SOURCES OF SYNERGY IN MERGERS AND ACQUISITIONS

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The general findings of the merger literature have raised the question of why mergers continue to be so prevalent when there is no conclusive evidence of value gains. In particular, the zero or even negative stock price reaction of the acquirer firm surrounding the announcement has been puzzling.

In order to provide insight into this apparent contradiction, this study examines the sources and the realization of synergistic gains from mergers and acquisitions more directly. Prior studies on the sources of synergy have not been very effective since the nature of the data may have obscured the true economic impact of mergers. Using the rich information gained from the U.S. hotel industry data from 1991 to 2009, this study investigates the sources of merger-related gains while controlling for the market condition. Along the way, the much-neglected area of value erosion from M&A is also addressed.

The findings indicate that at the hotel property level, both the target and the acquirer show significant cost savings; target hotel properties achieve price gains when they are merged into similar brand families of the acquirer; acquirer hotel properties gain occupancy improvements from the demand spillover from the target hotel properties. The study also finds that local market conflicts have a negative impact on the revenue of both target and acquirer properties. No evidence was found for price-increasing collusion among the properties of the target and the acquirer.

The investigation of the offer premium and the operating performance shows that the offer premium is positively associated with synergistic gains for the acquirer

properties while it is non-significant for the target properties. These results suggest an interesting possibility that the premium may actually be a price to gain control over the target's resources, which is critical to generating value on the acquirer side.

BIOGRAPHICAL SKETCH

Jin Young Kim was born in Seoul, Korea to loving and devoted parents Young Sung Kim and Kyung Sook Kim. She has an older brother and a younger sister. After gaining a Bachelor in Business Administration degree from Yonsei University in Seoul, Korea, she joined Samsung Corporation and worked in the strategic planning division for over four years. She obtained her master's degree in International Economics Banking and Finance from Cardiff University in U.K. as a British Chevening Scholar, and a Ph.D degree from Cornell University.

To my family, and in loving memory of my mother

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Background

After decades of research, the question of value creation from mergers and acquisitions (M&A) continues to be debated. Abnormal stock returns around the announcement of acquisitions consistently indicate that target shareholders experience significantly positive abnormal returns while the acquiring firm's shareholders, on average, have negative or zero abnormal returns.

While this result may be interpreted as evidence that M&As create some real economic value, with most of the gains accruing to the target shareholders, criticism has also been raised since the result is not observationally distinguishable from the mere transfer of wealth from the acquirer shareholders to the target shareholders without creating any value, or from mispricing in the financial market. Further, a negative drift found in the long-run stock price of the acquiring firms following the merger has raised the troublesome possibility that the gains from mergers are overestimated or non-existent (Agrawal, Jaffe, and Mandelker, 1992; Loughran and Vijh, 1997).

The value creation from mergers has also been investigated by using the post-acquisition operating performance of the merged firm from accounting data. The abnormal announcement stock return is based on the strong assumption that the stock price impounds the full information regarding the ex ante anticipated synergy of the merger. In contrast, the operating performance reflects the ex post realized synergy. Again, the findings have generally been mixed – some researchers reported improvement in operating performance (Healy, Palepu, and Ruback, 1992; Andrade,

Mitchell, and Stafford, 2001) while others found no evidence of performance improvement (Ravenscraft and Scherer, 1989; Ghosh, 2001).

The lack of consensus regarding the creation of value through M&A has led academics to vigorous discussion of market efficiency (Shleifer and Vishny, 2003; Baker, Ruback, and Wurgler, 2007) and econometric issues (Barber and Lyon, 1997; Kothari and Warner, 1997). Scholars have also investigated possibly non-value creating motivations underlying mergers, i.e. managers' overconfidence (Malmendier and Tate, 2003) or hubris (Roll, 1986). Agency theories suggest that managers of bidding firms may overpay to pursue their personal objectives. To lend support to this claim, acquiring firm managers have been found to be richly rewarded through takeover activities (Grinstein and Hribar, 2004; Harford and Li, 2007).

On the other hand, another stream of research has focused on the factors that affect the announcement abnormal return or operating performance. Along this line, researchers have examined various deal or firm characteristics, such as the payment method (stock vs. cash deal) (Travlos, 1987; Chang, 1998; Fuller, Netter, and Stegemoller, 2002), deal form (tender vs. non-tender offer), relatedness between the target and the acquirer (horizontal, vertical, or conglomerate merger), and firm characteristics (firm size (Asquith, Bruner, and Mullins, 1983) and public private status (Chang, 1998; Fuller et al., 2002)). Noting that all value creation actually takes place after the acquisition, researchers in organization theory have emphasized the importance of the integration phase of the M&A (Haspeslagh and Jemison, 1991). The final outcome of the M&A depends on the premerger decision-making as well as the successful post-merger implementation, which involves the procedural, physical, managerial, and socio-cultural aspects of the organization (Shrivastava, 1986; Pablo, 1994).

1.2 Motivation and Research Questions

The economic rationale for mergers and acquisitions is value creation through synergistic gains by combining two organizations. While synergy has been defined differently by researchers, the standard textbook definition states that when two firms combine into one, with the acquirer assuming assets and liabilities of the target firm (Brealy, Myers, and Marcus, 2007), synergy is created when the value of the combined firms exceeds the sum of the value of the two firms as separate entities, i.e. $V_0^C > V_0^A + V_0^T$ where V_0^C denotes the value of the combined firms, V_0^A is the value of the acquiring firm, and V_0^T is the value of the target (Brealey, Myers, and Allen, 2005). While the value of synergy is defined as $V_0^C - (V_0^A + V_0^T)$ from the above relationship, this is only true when the acquirer pays exactly V_0^T to the target firm. Typically, the acquisition price (P_0^T) often exceeds the value of firm T (V_0^T) and the difference is defined as the price premium (PP_0^T) paid to the target shareholders ($PP_0^T = P_0^T - V_0^T$). In a recent review of the literature, Eckbo (2009) reported that the offer premium reaches about 45 - 50%. In consideration of the offer premium, a positive synergy means that $V_0^C - (V_0^T + V_0^A) - PP_0^T > 0$ (Canina and Kim, 2010).

A survey of CFOs shows that the primary motivation for M&As is to achieve synergies (Mukherjee, Kiymaz, and Baker, 2004). While enthusiasm for M&A activities has continued in the market with recurring merger waves, empirical studies have not provided conclusive evidence of value creation reflected in stock returns or operating performance measures. Thus, a legitimate area of research would be an investigation of the sources of synergy and its realization. Nevertheless, surprisingly little research has looked into the underlying sources of the gains from mergers (Kaplan, 2000; Andrade et al., 2001).

This dearth of studies is not because there are no theoretical grounds for determining the sources of synergy that can be induced by mergers and acquisitions.

Drawn from theories of economics and finance, the economic rationale for possible synergistic gain by combining two organizations is clearly established. Collusive synergy refers to the market power in the output market and buying power in the input market as the industry moves closer to a monopolistic structure. Operating synergy is expected from economies of scale and scope through the higher utilization of facilities and personnel, spreading of overhead, or advantages of common learning curves. Managerial synergy is realized from more competent management achieved by putting better capabilities and knowhow in place. Financial synergy is the gain expected from the reduction of cost of capital by diversifying risks through combining unrelated businesses or tax savings by taking advantage of losses of the target through merger (Bradly, Desai, and Kim, 1988; Andrade, Mitchell, and Stafford, 2001; Devos, Kadapakkam, and Krishnamurthy, 2009).

