for three years: 1998, 2001, and 2002. Data for missing observation years were averaged from the years
immediately before and after the absent data. Firm characteristics were relatively stable for the unreported years.

Observations of foreign investments span the first year of initial investment in a host country by a healthcare systems to the last year of operation (year of divestment). Nine observations existed when foreign hospitals were operational prior to 1975. These observations were coded 1 for left-censored. All other observations for new foreign operations after 1975 were coded 0. Likewise, five observations are right-censored and coded 1 for hospital systems still in operation in a host country after 2017.

I augmented the dataset with information from company annual reports from the Compact Disclosure CDs (1991-1995) and EDGARS annual reports (1996-2016). Data on host country characteristics for GDP and population came from the World Bank and the Organization for Economic Cooperation and Development National Accounts data files from 1975-2016. Country credit ratings come from annual reports in Institutional Investor from 1979-2016. The ratings are based on a weighted formula of ratings for about 100 countries determined by 75~100 of the leading international banks. The first ratings were reported in 1979. Observations before 1979 used the first reported credit ratings.
CHAPTER 5. MODELS

I use two models to test the hypotheses. The analysis examined the relationship between the competitive environment and the divestment decisions of firms operating in the same host markets utilizing a binary logit regression to test Hypotheses 1a and 1b \( n = 588 \). To test the timing of foreign divestment decisions, I use a binomial discrete time logit regression analysis to consider if changes in the competitive environment in the host country were related to the timing decisions of firms to divest \( n = 511 \). I considered the number of rivals operating in the host country and the number of divestments made by rivals up to three years prior to the focal year. I controlled for firm and host country variables that include the size and age of the companies, distances from headquarters to foreign subsidiaries, GDP, cultural distance, country credit ratings.

**Dependent Variable**

The binary dependent variable is the divestment decision where 1 equals the divestment by a healthcare system from the host country in the observational year and 0 indicates otherwise. Explanatory variables included the number of rivals operating in the host country and whether or not they divested up to three years prior. Time-varying predictors and controls are lagged by one year to provide time for firms to react to changes in the environment.

**Independent Variables**

The explanatory variables seek to construct correlates of divestment and oligopolistic behavior, characteristics of the competitive environment, the hospital, and the host country. Most variables are time variant with the exception of cultural and geographic distance. I consider the observational year to two years prior in the analysis of the timing effects of the divestment
decisions on rivals. Natural logarithmic transformations of large value variables were used to provide the model with stability.

#Rivals. The number of rivals present in the host country the year prior to the focal hospital’s observation year.

Oligopoly. The cumulative number of rivals who divested in the same host country up to three years prior (t, t-1, and t-2) to a focal hospital’s observation year. I choose three years based on previous studies of oligopolistic reaction. Flowers (1976) found a timing component to FDI – within three years of the first investment by the leading firm, rivals within an industry establish a similar foreign presence. Boddewyn (1976) looked at the timing of divestment decisions and considered two distinct phases totaling about 20 months on average. Phase I started when the FD decision was first considered and continued to the execution of the final decision (11 months on average). Phase II included the time from the FD decision to the conclusion of the process (nine months on average). Later research indicated a longer process, i.e., Nees (1978, 1981) suggested it took 10-30 months in most cases for a firm to make a divestment decision. McDermott (1989) found Phase I took several years, while Phase II took only 8-90 days. Based on the FD timing research, I select three years.

Firm Characteristics Controls

lnSize. The natural log of the total number of domestic and international hospital beds in a healthcare system in the year of observation. Bed size serves as a proxy for the size of the hospital when aggregated at the system level.

lnAge. The natural log of the total number of operational years since the hospital’s establishment and the year of observation.
Hymer (1960) explained how firm specific advantages help overcome MNEs “liability of foreignness” (LOF) when operating in overseas markets. LOF includes lack of knowledge about local culture, language, laws, exchange rate risk, and discrimination against foreigners. Firm specific advantages include people, knowledge, resources, decreased costs of production, and technology. They can be both tangible and intangible. Controls for closing distance mechanisms include foreign experience, geographical distance, home market, and company size (Erramilli, 1996). Extant findings that the firm characteristics influence the degree of oligopolistic reaction and divestment suggest that by controlling for these factors, I can isolate the effect of rivals operating in the same host country.

Oligopolistic reactions exist most commonly among the largest firms of the oligopoly (Knickerbocker, 1973). Firms use their dominance in the home market to exploit dominant positions in international markets in order to maximize their profits and gain competitive advantages (Chan et al., 2006; Hansen & Hoenen, 2016; Kogut, 1989). At the international level, the dominant firms enjoy greater possibilities to reallocate their foreign resources and are in better positions to adjust sales and staffing levels than smaller firms (Bernard & Jensen, 2007). The size and age of a firm impacts internationalization decisions (Geroski, 1995; Caves, 1998). Firms with lower capabilities may exploit monopolistic situations for short periods of time with the understanding that stronger competitors will enter and displace them from the market (Alacer et al., 2013).

**Host Country Factors**

Similar to the approach used in Rose and Ito (2008), host country specific variables serve as control in this study and include gross domestic product (GDP), population, distance from the corporate headquarters, cultural distance (CD), and country credit ratings.
\textit{lnGDP}. The natural logarithmic transformation of the gross domestic product in the host country the year prior to the year observed. Data are in current US dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. Benito (1997) noticed a reduction in foreign subsidiary divestments in host countries experiencing economic growth.

\textit{lnDistance}. The natural logarithmic transformation of the number of miles between the nearest international airports of a healthcare system’s headquarters location and the capital city of the subsidiary’s host country. Baaij and Slangen (2013) noted geographic distance to a subsidiary may have a limited impact on divestment decisions because firms increasingly disaggregate their headquarters internationally.

\textit{Cultural Distance}. A US-to-host nation comparison of cultural values using the Kogut and Singh (1988) mean-based index. Where index values did not exist for a country (United Arab Emirates, Bahrain, Yemen, Saudi Arabia, Egypt), the nearest geographical country’s values were used. Morosini, Shane, and Singh (1998) and Parkhe (1991) found that CD could bring either synergy or disruption to international investments that could impact divestment decisions. The experience level of the firm influences the relative importance of different country characteristics in determining location patterns. CD moderates the impact of the internal strategic fit and international performance on a firm’s exit decision (Sousa & Tan, 2015).

\textit{Credit Rating}. The country credit rating from the \textit{Institutional Investor} journal is based on a scale from zero to 100 where 100 equals the lowest amount of credit risk and zero the highest. Values for Yemen were not reported. Instead, the regional value for the Middle East was utilized for the four observations of investments in Yemen.
The unique dataset created the basis for the study of the divestment decisions of firms operating in oligopolistic industries. The data set included 25 US-based, for-profit international healthcare systems and their divestment decisions in 24 countries. During the time period of the study, healthcare systems ceased 77 of their 82 foreign hospital operations (a 94% failure rate). See Tables 1 and 2.

**TABLE 1**

**Healthcare System Foreign Investments and Divestments by Country**

<table>
<thead>
<tr>
<th>System</th>
<th>Years of Foreign Investment</th>
<th># Countries Invested</th>
<th># Countries Divested</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Medical International</td>
<td>1975-1991</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Hospital Corporation of America</td>
<td>1975-Present</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Tenet Healthcare*</td>
<td>1982-Present</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Hospital Affiliates International</td>
<td>1975-1981</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Paracelsus Healthcare Corporation</td>
<td>1982-1997</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Charter Medical Corporation**</td>
<td>1982-1999</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Humana, Inc.</td>
<td>1977-1993</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Whittaker Life Sciences International</td>
<td>1982-1985</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Columbia Healthcare Corporation</td>
<td>1994</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Magellan Health Services</td>
<td>1997</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Asklepios Hospital Corporation</td>
<td>1992-1993</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Community Care Systems, Inc.</td>
<td>1988-1990</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Community Health Systems</td>
<td>2007</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Community Psychiatry Centers</td>
<td>1981-1994</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gateway Medical Management, Inc.</td>
<td>1981</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Glenbeigh, Inc.</td>
<td>1991-1993</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Healthcare Management Group</td>
<td>1992-1993</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>HealthSouth Corporation</td>
<td>1999-2006</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hyatt Medical</td>
<td>1977-1980</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jupiter Hospital Corporation</td>
<td>1991</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nu-Med, Inc.</td>
<td>1988-1991</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pacific Health Corporation</td>
<td>1994-2011</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Psychiatric Institutes of America</td>
<td>1975-1983</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Summit Health Limited</td>
<td>1987-1990</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Universal Health Services, Inc.</td>
<td>1987-1991</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*formerly National Medical Enterprises
**formerly Charter Behavioral Health
<table>
<thead>
<tr>
<th>Country</th>
<th>Years of US Foreign Investment</th>
<th>#Healthcare Systems Invested</th>
<th># Healthcare Systems Divested</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1975-Present</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1975-2007</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>1975-1993</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Australia</td>
<td>1978-2006</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Germany</td>
<td>1982</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Spain</td>
<td>1979-2004</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>France</td>
<td>1975-1995</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mexico</td>
<td>1975-1987</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Singapore</td>
<td>1978-1995</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>UAE</td>
<td>1981-1990</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Brazil</td>
<td>1979-1989</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Canada</td>
<td>1984-1991</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Guam</td>
<td>1975-1980</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ireland</td>
<td>1991-2007</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Austria</td>
<td>1984-1995</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bahrain</td>
<td>1981</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1977-1978</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Egypt</td>
<td>1982</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Greece</td>
<td>1983-1991</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1986-1995</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Panama</td>
<td>1975-1989</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Thailand</td>
<td>1995</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1982</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Yemen</td>
<td>1982-1985</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
CHAPTER 6. RESULTS

Divestment Decision

The correlations and descriptive statistics utilized for the Hypotheses 1a and 1b tests are reported in Table 3. The correlation coefficients are low to moderate indicating that multicollinearity is unlikely to be a problem. The Variance Inflation Factors (VIF) among the variables were below 1.8, suggesting low multicollinearity across the models.