While the economic rationale for possible synergistic gains is solid, the problem is rather the lack of relevant information sets to verify the sources of synergy and realized impact (Calomiris and Karceski, 2000). For instance, market power affects price while buying power influences cost of goods sold. In order to pinpoint specific sources and the impact of synergy, highly detailed information is required. This includes not only price and cost information of the merged firm but also information on the product market and the demand conditions. Existing empirical studies, which typically examine the stock returns or operating income measures from a large sample of a dataset, only capture the net impact of the synergistic gain (or loss). Thus, with this traditional approach it is impossible for researchers to identify the underlying sources of gain (Piloff and Santomero, 1998; Kaplan, 2000; Andrade et al, 2001).

This study attempts to fill this research gap, using the proprietary dataset of the lodging industry. First, I directly investigate the possible sources of synergy gain and

their realized outcome. The dataset provides detailed hotel property level price, quantity demanded, quantity supplied, and revenue covering the entire U.S. market, including information regarding the geographic locations of the properties. For a smaller subset of the hotel properties, revenue, cost, and expense data are available as well. Such information allows us to evaluate the specific sources of gain with the corresponding impact, which in turn will contribute to our understanding about which type of synergy contributes to the creation of value in mergers and acquisitions and which makes a weaker contribution.

Second, scholars have long been puzzled by findings of zero or even negative abnormal stock price reactions for the acquiring firms surrounding the announcement of the merger. Andrade et al. (2001: p.118) have noted, "We would like to believe that mergers would happen for the right reasons, and that their effects would be, on average, as expected by the parties during negotiations. However, the fact that mergers do not seem to benefit acquirers provides reason to worry about this analysis." A valid question should then be whether the anticipated sources related to the synergistic gains work differently for the acquirer versus the target. Nevertheless, there has been little research in this area. The biggest obstacle is that once the deal is completed, it is difficult or even impossible to disentangle the performance of the target and the acquirer and investigate them separately. After the deal is completed, the target and the acquirer are unified. Production units may merge and sales units are consolidated.

In this respect, the property-level lodging industry dataset provides a rare opportunity to trace detailed information about the target and the acquirer separately before as well as after the merger. Lodging firms have great economic motivation for expansion, both geographically and across different product types. Consequently, M&As have been active in the lodging industry. Since the individual units of hotel properties are maintained even after the deal is completed while the performance will

be influenced by the changes created by the merger, this unique feature enables us to analyze the performance of the target and the acquirer separately in the post-acquisition phase. By doing so in conjunction with identifying the related sources of gain, this study provides additional insights into the inequality observed in the stock price reactions of the target and the acquirer.

Third, while synergies are the focus of mergers and acquisitions, there are also possible costs associated with them which have been largely unaccounted for in the existing literature. Andrade et al. (2001) reiterated that in order to better understand the outcome of mergers, information is needed about the sources of value creation as well as possible destruction. It should be noted that in this study cost does not mean the one-time integration costs or overall agency-driven mergers, but negative side effects associated with the merger that may occur simultaneously with the synergistic impact in the merged organization. Ross, Westerfield, and Jaffe (2008) describe such value erosion in their corporate finance textbook as follows: "Another difficulty in determining incremental cash flow comes from the side effects of the proposed project on other part of the firm. A side effect is classified as either erosion or synergy. Erosion occurs when a new product reduces the sales and hence, the cash flows of existing projects." For example, in mergers driven by geographic roll-up or product or market extension (Bower, 2001), while the objectives of the transaction should be economies of scale and scope, cost-saving, or higher efficiency, the perturbation in the product family and the geographic locations may cause cannibalization, brand dilution, or territorial conflicts.

Although there are equally solid theoretical grounds for possible value erosion associated with mergers in the operational side, this aspect has not been considered in the empirical studies of mergers and acquisitions. The lodging industry data provide each property's product type and detailed geographic information. Using this rich data,

this study incorporates the possible sources of negative impact of as well as the positive synergy from mergers and acquisitions. In this way, this study contributes to a more precise evaluation of the impact of mergers and acquisitions on performance.

1.3 Organization of the Dissertation

The remainder of this dissertation is organized as follows. In Chapter 2, a summary of pertinent literature is presented. I summarize the empirical findings of the existing literature on the performance of M&A and the factors that affect performance. Then, I move on to a review of studies on the sources of synergy. I also introduce two additional theoretical concepts, the resource-based theory of the firm and the theory of local competition, which are relevant to the analyses performed in this dissertation. Lodging industry specific M&A literature is summarized as well.

Chapter 3 is devoted to lodging industry characteristics. Overall M&A activities of the lodging industry are summarized. Then, I present the characteristics of the lodging product and the rationales for expansion in the lodging industry, followed by the sources of gains in lodging mergers.

Chapter 4 describes the research framework employed in this study. The testing strategy is developed and subsequently hypotheses are formulated. In order to facilitate the discussion in the chapters following, this chapter also outlines the variables and the event study structure that are going to be used in the analysis.

Chapter 5 presents the data sources and the sample. Once the final sample is determined, the variables are obtained or constructed. The description of the sample and the variables are presented in this chapter.

Chapters 6 and 7 are devoted to the main analyses of this dissertation. One of the main issues regarding the post-acquisition performance is whether there is an improvement after the merger. This aspect is presented in Chapter 6. Once the

performance change is identified, the remaining issue is that whether such change is actually due to the mergers and what the sources of gains are. This is verified through the multivariate regression analysis. The methodology and the results regarding the regression analysis are described in Chapter 7.

Chapter 8 and 9 discuss the conclusion in this study, along with their limitations. Finally, the contributions of this study to the existing body of literature are noted, followed by the future research agenda.

CHAPTER 2

LITERATURE REVIEW

M&A has been an actively pursued area of study in finance, strategic management, and economics. In this chapter, I first summarize empirical studies on the performance of M&A. Given that acquiring firms generally do not benefit from making acquisitions, much scholarly attention has been devoted to a better understanding of the specific moderators, i.e. deal characteristics, managerial effects, firm characteristics, and environmental factors, which are related to the outcome of mergers and acquisitions. After I discuss the empirical findings related to the announcement abnormal returns and operating performance, I move on to the literature on such moderators. This part is based on joint work with Canina and Ma. Our work was published in Canina, Kim, and Ma (2010).

Then, I review the literature on the synergy of mergers and acquisitions. While I review the types of synergistic gains in more detail, I also discuss studies related to the area of possible side effects from acquisitions as well, which has not been addressed much in the M&A literature. Subsequently, existing empirical studies regarding the sources of synergy are summarized.

Next, I review the existing lodging industry M&A literature. Local competition is important in the lodging industry, especially at the property level. Thus, the nature of local competition is highly relevant to the discussion of the creation and erosion of synergy. I introduce the literature on local competition along with empirical findings in a subsection. At the end of this chapter, I review the literature regarding the resource-based theory of the firm and the offer premium.

2.1 Performance of M&A

Two common approaches for measuring the performance of mergers and acquisitions have been to use the stock market's reaction upon the announcement of the merger and to estimate the actual operating performance of the merged firm.

Announcement Abnormal Return Abnormal stock returns surrounding the announcement date have been most widely used as a performance measure of mergers and acquisitions (Agrawal and Jaffe, 2000). The presumption is that the financial market is efficient and that stock price changes should instantly take into account all information available about the merger at the time of the announcement, including the synergy that the merger can create. Thus, a positive abnormal return, if detected, is interpreted as an indication of the expected value creation from the merger.