Four moderate correlations (0.50-0.70) existed. First, the Pearson correlation coefficient between #Rivals and #Divested variables was 0.54, indicating a moderately high correlation between the number of rivals in the host country and the number of firms that divested prior to the focal year. The high number of remaining rivals in a host country and the overwhelming number of healthcare systems that divested hospitals from host countries are consistent with the moderate correlation. To address this issue, the hypotheses are tested using three regression models. Model 1 included independent variables for both the number of rivals operating in the host country the year prior (#Rivals) and the number of rival firms that divested up to three years prior (#Divested). Models 2 and 3 isolated the effects of each variable. In Model 2, I removed the variable #Divested, and in Model 3, I removed #Rivals from the analysis. Removing #Rivals in Model 3 resulted in a significant result for #Divested that was not drawn out from Model 1 when both independent variables were included in the model.
### Table 3

**Hypothesis 1 Descriptive Statistics and Correlations**

<table>
<thead>
<tr>
<th>Variables</th>
<th>0. Divestment</th>
<th>1. #Rivals</th>
<th>2. #Divested</th>
<th>3. lnSize</th>
<th>4. lnAge</th>
<th>5. lnGDP</th>
<th>6. Cultural Distance</th>
<th>7. lnDistance</th>
<th>8. Credit Rating</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Divestment</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. #Rivals</td>
<td>0.28</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. #Divested</td>
<td>0.13</td>
<td>0.54</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. lnSize</td>
<td>0.15</td>
<td>-0.04</td>
<td>-0.07</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. lnAge</td>
<td>0.19</td>
<td>-0.02</td>
<td>-0.05</td>
<td>0.55</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. lnGDP</td>
<td>0.62</td>
<td>0.17</td>
<td>0.12</td>
<td>0.09</td>
<td>0.02</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Cultural Distance</td>
<td>-0.15</td>
<td>-0.30</td>
<td>-0.23</td>
<td>-0.02</td>
<td>-0.01</td>
<td>-0.34</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. lnDistance</td>
<td>0.02</td>
<td>0.07</td>
<td>-0.04</td>
<td>-0.02</td>
<td>0.04</td>
<td>-0.09</td>
<td>-0.10</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Credit Rating</td>
<td>0.17</td>
<td>0.32</td>
<td>0.16</td>
<td>-0.01</td>
<td>-0.05</td>
<td>0.34</td>
<td>-0.64</td>
<td>0.11</td>
<td>1.00</td>
<td>65.42</td>
<td>22.41</td>
</tr>
</tbody>
</table>

\[n = 582\]
The second moderate correlation, the Pearson correlation coefficient between $lnAge$ and $lnSize$, was 0.55, indicating that older companies are potentially related to larger firm size. Older firms have more time to accrue capital and invest in more hospitals than younger healthcare systems. Third, the Pearson correlation coefficient between $#Divested$ and $lnGDP$ was 0.62 indicating that the higher the GDP of the host country, the higher the occurrence of initial investments and the higher the number of subsequent divestments. The highest correlation, -0.64, occurred between $CD$ and $lnGDP$. More culturally distant countries to the US appear to have lower GDPs. To address the moderate correlations among the control variables, I deleted them from the models, and the results did not significantly change.

I report the results for the three models in Table 4. Negative coefficients indicate the propensity for hospitals to retain investments (coded 0), and positive coefficients indicate the propensity to divest (coded 1). McFadden’s Pseudo $R^2$ was 0.16 for Models 1 and 2 and decreased to 0.13 for Model 3. The models have adequate fit (McFadden, 1974).

Models 1 and 2 tested the relationship between the number of rivals and the decision of a healthcare system to divest to test Hypothesis 1a: The decision to divest is negatively related to the number of rivals operating in the same host country. The coefficient associated with $#Rivals$ was positive and significant ($p < 0.01$). The more rivals operating in foreign market ($#Rivals$) the year prior, the more likely a focal firm was to divest. Hypothesis 1a was not supported.
TABLE 4

Binary Logit Analysis
(standard errors in parentheses)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model (1)</th>
<th>Model (2)</th>
<th>Model (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. #Rivals (H1a)</td>
<td>0.46**</td>
<td>0.48**</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.04)</td>
<td></td>
</tr>
<tr>
<td>2. #Divested (H1b)</td>
<td>0.06</td>
<td>--</td>
<td>0.52**</td>
</tr>
<tr>
<td></td>
<td>(0.23)</td>
<td></td>
<td>(0.18)</td>
</tr>
<tr>
<td>3. lnSize</td>
<td>0.19*</td>
<td>0.19*</td>
<td>0.17†</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>4. lnAge</td>
<td>0.65**</td>
<td>0.65**</td>
<td>0.61**</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.16)</td>
</tr>
<tr>
<td>5. ln GDP</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>6. Cultural Distance</td>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.10</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.13)</td>
<td>(0.13)</td>
</tr>
<tr>
<td>7. lnDistance</td>
<td>0.03</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.26)</td>
<td>(0.24)</td>
</tr>
<tr>
<td>8. Credit Rating</td>
<td>0.02†</td>
<td>0.16†</td>
<td>0.02*</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-6.63*</td>
<td>-6.58*</td>
<td>-7.05*</td>
</tr>
<tr>
<td></td>
<td>(2.91)</td>
<td>(2.90)</td>
<td>(2.80)</td>
</tr>
<tr>
<td>McFadden’s $R^2$</td>
<td>0.16</td>
<td>0.16</td>
<td>0.13</td>
</tr>
<tr>
<td>n</td>
<td>582</td>
<td>582</td>
<td>582</td>
</tr>
</tbody>
</table>

Dependent Variable is Divestment 0=No Divestment, 1=Divestment

† $p<.10$, *$P<.05$, **$P<.01$
In regards to the control variables, I found that the size of the healthcare systems is positively and significantly related to a divestment decision by a healthcare systems \((p < 0.05)\). It appears from the findings that larger healthcare systems divest more than smaller ones. A significant positive relationship \((p < 0.01)\) also exists between the age of the healthcare system and divestment indicating that older firms tend to divest more than younger firms. Higher credit ratings are also related to increased divestment \((at \ p < 0.01)\). The distance between a host country and a healthcare system headquarters, \(lnGDP\), and \(CD\) were insignificant.

Models 1 and 3 tested Hypotheses 1b. As discussed, due to the potential multicollinearity between \#Rivals and \#Divest, I analyzed the model both with and without \#Rivals. In Model 3, the coefficient associated with \#Divested was positive and significant \((p < 0.01)\). Thus the results lend support for Hypothesis 1b.

Significant results were also found for some of the control variables. Firm age \((p < 0.01)\), credit ratings \((p < 0.05)\), and size \((p < 0.10)\) are similar to the findings in Model 2. Distance to corporate headquarters, \(lnGDP\), and \(CD\) were not significant\(^1\).

**Divestment Timing**

Models 4 and 5 tested Hypothesis 2a and 2b and assessed whether the number of rivals operating in a host country and their divestment decisions are related to the timing of divestment decisions by a focal healthcare system. Table 5 provides a summary of the correlations and descriptive statistics. As in Models 1, 2, and 3, \#Rivals was moderately correlated to \#Divested.

\(^1\) To this aim, originally all observations of healthcare systems that never invested in a focal country were dropped to run the analysis \((n=82)\), but the models did not converge because of the high rate of divestment \((77 of 82 observations)\). For example, only the six healthcare systems that invested in Australia were included. In order to get the models to converge, all 24 US for-profit healthcare systems were added that had an international footprint during that same time period. With the larger sample size, the models converged. It was further rationalized the inclusion of all the international healthcare systems as a way to minimize sample bias. The systems could have invested, but perhaps due to the competitive environment, decided against it.
The more rivals that operated in the focal host country, the more subsequent divestments occurred. CD is negatively correlated to \#Rivals \((r = -0.64)\). As in the first three models, \(\ln\text{Age}\) and \(\ln\text{Size}\) are correlated \((r = 0.44)\). CD and \(\ln\text{GDP}\) are negatively correlated at \(r = -0.60\). The highest correlation in this study is between CD and Credit Rating at \(r = -0.71\). The highest VIF for Models 4 and 5, however, was under 2.5, indicating that multicollinearity is not a major concern. Removing moderately correlated factors did not affect the results.

The results of the discrete time logistic regression analysis for the two divestment decision models are found in Table 6. As in Table 4, negative coefficients indicate the propensity for hospitals to retain investments, and positive coefficients indicate the propensity to divest. Model 4 represents the base model controlling for firm and host country related factors including size, firm age, country size, cultural distance, geographic distance to corporate headquarters, and political risk. Model 5 added the number of firms divesting three years prior \((\#\text{Divested})\) and the number of rivals operating in the host country the year prior \((\#\text{Rivals})\). McFadden’s \(R^2\) increased from 0.22 to 0.25 indicating an increase in model fit with the addition of the two independent variables (McFadden, 1974).
Table 5

Hypothesis 2 Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>0.</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Divestment</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>0.00</td>
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<td>0.24</td>
<td>0.02</td>
<td>0.06</td>
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n = 511
### TABLE 6

**Discrete Time Logistic Regression Analysis**
(standard errors in parentheses)

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<td>(0.10)</td>
<td>(0.10)</td>
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<td>(0.16)</td>
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<td>(0.39)</td>
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<td>8. Credit Rating</td>
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<td>(0.01)</td>
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Dependent Variable is Divestment 0=No Divestment, 1=Divestment

$^\dagger p<.10$, $^* p<.05$, $^{**} p<.01$; Year dummy variables are not shown.
Hypothesis 2a was supported. The \#Rivals variable was positively and significantly related to earlier foreign divestment \((p < 0.01)\). I find that the more rivals operating in a host nation, the earlier international healthcare systems tend to divest. Earlier market exit appears to be related to decisions to avoid competitors in crowded markets.