Using the event study framework, researchers have computed the announcement- induced abnormal return during the event period, typically for the three days immediately surrounding the announcement (one day before and after the announcement) or for a longer window (beginning several days prior to the announcement and ending near the merger announcement) (Andrade et al., 2001).

Empirically, one of the most persistent findings throughout the literature is that target firms typically experience large, significant abnormal returns at deal announcements, while shareholders of acquiring firms on average do not gain from mergers. Acquirers' abnormal returns around announcements are either insignificant or even negative (Betten et al. (2007) provide a comprehensive review of the existing empirical findings). Several explanations have emerged for the observed disparity between the target and the acquirer results. Many researchers have pointed out that considering a substantial premium paid to the target shareholders, the positive abnormal returns to the target are not very surprising (Jarrell and Poulsen, 1989;

Agrawal and Jaffe, 2000). Another explanation is the size difference between the target and the acquirer. The acquiring firms are generally larger than target companies and thus the same dollar gains translate into different percentage returns (Jensen, 1984). If the investment in the target firm is small relative to the total value of the acquiring firm, the increase in value from the merger may not cause much change in the acquirer's share price (Jarrell and Poulsen, 1989).

Driven by the positive abnormal return of the target, the combined returns of the target and the acquirer are usually found to be positive and significant (Jensen and Ruback, 1983; Bradley, Desai, and Kim, 1988; Jarrell, Brickley, and Netter, 1988; Mulherin and Boone, 2000; Andrade et al., 2001). The positive combined abnormal returns of the target and the acquirer have been interpreted as evidence that mergers do create value but the gains accrue entirely to target shareholders (Andrade et al., 2001).

However, there have been more fundamental questions about the interpretation of announcement abnormal returns. The assumption of the announcement return approach is that the information relevant to a merger's success might not be incorporated into stock prices efficiently at the time of the announcement. If this is the case, there should be no long-term drift in the stock return after the announcement. Nevertheless, some researchers found negative long-run abnormal returns following mergers (Agrawal and Jaffe (2000) provide a review). While merger event studies usually accept the stock market's efficiency as an axiom, not as a hypothesis to be tested (Scherer, 1988), long-run underperformance of the merged firm's stock suggests that changes in stock prices at the time of the announcement overestimate the future efficiency gains from mergers (Jensen and Ruback, 1983).

For explanations of these puzzling results, three broad lines of explanation have emerged (Betton, Eckbo, and Thorburn, 2007). First, under behavioral arguments, the market slowly corrects its overvaluation of the merged firms' shares

(Baker, Ruback, and Wurgler, 2007; Shleifer and Vishny, 2003). For example, Rau and Vermaelen (1998) found that "glamour" acquirers tend to underperform in the post-acquisition period, which may be due to both managers' and the market's optimism based on past performance of the "glamour" firm. Second, a neoclassical argument is that the merger is a response to a negative industry shock and that the merged firm performs better than it would have without the merger–which may still be worse than the pre-merger performance (Harford, 2005). Third, apparent underperformance is an artifact of the econometric methodology itself. Barber and Lyon (1997) and Kothari and Warner (1997) showed that common estimation procedures can produce biased long-run average buy and hold return estimates due to the new listings, rebalancing of benchmark portfolios, and skewness of multiyear abnormal returns. Proposed corrections include carefully constructing benchmark portfolios to eliminate known biases and conducting inferences via a bootstrapping procedure. Mitchell and Stafford (2000), however, pointed out that the bootstrapping procedure is seriously flawed because it assumes independence of multiyear abnormal returns for event firms in spite of the presence of cross-correlations of event firm abnormal returns. They argued that after accounting for the positive cross-correlations of event-firm abnormal returns, there was no long-run abnormal performance.

Operating Performance Instead of looking at the financial market's expectation of synergy creation, operating performance studies examine whether the expected synergy of mergers is ever actually realized. If mergers truly create value for shareholders, the gains should eventually show up in the post-acquisition cash flows of the merged firms (Andrade et al., 2001). Proponents of this methodology argue that accounting data measure actual performance conditions, not investor expectations, and

are therefore likely to be somewhat more reliable than the approach which uses equity returns (Piloff and Santomero, 1998).

In this approach, operating performance is compared before and after the merger using operating cash flow, EBITDA (earnings before interest, tax, depreciation, and amortization), or gross profitability measures, which summarize the effect of the merger on the operating performance independent of the impact of the funding sources for the acquisition.

Along this line, Healy, Palepu, and Ruback (1992) used post-merger pretax operating cash flow returns on assets[1] to measure changes in operating performance for the 50 largest U.S. mergers between 1979 and mid-1984. To control for industry trends, industry-adjusted measures were used in the analysis by subtracting the industry median performance measure from the event firm's performance measure. Abnormal industry-adjusted cash flow returns were measured as the intercept of a cross-sectional regression of the post-merger industry-adjusted cash flow returns on the market value of assets (median of Year 1 to Year 5) on the corresponding premerger returns (median of Year -5 to Year -1). Although the raw cash flow returns were lower in the post-acquisition period, the abnormal industry-adjusted performance showed significant improvement after the acquisition. Further, they also found that a positive announcement return of the combined target and acquirer was consistent with an improvement in the operating performance.

Andrade et al. (2001) replicated Healy et al. (1992), using the operating margin with a broader sample of roughly 2,000 mergers from 1973 to 1998. They also found an improvement in the operating performance of the merged firms after the merger.

[1] In Healy et al., operating cash flow is defined as sales minus cost of goods sold and selling and administrative expenses, plus depreciation and goodwill expenses. This measure is deflated by the market value of assets (market value of equity plus book value of net debt).

Such findings contrast with an earlier study by Ravenscraft and Scherer (1989), who examined the post-acquisition profitability of the line of business of the target firms using three measures, i.e. the industry-adjusted operating income (before interest charges, extraordinary charges or credits, and income taxes) over end-of-period book value of assets; operating income over sales; and cash flow (operating income plus depreciation) over sales. They found that the profitability measure declined after the merger, except in the pooling-of-interests mergers of roughly equally sized target and acquirer.

Re-examining Healy et al. (1992), Ghosh (2001) used the matching firm approach of Barber and Lyon (1996) using firms of similar size and prior performance as a control benchmark, instead of the industry median. Using the peer-adjusted cash flows return on market value of assets as of years -1 as a pre-acquisition performance measure and the median of the corresponding measures in years 1 to 3 as the post-acquisition performance, he found no evidence of operating performance improvement following acquisitions.

Negative post-acquisition operating performance was also found in Bouwman, Fuller, and Nain (2009). They used EBITDA normalized by average total book value of assets as a measure of operating performance combined with the matching firm approach of Barber and Lyon (1996). They found negative post-acquisition adjusted operating income for the overall sample, insignificant results for tender offers and significantly negative results for mergers.

The approach of using accounting data has its own drawbacks. Although accounting data are designated to measure actual performance, they may be inaccurate as a measure of synergistic gains, i.e. measured changes between the pre-merger and post-merger period may not be solely due to the merger (Kaplan, 2000; Andrade et al, 2001). Mergers entail integration costs which may disguise operating gains achieved

shortly after merger completion. As a solution, operating performance studies have focused on post-acquisition performance after two to five years after the completion. This is also reasonable given that many performance gains may take time to be achieved and thus reflected in financial report.