Hypothesis 2b was contradicted. A strong negative relationship existed between \#Divested and the decision to divest. Instead of following the decisions of other healthcare systems to divest, the focal healthcare systems retained their foreign investments and continued to stay in the host country \((p < 0.01)\). The results contradict the oligopolistic literature that supports more immediate decisions to follow the leader. Instead it appears rival firms delay market exit decisions.
CHAPTER 7. DISCUSSION

Foreign Divestment

The results of the first hypothesis tests do not support the notion of “herding” with respect to the timing that mutual interdependence leads to cooperation. Instead, the research supports the existence of a more competitive environment. As rivals enter and maintain operations in foreign markets, other healthcare systems seem motivated to divest. This suggests that the host market may become overcrowded with decreased potential for profitability. The findings support those of Rose and Ito (2008) who suggest firms factor the presence of rivals in host countries into their FDI decisions. This study indicates that the same may be true for foreign divestment decisions.

Model 2 results suggest that the number of rivals in the host country the year prior is positively related to divestment decisions. The findings lend support to first mover advantages in divestment when the market is most desirable and profits from sales are the highest. The sale of high priced, strategic hospitals in foreign markets may provide a competitive advantage in domestic markets with the newly earned capital to purchase struggling domestic hospitals at discounted sale prices. The results propose that the more rivals operating in a host country, the more likely a healthcare system is to divest. The findings support Balcaen et al. (2011) who noted that the addition of competitors in the market pressured firms toward divestment.

Model 3’s findings suggest that the more rivals divesting, the more likely the remaining firms are to divest, too, although the latter will delay divestment based on the results of Model 52. The results support Beckert’s (2010) research on divergence in institutional change.

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2 The time component for the number of rival divestments in the host market had the highest coefficient 1.04939 ($p<0.01$) at $t-1$ and decreased in value subsequently, but remained significant up to $t-4$. 
Healthcare systems appear to exhibit institutional divergence when firms learn that divestment decisions by their rivals are not legitimate. For example, Tenet Healthcare is divesting nine UK hospitals to help pay a $513 million settlement for defrauding the US and making illegal payments (Department of Justice, 2016). I expect that Hospital Corporation of America, their US rival also operating in the UK, will not divest from the host market immediately with the understanding that Tenet is addressing internal problems rather than forecasting a negative outlook in the host market. The findings suggest that HCA will stay longer and potentially benefit from a less-crowded competitive market, but ultimately will divest.

As rival firms divest, healthcare systems are also likely to divest. When the competitive environment begins to shift toward divestment, the results demonstrate that firms operating in an oligopoly may look to other firms to signal divestment. To further consider oligopolistic reaction in these decisions, I look at the timing of these divestment decisions.

**Oligopolistic Reaction**

In foreign divestments, healthcare systems do appear to conform to isomorphic strategies when other firms exit the market, but this happens gradually. The findings supported Hypothesis 1b that suggested oligopolistic reaction would result in subsequent divestments by rival firms. The findings regarding Hypothesis 2b and the reaction speed of foreign divestment decisions, however, suggests that firms delay their decisions to divest as their rivals divest. When one rival leaves, the results indicate a late-mover advantage. The results support late mover advantages that may result from the ability to free-ride on the pioneer’s (first mover) innovation costs, their exposure to lower market uncertainties, or a potential reluctance of the pioneers to innovate when customers’ needs or technology changes over time (Lieberman & Montgomery, 1988). Shankar, Carpenter and Krishnamurthi (1998) also demonstrated that an innovative late mover
can earn a sustainable advantage by enjoying a higher market potential than either the pioneer or non-innovative late movers.

While firms divesting overseas may signal to their competitors that they are anticipating a change in the host market or instability in the home market, most healthcare systems weather the storm abroad. While it may appear that a US healthcare systems entrenched in overseas markets may be less agile to reinvest back in the domestic market or react to changes at home, there appears to be a benefit to outlasting rivals in foreign markets. Rivals who divest earlier may be able to counter aggressive activity in the US market, but they may also be leaving profitable investments for competitors to absorb.

The results support Boddewyn’s (1983) explanation that divestments may not be immediately imitated because the remaining firms benefit from potentially earning higher profits. The results also support Knickerbocker’s (1973) oligopolistic reaction theory that domestic industry concentration may spur new market entrants, but the trend eventually declines. In the most competitive markets like England, Saudi Arabia, and Switzerland, as many as nine US healthcare systems entered at one point in time. US domestic rivals grew to as many as nine, but decreased to only one or two rivals within seven years of the peak (see Table 2).

Knickerbocker (1973) also made the distinction between tightly structured oligopolies and less concentrated oligopolies that could effect the degree of oligopolistic reaction seen in foreign investments. In an attempt to identify an “other factor” (pg 187), he considered organizational efficiency, organizational experience, market risk and uncertainty, and scale. The models used in this research controlled for organizational experience, market risk and uncertainty, and size of the company. No control for organizational efficiency were included.
Tighter structured oligopolies, he proposed, were better managed for rapid decision-making and when new market opportunities were perceived, firms acted promptly. In less concentrated industries, he noted that decision making could be slower and less efficient. Responses to rival actions would be scattered and little clustering of investments would take place. The findings of this research suggest that healthcare systems may operate in a less concentrated oligopoly which may explain why reactions to rival divestments are delayed. Organizational efficiency is an area for future research that may help elucidate the chronology of divestment decisions by international healthcare systems.

**Other Findings**

*Firm Level Effects.* The findings for the control variables indicate that smaller healthcare systems are less likely to divest than larger ones which may also be a competitive advantage to conduct FDI. Large, investor-owned healthcare systems may be rewarded by significant divestitures by their ability to manage and control debt levels, which ultimately boost investors’ confidence and stock values. Large firms are also at risk of expensive lawsuits that may force divestment or pressure from host nations that seek to increase market competition by encouraging divestments by large US healthcare systems. For example, Tenet Healthcare, the second largest healthcare system in the US, divested 25 hospitals to help settle $215 million in shareholder suits in 2006 that accused the healthcare system of fraud (Bloomberg News, 2006). Hospital Corporation of America was under pressure in 2014 to sell off two of its UK hospitals in London following a two-year investigation by the Competition and Markets Authority. While it ultimately won its case and was not forced to divest, HCA is the largest healthcare system and frequently must consider regulatory scrutiny that smaller healthcare systems avoid.
The results are not completely consistent with the findings of Alacer et al. (2013) who noted that firms with lower capabilities exploit situations with lower competition for short time periods with the understanding that larger competitors will eventually displace them from the market. Instead, the findings suggest that larger healthcare systems divest more, allowing smaller healthcare systems the ability to maximize profits. Smaller healthcare systems do not appear to be motivated to divest when the largest healthcare systems leave a market.

These findings seem to indicate that when a large firm decides to stay, however, their additional resources permit them to maintain their foreign investments longer. This supports the notion that even in divestment decisions, firm size is a factor that allows larger firms to remain invested longer than smaller firms if they decide it is in their best interest. Older and larger firms may have more resources that enable them to scan the external environment to determine earlier market exit or weather a competitive environment longer.

*Host Country Effects.* Higher credit ratings in a host country were strong predictors of the divestment decisions of healthcare systems across all models. This does not support the international business literature that firms are risk adverse and divest at higher rates from unstable markets (Blake & Moschieri, 2014; Dai et al., 2013, 2017; Yacob & Khalid, 2012). The findings indicate that divestments occur more often in more financially stable host countries. Lower credit risk countries (higher scores), may be more sought after for initial investment which increases the likelihood for subsequent divestment and may be related to these findings. Higher credit rated countries may also have lower exit barriers and greater opportunities for lucrative sales of foreign investments. In short, more stable countries appear to be more often divested, most likely because the initial investment is higher in stable countries. This supports Knickerbocker’s (1973) proposition that foreign investment may have been focused principally
on the stable developed countries where risks and uncertainties were not so great and firms could be less circumspect regarding their investment.

In analyzing the results, specific host country effects emerge. For example, in 1996 Switzerland passed a Federal Health Insurance Law for citizens to purchase statutory health insurance (SHI) from competing insurers. This appeared to create an oligopolistic reaction of healthcare system divestments. Two healthcare systems left three years prior to the law change. Three left one year after and a fourth the following year after that. The last healthcare system in the host country remained for an additional seven years.

In conclusion, the hypotheses suggest that divestments should follow an institutional convergence resulting in similar decisions by rivals to discontinue foreign operations. The findings suggest that while the divestment decisions of rivals eventually had a significant relationship with the divestment decisions of focal healthcare systems, it did not speed the decision to divest. As rivals exited the market, the remaining firms stayed in the host country (at least for three years or more). While a delayed oligopolistic reaction may exist in foreign divestments, the findings support that these decisions are not immediate.
CHAPTER 8. CONCLUSION

Foreign divestment, like FDI, is more than a strategy to reduce transaction costs or leverage cross-border capabilities; it ultimately is a response to the competitive environment. The international divestment strategies of healthcare systems are related to the presence of domestic rivals operating in the same host countries. More divestments occurred in crowded competitive host markets. While healthcare care systems ultimately did eventually divest, they did so later than those in host markets with fewer domestic rivals.

In addition to looking at the number of exiting rivals, the question of whether or not there was an oligopolistic reaction in foreign divestment decisions is addressed. Support for oligopolistic reaction exists in that the more rival firms divest, the more likely focal firms are to divest. The timing of the oligopolistic reaction, however, is often delayed and contrary to oligopolistic reaction literature that suggests a faster decision timeline. Porath (2018) noted that in the order-of-entry effects in pharmaceutical markets, the extent of the positive effects of early market entry is an empirical question that probably depends on the industry. The findings in this research suggested the same for market exit timing effects in the hospital industry, and they have both theoretical and practical implications.