However, extending the post-merger period as a solution creates its own problem. In general, the performance of the merged firm is matched by some peer control group. Nonetheless, when the number of dimensions to be matched goes up and the matching criteria become fine (e.g., size and prior performance matched within 5% rather than 30%, and 4-digit rather than 2-digit SIC matches), finding matches becomes difficult or even infeasible (Li and Prabhala, 2007). Given that it is difficult to find a perfect match between the event firm and the control, beyond a certain point after the merger, analysis of the merged firm relative to some peer control group is likely to be affected by the idiosyncratic circumstances of each market or firm-specific factors as well as the merger itself. Thus, there is a limit to the extent that the merger can be held accountable for the firms' relative performance (Piloff and Santomero, 1998). While it is clear that failure to account for such extraneous conditions may lead to improper conclusions regarding merger-related changes, it is difficult for researchers to obtain such detailed information.

2.2 Moderators of M&A Success

While the discussion has continued regarding the validity and the methodology related to stock price and accounting measures of merger performance, another strand of research has examined the moderators that affect the performance of the M&A. Researchers have found distinct patterns in the performance of M&A in subsets of the deals as defined by deal characteristics and firm characteristics such as the method of

payment (stock vs. cash), deal type (tender offers vs. mergers), firm size, and deal attitude.

Method of Payment. While various factors affect the method of payment,[2] a widely-examined rationale is that of signaling. Acquirers that use stock to finance acquisitions signal to the market that their shares are overvalued (Myers and Majluf, 1984). As a result, the market will reevaluate the acquirer shares downward at the announcement of a merger, leading to a negative abnormal return. This intuition is strongly confirmed in a large body of empirical studies based on announcement period abnormal returns of acquiring firms (Andrade et al., 2001; Betton et al., 2007; Bouwman et al., 2009; Carow, Heron, and Saxton, 2004; Huang and Walkling, 1987). By contrast, a significantly positive announcement return has been found for cash-financed acquisitions of large public targets (Fuller et al., 2002) and for cash-financed acquisitions by small public bidders for public targets (Betton, Eckbo, and Thorburn, 2008). The method of payment appears to affect long-run returns as well. For example, Rau and Vermaelen (1998) found, as did Loughran and Vijh (1997), that acquirers making stock acquisitions underperform compared to those using cash.

In terms of operating performance measures, for the most part no significant relationship has been found between payment type and post-acquisition operating performance. In particular, in a study focused specifically on the operating performance and the method of payment in takeover, Heron and Lie (2002) asserted that there is no evidence that the method of payment convey information about the acquirer's future operating performance. In Ghosh (2001), while operating cash flow performance of the stock financed deals were found to be lower when the industry

[2] For example, tender offers tend to use cash; cash-rich acquirers tend to use cash; acquirer managers with a large ownership stake prefer cash to avoid dilution. See Martin (1996).

median was used as a control, the result was insignificant when the matching firm method was applied. Bouwman et al. (2009) reported significantly lower post-acquisition abnormal operating income for the stock-financed deals than for the cash-financed deals. However, in the regression analysis when the stock market condition was controlled, the payment method was insignificant.

Tender Offer vs. Merger. Agency theory proposes that mergers and acquisitions are a means to protect shareholders (of target companies) from poor management (Jensen and Ruback, 1983; Jensen, 1986). This implies the existence of a market for corporate control in which ineffectively managed firms are takeover targets and managers of those acquired firms are subject to turnover. Thus, a tender offer, in which the acquirer approaches the target shareholders directly and attempts to replace the incumbent managers of the target, is expected to perform better than a merger. Consistent with this notion, some studies showed superior performance for tender offers relative to mergers at the announcement date (Betton et al., 2007; Bouwman et al., 2009; Jensen and Ruback, 1983; Jensen, 1986), but these results are not consistent across studies. Bhagat, Dong, Hirshleifer, and Noah (2005) report a non-significant announcement abnormal return for acquirers involved in tender offers. Similarly, Huang and Walkling (1987) find no significant difference in the announcement abnormal returns between tender offers and mergers after controlling for payment method and degree of resistance. The long-term results seem to support the value-creation of tender offers over mergers. The long-run abnormal stock return for tender offers is positive, while for mergers it is negative (Rau and Vermaelen, 1998). Using data for mergers only (not tender offers), where post-acquisition underperformance is more prevalent, Agrawal, Jaffe, and Mandelker (1992) find that shareholders of

acquirers experience a statistically significant loss over the five years following the merger.

Loughran and Vijh (1997) extended these studies by analyzing the impact of both the payment method, cash vs. stock, as well as the type of deal, tender offer vs. merger. They document that the long-term buy and hold excess returns are significantly positive for cash- financed tender offers and significantly negative for stock-financed mergers.

Bouwman et al. (2009) also examined the impact of the deal type in combination with the payment method. However, their results are different from those of other studies: they reported that regardless of the deal type (merger or tender offer), stock-financed deals resulted in significantly negative results while cash-financed deals showed non-significant results for all the performance measures (announcement return, long-run buy and hold return, and operating performance).

Private vs. Public Status. It is well documented that private target firms are acquired at a substantial discount relative to equivalent public firms. This may be explained by the relative illiquidity or information asymmetry between the private company owners and the acquiring firms (Chang, 1998; Fuller et al., 2002).

Regarding information asymmetry, Capron and Shen (2007) argued that less information about private targets produce more value-creating opportunities for exploiting such information. They found that acquirers tend to choose private targets in familiar industries and favor public targets to enter new sectors with a high level of intangible assets. Moreover, acquirers of private targets perform better than acquirers of public targets upon the merger announcement. The authors further claimed that acquirer returns from their target choice (private/public) are not universal but depend on the acquirer's type of search and on the merging firms' attributes. Superior

announcement abnormal returns for acquirers of private targets have also been reported by others (e.g. Betton et al., 2008; Chang, 1998; Fuller et al., 2002).

The information asymmetry hypothesis reconfirmed such findings in Cooney, Moeller, and Stegemoller (2009). They used a sample of private target firms that withdrew an initial public offering so that they could use the valuation history of the target, which was not available for other private targets. In addition to the positive announcement return for the acquirer, which is consistent with general findings for private targets, Cooney et al. (2009) found a positive relationship between the acquirer's announcement return and the target's value revision measured by the difference between the value of the target at the time of its planned IPO and the acquisition price. Because of information asymmetry, a larger revision of firm value reflected in the acquisition price signals a greater value of the private firm, leading to greater gains for the acquirers. With regard to private acquirers, Bargeron, Schlingemann, Stulz, and Zutter (2008) found that private equity acquirers pay lower premiums to publicly traded targets. The finding is consistent with the fact that acquirers that are operating public firms pay more because they expect to realize synergy gains from the acquisitions, while for private equity acquirers the expected synergy is much lower.

The literature also includes findings that acquirer returns are affected by the interaction between the public status of the target, the size of the target, and the form of payment. For example, stock-financed acquisitions of large public firms lead to lower (more negative) acquirer abnormal returns while acquirers of stock-financed acquisitions of large private firms earn higher abnormal returns.

Acquisition Experience. Although organizational learning theory predicts that an acquirer's acquisition experience will influence performance in subsequent

acquisitions, the empirical results are mixed. While Fowler and Schmidt (1989) reported that long-term stock returns improve significantly for acquirers that have previous acquisition experience, Lubatkin (1983) and Ravenscraft and Scherer (1989) found no such effect. Bruton, Oviatt, and White (1994) documented a positive relationship between the acquirer's previous experience and acquisition performance measured by return on sales for financially distressed targets, but they find no such effect with non-distressed targets.