Theoretical Implications

To date, literature did not empirically test the relationship between the competitive environments in oligopolistic markets and foreign divestment decisions. Knickerbocker (1973) first established in the FDI literature that foreign entry by a firm operating in an oligopoly may lead to rivalistic reaction. In the last 40 years of foreign market operations by international healthcare systems, the US healthcare systems follow each other out of the same markets they entered. In the overwhelming majority of cases (94%), divestments occurred eventually. The rate
of divestment, however, was slower. As competitors exited the market, healthcare systems made the decision to stay longer.

The goal of this research was to shift the focus of oligopolistic reaction to the divestment strategies of firms. US hospital systems appear to make unique divestment decisions: they do not immediately join the bandwagon with respect to market exit. The findings mirror the results found by Rose and Ito (2008) in the FDI patterns of highly concentrated Japanese automobile manufacturers that did not display bandwagon-type oligopolistic reaction, which may also help explain why the divestment decisions of international healthcare systems do not imitate each other.

Follow the leader, bandwagon effects, herding, mutual forbearance, and avoidance are perspectives applied to market entry decisions in FDI. While these perspectives may provide a considerable understanding of market exit decisions, they were not previously empirically applied in foreign divestment research. The research explored an intra-industry look at US for-profit healthcare systems and their foreign divestment decisions. Competitive predictors on firm divestment decisions and their market exit timing were explored with the intent of connecting the theories of oligopolistic reaction and divestment strategy. While controlling for both firm and host country factors, however, the findings indicate that foreign divestments by US healthcare systems do not always follow the same patterns of oligopolistic reaction that spur FDI.

**Practical Implications**

Like FDI, researchers emphasize that divestments are a significant part of corporate strategy (Calvet, 1981; Benito & Welch, 1997). Divestment decisions were also considered more tactical and personal than strategic and organizational (Boddewyn, 1983a). Corporate leaders may benefit from the findings. Although healthcare systems are reacting to similar shifts in the
regulatory and insurance environments, their foreign divestment strategies differ. For example, more domestically-oriented healthcare systems that never invested overseas may not need to react to the FDI decisions of their rivals because ultimately these firms will divest from them.

It also appears that the initial divestments by US for-profit healthcare systems may be a symptom of weakness at the firm level or in their domestic markets. Overseas investments appear to be likely short-term investments undertaken for specific strategic purposes. Given the rate of divestments, they may be designed to be quickly implemented and easily sold off later. While it is ambiguous whether or not foreign investments by US healthcare systems are carefully planned, they appear to be more loosely integrated with other operations.

The results indicate that for those brave healthcare systems that undertake FDI and remain after rival firms divest, there may still be money to be made or competitively helpful experiences to be had. The healthcare systems that do not immediately divest do not appear to be disenfranchised with their foreign operations or feel rival exit is a harbinger of negative things to come. Instead, there appears to be recognition that remaining in the market after a competitor leaves, even a large one, has advantages.

The findings suggest that eventually once one healthcare systems divests, rivals will most likely also ultimately divest. Hence, managers must fully realize the trade-offs when making foreign divestment decisions. Being the first escapee may provide benefits from competing offers from domestic and local rivals who may desire to capture more of the host country’s market share. Those who remain in the host market may reap at least short term benefit from holding the course.

The larger implication for US healthcare policy makers is that uncertainty following payment reforms and other new healthcare legislation creates volatility for domestically-owned
healthcare systems seeking greater profits in international markets. While these international companies invest in overseas hospitals to capitalize on new profit opportunities and/or to potentially spread financial risk, their ability to maintain long term foreign investments is historically limited. Maintaining stability within the US healthcare system could provide a competitive advantage to US for-profit healthcare systems that are also competing with foreign rivals. Disadvantaged US firms remain fettered as the US domestic market continually makes significant adjustments to healthcare.

Limitations and Future Research

The limitations of this research offer opportunities for future research. The study focused on a very specific industry and did not include other rivals like not-for-profit healthcare systems operating overseas hospitals or non-US based for-profit international healthcare systems. The influence of host country rivals on the decisions of firms to divest was not considered. Information on subsidiary performance was not available. Each of the limitations is examined further.