Haleblian and Finkelstein (1999) hypothesized that acquirers start out by making generalization errors that diminish M&A performance, and continue to do so until they develop a sufficient amount of experience. Consistent with this proposition, the authors found an overall U-shaped relationship between an organization's acquisition experience and its acquisition performance as measured by the announcement abnormal returns and accounting returns (ROA). Zollo and Singh (2004) expanded this study by proposing that experience alone does not improve long-run acquisition performance, while knowledge codification strongly does so.

Managerial Self-interest. Since Jensen and Meckling's study (1976), agency problems between corporate managers and their shareholders have been well-documented. In the M&A context, this means that acquirer shareholders earn lower abnormal returns when agency problems with acquirers are more severe.

Jensen (1986) argued that managers endowed with free cash flows will invest in projects having a negative net present value. Consistent with this hypothesis, there is a negative relationship between acquirers' abnormal returns and the level of their free cash flows (Harford, 1999; Lang, Stulz, and Walkling, 1991).

Grinstein and Hribar (2004) found that acquirer abnormal returns are lower when the acquiring CEOs have a higher degree of managerial power. Harford and Li

(2007) argue that corporate governance plays an important role in monitoring the agency problem. Using buy-and-hold abnormal returns of acquirers' stock, they present evidence that even in mergers where bidding shareholders are worse off, bidding CEOs are better off three quarters of the time, supporting the conjecture that managers' self-interest may influence M&A activity. They also report that the monitoring role of the board is important. In the presence of a stronger board, CEO salaries are reduced as a result of negative acquisition-related performance.

Relatedness. The realization of synergy is affected by the actual combination of resources through the merger (Barney, 1988; Chatterjee, 1986; King et al., 2004; Singh and Montgomery, 1987). Many studies support the idea that horizontal mergers are more valuable than conglomerate mergers because it is easier to realize expected synergies in horizontal mergers (Chatterjee, 1986; Finkelstein and Haleblian, 2002; Morck, Shleifer, and Vishny, 1990; Singh and Montgomery, 1987). For horizontal mergers, researchers note that resource complementarity, in which the resources are different but mutually supportive (Wang and Zajac, 2007), between the target and the acquirer is an important antecedent of acquisition performance (Kim and Finkelstein, 2009). The degree of relatedness improves the operating performance of the acquirer (Healy et al., 1992). In addition, the sources of gains in horizontal mergers appear to come from improved production efficiency and buying power (Fee and Thomas, 2004).

The similarity between the target's and the acquirer's organizational culture and management style affects the transfer of functional skills between the businesses (Salter and Weinhold, 1978; Singh and Montgomery, 1987). Thus, the impact of similarity on M&A performance has been the subject of research. Empirically, greater

differences in management style between the target and the acquirer are associated with negative acquisition performance (Chatterjee, 1992; Datta, 1991).

International deals may also be viewed in terms of (lack of) similarity. International mergers involve nation-specific differences in addition to firm-specific differences (Olie, 1994). Consequently, international acquisitions are associated with inferior performance relative to domestic ones (Eckbo and Thorburn, 2000; Moeller and Schlingemann, 2005). While relatedness and similarity have been analyzed at the industry and country level, there has been little research focusing on intra-industry settings.

2.3 Synergy

While the identification of synergies is not straightforward, researchers have analyzed synergies in terms of operating, collusive, financial, and managerial aspects, which may overlap and are all related to revenue enhancement, cost reduction, or both (Capron, 1999).

As seen earlier, studies of M&A performance using announcement stock returns and post-acquisition operating performance have not provided conclusive evidence of value creation from the merger. The most troubling findings have been zero or even negative abnormal returns to the acquirer shareholders, which has raised questions as to whether M&A is a good investment, and if not, why it is not blocked more frequently by the acquirer shareholders (Matvos and Ostrovsky, 2008). While debates and discussion continue regarding the assumption of the efficient market, the econometric issue, and the refinement of the factors that affect the merger outcome, some scholars have noted an inherent complexity involved in the stock price measures around the M&A announcement, which makes it even more challenging to analyze M&A performance.

Early on, Jensen (1984) pointed out that acquirers often engage in a prolonged acquisition program. Thus, while the benefits for target companies from a particular merger around the time of the announcement can be more easily estimated, the bidders' benefits may be spread out over several acquisitions. Hietala, Kaplan, and Robinson (2002) noted that the announcement of a takeover reveals information not only about the potential synergies in the combination, but also about the stand-alone value of the bidder and the target, and the bidder overpayment. Consequently, it is often impossible to isolate these effects and understand the meaning of the market's reactions to a takeover announcement. Thus, tests based on stock-market prices are at best indirect and probably weak because only the net effect is observed through stock prices. Evidence of insignificant stock price reaction can be interpreted as either the absence of both the market power and efficiency effect or their offsetting presence (Kim and Singal, 1993).

Given that value is expected to be created from synergistic gains by combining the target and the acquirer, a valid area of research should be an investigation of the sources of synergy and their actual realization. Nevertheless, the research in this area has been sparse. The main problem is that it requires a great deal of detailed data, which are not available to researchers in general. For example, a direct test of market power requires an examination of product price changes while controlling for a multitude of factors affecting product prices, such as changes in costs, market demand, and general economic conditions.

Along these lines, in 1996 the NBER commissioned a group of academic researchers headed by Steven Kaplan to conduct in-depth case studies of a small number of mergers. The studies were published in *Mergers and Productivity* (Kaplan, 2000). The purpose of the clinical research was to fill in the gaps left by the prior large-sample stock returns and accounting performance studies. While the Kaplan

group's studies revealed richness in the economic data surrounding mergers that could not be captured by the large-sample studies, these studies did not generate substantial insights into exactly how mergers create value (Andrade et al., 2001). In the following sections, I briefly review the types of synergy and summarize the existing empirical literature. Along the way, I also address the literature regarding the areas of potential value erosion as well.

Types of Synergy. Collusive synergies are benefits that are derived from increased market power in the input and the output markets. Mergers, especially horizontal mergers between competing firms within an industry, reduce the number of firms by one, which can lead to an accumulation of market power by the merged firm. The theory of oligopoly predicts that a consolidation of firms in an industry leads to higher prices with less quantity produced, which increases the joint profit of the merged entity at the expense of consumers surplus. If rival firms in the same industry cooperate, the price of rival firms will increase as well (Kim and Singal, 1993).

In the input market, M&A increases buying power by increasing the purchasing volume of the combined entity. Buying power refers to the situation where a firm or group of firms obtain more favorable terms from suppliers than those available to other buyers, or than would otherwise be expected under normal competitive conditions (Dobson, Waterson, and Chu, 1998). The increased buying power of the merged firm may also intensify competition among suppliers or destabilize collusion among suppliers, which will also contribute to lower costs (Snyder, 1996). In addition, it seems plausible that larger firms may be able to negotiate lower prices with their suppliers based on volume discounts at the supplier's costs in return for the promise of a continued, long-term business relationship (Given, 1996).

Operating synergies result from enhanced efficiency achieved from economies of scale, economies of scope, or cross-selling opportunities. Economies of scale refer to the reduction of the unit production cost by increasing the volume of production. If the production technology displays economies of scale over some region, then there is a benefit in merging. Typically, in the manufacturing sector, economies of scale are explained by the existence of substantial fixed costs related to capital assets such as plant and equipment. However, they also include non-capital fixed costs such as administrative overhead, including marketing, R&D, distribution, sales or administrative activities. When the merged firm consolidates the production and functional areas of the organization, economies of scale are achieved through the spreading of fixed costs over a higher total production volume of the merged entity (Brealey et al., 2005).