Healthcare industry. One of the biggest limitations is that this research is limited to the healthcare industry, and more specifically to healthcare systems. While there is some diversity in the types of healthcare systems reported in the dataset form the Federation of American Hospitals, like inpatient rehabilitation, psychiatric, long-term acute care, and cancer hospitals, the sample is limited to investor-owned or managed healthcare systems. The sample did not consider companies providing ancillary services that include pharmaceutical, radiology, or laboratory. Companies focused only on out-patient clinics or medical logistics were not included.
Non-US for-profit healthcare systems. Several international healthcare systems outside of the US competed in the same host country markets and were actively involved with US-based companies. For example, in 1990, American Medical International (AMI) was purchased by Generale des Eaux, which is a French company that was later renamed BMI. BMI was later purchased in 2006 by a subsidiary of Netcare, which is a South African company. BMI currently has 59 hospitals and clinics in the UK where Tenet Healthcare and Hospital Corporation of America operate. Their customers are the same for US firms and mainly patients who are National Health Service payment eligible, self-funded, or covered by private medical insurance. Ramsay Healthcare, an Australian company, also operated hospitals in Indonesia, France, Singapore, and the UK. VPS, one of the largest healthcare companies in the Middle East, has hospitals in Saudi Arabia, Oman, Qatar, and the UAE where seven other US firms also competed. Their influence remains an area for further research.

US based non-profit healthcare systems. Another limitation of this research is the exclusion of the non-profit US healthcare sector. According to healthcare system websites, many non-profit healthcare systems are actively engaged in overseas markets and may influence the competitive markets. Cleveland Clinic has hospitals in the UAE, Saudi Arabia, and Canada. Johns Hopkins Medicine has a footprint in Turkey, Singapore, China, Panama, and the UAE. Partners Harvard Medical International is also active in the UAE. Philadelphia International Medicine has a specialty hospital in South Korea (VanDusen, 2008). While they were not included due to their different financial resources, healthcare strategies, and lack of data, further analysis of domestic, non-profit rivals would add greater depth to this research.

Firm and subsidiary performance. Unfortunately, access was not available to either firm or subsidiary performance spanning the 40 years of observations. Many of the firms are privately
held and do not have to report earnings. For-profit healthcare systems with strong finances are in a better position to support subsidiary operations (Nguyen & Rugman, 2015). High performing subsidiaries should also be at lower risk of divestment (Duhaime & Grant, 1984; Honjo, 2000; Musso & Schiavo, 2008). While beyond the scope of this research, subsidiary performance should be explored as areas for future research.

The strength of this research, however, is in bridging the research gap between oligopolistic behavior and foreign divestment strategy which has only tangentially been studied. The time period covered spans 1975-2017 and captures a number of significant political, social, and economic events. This time period also captures the Medicare and Medicaid reforms in 1980s that changed how the federal government reimbursed hospitals for care and the 2008 financial crisis that severely affected international investment. The research explored 24 companies operating in 24 countries, giving great breadth to the findings.

**Future of Healthcare System Divestments**

Like other MNEs, healthcare systems operating in the US continue to face significant financial pressures in the home market which may fuel overseas expansion in an effort to minimize risk domestically. The Medicare Payment Advisory Commission (MedPAC) revealed that US hospitals are experiencing the lowest Medicare reimbursement margins in history. The Congressional Budget Office reported that almost half of all hospitals will be facing deficits by 2025, if budget cuts continue (Kahn, 2018).

As in the past within in the healthcare industry, there are periods of foreign expansion and then divestment as the external and internal environments change. With future foreign investments, additional foreign divestment is expected. With the continuing trend toward M&A
activity to remain competitive in the financially tight healthcare market, healthcare oligopolies will continue with only a handful of companies managing investments abroad.

Overseas investments may generate technical improvements that can be spilled over to domestic hospitals. For-profit healthcare systems operating overseas may gain advantages through foreign investments by learning healthcare systems that the US market may eventually evolve into in the future for US healthcare delivery and reimbursement. For example, the attractiveness of single payor healthcare markets, like the National Health System in the UK, can give for-profit healthcare systems in the US greater understanding of how to remain competitive within a publicly funded universal healthcare system.

In conclusion, the study is the first to empirically consider oligopolistic reaction in foreign divestment decisions and the role rivals have on market exit decisions. The findings may apply to other industries where oligopolies and foreign divestments exist. The theoretical developments may provide foundation for understanding the relationship of rivals on market exit decisions and their timing. The chronological order of firms exiting foreign market may affect longer-term profitability, if delayed. The intent is for the contributions to motivate further research on the foreign divestment strategies of domestic rivals in response to foreign divestment decisions and other firm and country-level factors.
APPENDIX

Figure 1. Years and Number of US Owned Hospital Beds by Country

![Bar chart showing years and number of US owned hospital beds by country for the years 1978-2003. The chart includes data for various countries such as Australia, Austria, Bahrain, Brazil, Canada, Egypt/AE, England, Germany/West Germany, Greece, Guam, Hong Kong, Ireland, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Spain, Switzerland, UAE, Saudi Arabia, Singapore, and Scotland.]

Figure 2. Countries and Number of US Owned Hospital Beds by Year

![Bar chart showing countries and number of US owned hospital beds by year for the years 1978-2003. The chart includes data for various countries such as Australia, Austria, Bahrain, Brazil, Canada, Ecuador, Egypt/AE, England, France, Germany/West Germany, Greece, Guam, Hong Kong, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Spain, Switzerland, UAE, Saudi Arabia, Singapore, Scotland, and Japan.]}
REFERENCES