On the other hand, economies of scope refer to cost savings that arise from the joint production of multiple products as opposed to producing each product separately. More specifically, cost savings can arise if there is a common and recurrent use of proprietary know-how or specialized and indivisible physical assets (Teece, 1980). Costs can then be cut by removing the redundant components across the different product lines (Helfat and Eisenhardt, 2004).

Many firms acquire other firms in order to acquire well-established brands to hedge against the high costs and risks of new product development (Mahajan, Rao, and Srivastava, 1994). Brand extension is often intended to achieve higher revenue from existing customers. Formally, this practice is called cross-selling and refers to the practice of encouraging existing customers to buy additional products and services within the firm rather than from competitors (Butera, 2000; Kamakura, Wedel, de Rosa, and Mazzon, 2003).

Merged brands may generate a positive spill-over effect on one another (Mahajan et al., 1994) especially when customers have diverse needs for the different products or services offered by such brands. If there is a good relationship established between the firm and the customer the brand proliferation may create greater market share (Kapferer, 2008; Morgan and Rego, 2009). The ability to sell additional services to existing customers as result of strong customer loyalty is known to lead to a pricing advantage over competitors (Reichheld and Sasser, 1990).

While the cross-selling motivation is frequently found in mergers and acquisitions, in reality, the anecdotal evidence shows that the gains are not easy to achieve (Ngobo, 2004). Customers' preferences or budgets may not align with all the heterogeneous services provided by that single provider (Day, 2000). The literature also suggests that brand extension may weaken brand loyalty by diluting the brand image through interference from additional brands (Locken and John, 1993). In particular, when a product is extended into a highly heterogeneous segment, the increasing multi-market contact with competitors may intensify price competition across many markets (Morgan and Rego, 2009). Researchers have pointed out that it is important for a multi-brand firm to ensure that consumers in a higher quality segment do not purchase from another brand intended for consumers in a lower quality segment (Aribarg and Arora, 2008). In order to avoid this so-called cannibalization effect across different product categories within a firm, it is crucial for the firm to control quality levels offered by a certain brand to maintain the brand's equity (Randall, Ulrich, and Reibstein, 1998).

Numerous studies have reported that extension into a similar product category generates more favorable consumer evaluations and confidence in the overall family brand image (Aaker and Keller, 1990; Boush and Loken, 1991; Park et al., 1991; Romeo, 1991; DelVecchio and Smith, 2005). Specifically, strong customer confidence

can lead to relative risk reduction, which in turn contributes to a price premium for the product category (DelVecchi and Smith, 2005).

Managerial synergies result from applying superior or complementary managerial competencies (e.g. planning and monitoring capabilities), replacing incompetent managers, or using the skills of general management across different areas of the business (Trautwein, 1990). The theory of corporate control argues that takeover is a mechanism to replace inefficient managers of the target companies (Jensen, 1983). If the managers of the acquiring firms are more capable than those of the target firms, the takeover can improve the overall efficiency of the target firm. This theory predicts that poorly performing firms are more likely to become targets whose performance will improve after the takeover.

Finally, financial synergies come from risk diversification and coinsurance by investing in unrelated businesses. However, the actual cost-saving effects from lower financial costs have been doubtful. This is because the financial market does not reward risk reduction from diversification since investors can achieve diversification on their own by forming "homemade" portfolios (Amihud and Lev, 1981).

Empirical Findings. Although empirical research on the sources of synergy has been sparse, the price impact of collusive synergy in horizontal mergers has received a relatively higher degree of attention in the context of antitrust regulations and consumer welfare. Since it is difficult to observe price directly, early studies tested market power by exploring rival firms' stock price reactions to horizontal mergers (Eckbo, 1983; Stillman, 1983).

Eckbo (1985) argued that in an efficient capital market, a merger-induced change in expected future product and factor prices translates into merger-induced abnormal stock returns for firms competing within an industry. A horizontal merger is

expected to increase the probability of successful collusion among rival firms by eliminating one of the competitors in the industry. Thus it will cause an increase in the industry's monopoly rents and consequently the market values of the merging firm and its rivals. While researchers have found a positive reaction by the competitors' stock upon the announcement of a horizontal merger, a positive abnormal return was also observed when the government challenged the initial merger, which contradicts the collusion theory (Eckbo, 1983).

Several criticisms have been made concerning the stock price approach for testing the collusion hypothesis. The stock price of rivals may carry information other than potential collusion. For example, a merger announcement may raise the probability of firms in the same industry becoming targets in the future, which may raise the stock price of the rivals (Song and Walkling, 2000). The rivals studied were large, multiproduct firms with only a small fraction of their revenues from the affected market (Haleblian et al., 2009). Thus, their reaction may not capture the collusion effect precisely. More importantly, in light of the sources of synergy, a test based on the stock market reactions of rivals does not provide any information. Any changes in the price of merging firms reflect the joint effect of cost savings from buying power, which may decrease price, and the exercise of increased market power, which may increase price. Since the stock market data only provides the net effect, an insignificant stock price reaction may indicate either the absence of both market power and buying power or their offsetting presence (Kim and Singal, 1993).

In a study of airline mergers, Kim and Singal (1993) directly examined the airfare of the merger-affected routes and their rival routes. Lending support to the market power hypothesis and the possibility of tacit collusion, they found that prices on routes served by merged firms and their rivals increased relative to those of other firms unaffected by the merger. Pointing out that the cost saving will lead to lower

price, the observed price increase was interpreted as evidence that market power dominates the cost saving from the buying power.

The aforementioned study by Healy et al. (1992) also touched upon the sources of synergy with their analysis of post-acquisition operating performance. For the sources of such improvement, various measures of asset productivity, labor efficiency, and possible sacrifice of long-term viability of the firm for short-term performance improvements were examined.

The variables examined include an increase in asset turnover (sales over market value of assets at the beginning of the year), cash flow margin on sales (EBITDA as a percentage of sales), employee growth rate, pension expense per employee, capital expenditure rate (as a percentage of the market value of assets), asset sale rate (as measured by the market value and book value, respectively), and R&D rate (R&D expenditure as a percentage of the market value of assets).

The findings indicated that an increase in asset turnover contributes to an improvement in operating performance. The authors found no evidence of decreased capital or R&D expenditures following mergers, indicating that cash flow improvements do not come at the expense of the long-term viability of the merged firm.

Asset turnover measures the sales dollars generated from each dollar of investment in assets. Thus, it essentially captures the productivity of the assets. Enhanced productivity from the merger is also reported in plant-level input and output data. McGuckin and Nguyen (1995) found that recently acquired plants experience productivity improvements. However, they found that the acquirer's existing plants suffered productivity losses, making the net change for the acquiring firm zero. The general conclusion is that ownership changes are positively related to productivity

improvements at the plant level, but the relationship is not present in firm-level data (Andrade et al., 2002).

Among the few studies of M&A that specifically focused on the sources of gains from mergers are Fee and Thomas (2004) and Houston, James, and Ryngaert (2001). By identifying the supplier, customer, and rival firms of the merged firms, Fee and Thomas tried to identify the sources of the synergy more precisely. They also examined the stock price reaction of the rivals around the announcement and found positive abnormal returns at the announcement but did not find negative abnormal returns when the deal was challenged. The announcement stock return and operating performance changes of the customer firms were both found to be insignificant. Based on the assumption that the presence of anti-competitive collusion would drive the customer firm's stock price reaction and operating performance down, they concluded that increased industry collusion is not a significant source of gains to the merged firms. Supporting that buying power is an important source of gains in horizontal mergers, suppliers were found to experience significant decline in cash flow margins.

In a study of bank mergers, Houston, James, and Ryngaert (2001) calculated the expected net present value of the merger's net benefit by collecting information on the projected cost savings and revenue enhancements from media sources. The managers' projection of the value of the merger was then assessed with respect to the stock market's reaction. The findings suggest that most of the estimated value gains stem from cost savings by eliminating overlapping operations and consolidating backroom functions, and not from revenue enhancement. The bidder and target announcement stock returns were also found to be positively related to the managers' estimated cost savings.

2.4 Lodging Industry Literature Review

M&A Literature. In a study of lodging industry merger activities, Canina (2001) analyzed the announcement-day abnormal returns for lodging mergers from 1982 through 2000. Similar to the general findings, this study reported a positive and higher return for the target than for the acquirer. However, the significance of this study is that the announcement-day abnormal returns were positive for the acquirer as well as the target, which contrasts with the general findings, which reported zero at best abnormal return for the acquirer. Beyond the announcement date, the abnormal returns were insignificant. Positive abnormal returns are also observed when the sample is divided into mergers and tender offers. This implies that the positive abnormal returns for acquirers in the lodging industry are not driven by the positive abnormal returns associated with tender offers.

With more recent data from nineteen acquirers during the period 1996 to 2007, Yang, Qu, and Kim (2009) reported that hospitality acquirers receive positive abnormal returns in the twelve months after an acquisition. These results support the notion that lodging mergers and acquisitions are value-enhancing.

However, using the post-merger financial performance of fifteen acquirers in the lodging and gaming industries between 1985 and 2000, Hsu and Jang (2007) reported that the shareholders of acquiring hotel companies earned no abnormal equity returns over the short term, which indicates no significant relationship between the merger announcement and the change in short-term equity value. Contrary to general expectations, their study reveals that mergers have a negative effect on the acquiring firms' equity value over the long term relative to the S&P 500 Index. Similarly, the ROA and ROE were found to be significantly lower after mergers compared to the pre-merger performance.

Kwansa (1994) focused on eighteen lodging targets from 1980 to 1990. Consistent with the general findings for the target firms, the results showed a significantly positive abnormal return around the announcement as well as for the thirty-day period after the announcement.

Local Competition. Pertaining to hotel industry competition in the local market, this dissertation is also related to the literature of local competition. Since hotel accommodations are demanded when customers travel for business or leisure purposes, lodging properties are highly clustered along such demand generators. Theoretically, the clustering of firms in the local market was noticed early in economics, such as in Hotelling's (1929) location model. Location is even more important in the lodging industry than elsewhere because it is also a nonreplicable and nonrenewable resource for hotel properties. Proximity and convenience to points of business or tourist interests constitute critical competitive power for lodging properties. Research into local competition has focused on the benefits of co-locating firms in a certain geographic area (agglomeration effect) (Porter, 1996, 1998, 2000) in terms of advantages from the resource-side and demand-side perspectives. For the lodging industry, Chung and Kalnins (2001) and Canina, Enz, and Harrison (2005) have reported a positive agglomeration effect in the local market.

While competition at the property level is highly localized within certain geographic boundaries, it is also influenced by corporate-level strategies such as mergers and acquisitions. Mergers and acquisitions create a shift in the competitive landscape at the local level, especially when the target and the acquirer properties co-exist in the same local market.

M&A may heighten the degree of tacit collusion in the local market. Hotels are known to cooperate as well as to compete within a local market (Ingram and Roberts,

2000; Kalnins, 2004). Tacit collusion or collaboration among competitors can be valuable in the lodging market because hotels have strong incentives for price-cutting due to high fixed costs and the perishable nature of hotel rooms (Tirole, 1988). Further, due to the fixed capacity in each hotel property, combined with the cyclical or seasonal nature of demand in the local market, individual hotels at times face a problem of overbooking. In such cases, a practice known as "call-around" is commonly used to refer overflow customers from one hotel to another. Formally, call-around is defined as the process whereby hotels share, collect, and exchange information concerning current room rates and occupancy rate on a regular basis.

While the information collected through call-arounds is only useful if the participants are telling the truth, anecdotal evidence suggests that this is not universally the case.[3] However, as call-arounds are performed on a regular basis, this practice has also been viewed as a possible means of collusion by which hotels fix prices and increase costs for consumers. Such concern led to the Connecticut Attorney General's decision to stop La Quinta Corporation from employing the call-around practice in 2010, labeling this practice anticompetitive.[4]

If there is indeed tacit collusion among properties within a local market, mergers and acquisitions will facilitate information sharing among the target and acquirer properties within the same local market. The member properties of a chain hotel firm in the same city refer patrons to one another through a central reservation system. When a merger is completed and the system is integrated, the central reservation office begins to cross-sell the target and the acquirer properties to callers

[3] Alex McIntyre, Halt to 'call-arounds' puts La Quinta in spotlight, HotelNewsNow.com, 2010. 4. 9.
[4] "Attorney General Announces Agreement to Stop Hotels from Anticompetitive Exchanges of Price Information", Connecticut Attorney General's Office Press Release from http://www.ct.gov viewed on Jan. 2011.

who request one brand or the other.[5] There is no regulatory concern involved in this practice within the merged company.

However, there is also a point of potential friction among the member properties under the same chain system within the local market. Kalnins (2004) has reported that revenues of incumbent chain hotels significantly decrease when a proximate same-brand unit is added. This result does not support higher collusion among the member properties. Such loss may be explained by territorial conflict.

Territory is a sensitive issue in the lodging industry. Management and franchise agreements in general include a clause regarding territory. Exclusive territory means that the franchisor and/or another franchisee will not compete for the same business within a certain boundary of a geographic area (e.g. three mile radius in Iowa Franchise Act). Such a clause is equivalent to giving the franchisee ownership of a particular kind of local asset attached to a property with a certain brand (Lutz, 1995). Given that many hotel firms operate multiple brands in the same product type, the territorial issue is not restricted within the specific brand. It can be applied to the franchisor's brands in the same product category that serve the same customers. Lafontaine and Shaw (1999) reported that about 60 to 65 percent of franchisors offer exclusive territories, according to various surveys. However, Azoulay and Shane (2001) note that the large, established franchised chains typically do not provide exclusive territories to franchisees.

The territorial conflict refers to the loss of revenue that occurs when franchisors add new units of their brand proximately to their franchisees' existing units (Kalnins, 2004). Azoulay and Shane (2001) have reported that new franchise chains that adopt exclusive territories are more likely to survive over time than chains that do not. They have also identified an increased probability of conflict between

[5] Adams, Bruce. "Hyatt Weighs Brand's Options." *Hotel and Motel Management* March 7, 2005

franchisees and franchisor because of encroachment-related problems as one of the factors related to the greater failure rate of non-adopters. Using data from the hotel industry in Texas from 1990 to 1999, Kalnins (2004) quantified the impact of territorial conflict and found that for hotel chains that do not grant exclusive territories, adding a new hotel within the same area as the 10 closest hotels is associated with a $66 loss per room and has highly negative effects on the franchisee's profit.

Franchisees are very willing to compete aggressively against others affiliated with the same brands, although these are typically found in neighboring markets rather than in the same market (Kalnins, 2004, 2006). Alike, Conlin (2000) have also found that franchising (versus corporate owned hotels) creates greater competition for other hotels of the same brand.

Renard and Motley (2004) recognized that the territorial issue is one of the three major areas of hospitality-related litigations. In fact, there are examples specifically related to mergers and acquisitions. After the merger of Hilton Corporation and Promus Hotel Corporation in 1999, there was litigation by a hotel-owning company (a third party that own the property and operate under the Hilton brands) which alleged that Hilton violated a territorial restriction in the management contract prohibiting it from owning or operating other hotels within the restricted territory.[6]

As seen in this case, the territorial conflict can arise between the different brands within the newly merged chain system. As many lodging industry mergers and acquisitions lead to a combination of the brands of the target and the acquirer that are in the same product category. Thus, without the new entrance of the properties or changes of the brand in the existing properties, mergers and acquisition create

[6] *Franchise Disclosure Document.* Hampton Inns Franchise LLC. Viewed on www.hamptonfranchise.com on May 2010.

perturbation in the local market where there are both target and acquirer properties of the same product type. At the individual property level, as a consequence of an acquisition, properties now have to share the implicit or explicit territorial privilege within the local market with previous competitors who have now become the sister chain hotel. Such territorial dilution can lead to fierce competition between the member properties within the same local market, which will lead to negative impacts on operating performance.

Target and acquirer properties in the same local market increase collective buying power for inputs at the local level. Ingram and Baum (1997), who examined the hotel market in Manhattan, described how chains with a strong presence in Manhattan should be able to buy advertising, food, subcontracted labor (e.g., security staff), and other inputs more cheaply and might be able to collude successfully on prices. However, given that the physical property and the brand license are often separately owned by different entities through franchising and managing contracts, the authors also noted possible "dilution of market power," i.e. greater market power of the corporation at the local market may weaken the buying power of the individual properties as they have to share specific resources available to the brand family (e.g. brand equity, loyalty program, corporate support) or required as a chain system among the member properties (location-specific personnel or supplies). When member hotels are operated like independent organizations, their managers are held accountable for the performance of their hotels. As a result, there will be many managers who pursue their own interests and therefore less likelihood of coordination. Finally, collective action is more costly when more players have to be coordinated (Olson, 1965).

Empirical evidence also supports the dilution of market power. Ingram and Baum (1997) have reported a higher failure rate for the member properties of chains with a higher number of rooms controlled by the chain within the local market. These

results suggest that increasing the contact of target and acquirer hotels within the local market may actually bring about adverse impacts on the operating performance of those properties.

2.5 Resource-Based Theory of the Firm

M&A is also related to the literature on the resource-based theory of the firm. Fundamentally, M&A is a mechanism for a firm to internalize the resources of the target and the acquirer (Lei and Hitt, 1995). This implies that such resources are costly to make or develop internally or purchase through the input market. M&A serves as an opportunity, which may not be available or imitated elsewhere, to uniquely combine specialized resources of the target and the acquirer more efficiently and/or effectively, as opposed to operating them separately, as it can be viewed as a means to trade otherwise non-marketable resources and to buy or sell resources in bundles to achieve synergy in an imperfect market (Wernerfelt, 1984).

Viewing a firm as a collection of assets has a long tradition in economics (e.g. Grossman and Hart (1986)). While there is an alternative view of the firm as a nexus of contracts, they argue that contracts may not be complete. As a result, there is a need to allocate the right to decide in events not specified by the initial contract. Changing the allocation of ownership changes the incentive structure in a way that no contract could. Consistent with this view, the firm is defined as a collection of assets that are jointly owned. This theory is especially useful in explaining merger activities. If a firm is a collection of contracts, the results achieved through a merger could be more simply obtained by writing a contract between two separate firms. Pointing to a shortcoming of this view, Zingales (2000) claimed that the contract framework excludes the insiders' human capital, i.e. the knowledge and skills held by individuals in an organization (Sturman, Walsh, and Cheramie, 2008). In response, Rajan and

Zingales (2001) suggested that a firm is "the web of specific investments built around a critical resource," which includes both physical assets and human capital.

In strategic management literature, the resource-based view of the firm posits that the core of an organization consists of unique resources and capabilities (Penrose, 1959; Wernerfelt, 1984; Wernerfelt and Montgomery, 1988; Prahalad and Hamel, 1990; Barney, 1991). The resource-based view of the firm has been received as a cornerstone of the competitive advantage of the firm in strategic management (Peteraf, 1993). To be a source of sustained competitive advantage, resources and capabilities must be valuable and isolated from imitation or substitution. A valuable resource enables a firm to improve its market position relative to competitors. For example, resources acquired at a price below their discounted net present value can generate rents (Peteraf, 1993).

The significance of this view is that it recognizes unique resources as the foundation of a firm's competitiveness within the industry. Before this view emerged, the determinant of competitiveness was identified by the industry structure (industrial organization theory) or the strategy of the individual firms (strategic group approach of strategic management). These views have been challenged by the fact that the observed performance of firms within the same industry or the same strategic group is substantially heterogeneous.

From the perspective of the firm, the critical issue is how to obtain and sustain superior performance over industry competitors who provide goods of similar use to a similar group of patrons. Acquisitions provide a means for businesses to exchange firm-specific resources that otherwise are not easily redeployed. Such resource immobility occurs when resources are not easily transferable on the open market because of high transaction costs (Capron and Hulland, 1999). This view is consistent with Barney (1988), who recognized that synergy creation is possible when the

acquirer enjoys private and uniquely valuable or inimitable synergistic cash flows from the target.

2.6 Offer Premium

As discussed earlier, the acquisition price (P_0^T) often exceeds the value of the target (V_0^T) and the difference is defined as the price premium paid to the target shareholders ($PP_0^T = P_0^T - V_0^T$). This implies that for the premium to be justified, the acquirer's expectations of making improvements in the target firm's future performance as well as of producing synergies between the two firms are large enough to recapture the premium paid to the target shareholders (Sirower and O'Byrne, 1998).

In a recent review (Eckbo, 2009), the mean initial (final) offer premiums between 1980-2002 were estimated at 43 percent (48 percent), measured by the initial (final) offer price over the stock price on 42 trading days prior to the initial (final) offer announcement. Day -42 is often used since the run-up in the share price of the target is manifested mainly after the 42nd day before the announcement (Schwert, 1996).

The conventional view is that run-ups reflect takeover rumors generated from various public sources (Betton et al., 2007). Often, the total premium is decomposed into run-up and markup (Schwert, 1996), where the run-up describes the target stock price movement from day -42 through day -1 relative to the first bid for the target, and the mark-up is the target share price movement from day -1 through the offer date or until the delisting date. Betton et al. (2008) reported a positive relationship between the run-up and the mark-up. They also reported that bidder gains, while decreasing in offer price mark-ups, are increasing in run-ups, suggesting that run-ups are consistent with increases in the target's stand-alone values.

Offer premiums, often viewed as excessive, have been related to the free-riding problem of the target shareholders, bidding competition and the winner's curse hypothesis, the bidder's overconfidence, and the target's resistance.

Grossman and Hart (1980) first explained the free-riding problem in tender offers. Target shareholders may rationally turn down bids even if a substantial premium is offered over the current market price. Individual shareholders of the target firm are able to share the improvements generated by a successful acquisition without tendering their own shares. Thus, they do not have an incentive to accept an offer unless the price equals or exceeds the post-takeover value of the shares (Hirshleifer and Titman, 1990).

The winner's curse hypothesis suggests that the winner of a sealed-bid auction tends to be the one who most overestimates the true value of the auctioned object (Giliberto and Varaiya, 1989). As a result, auction winners are likely to be "cursed" by having paid more for the object than its true worth. This hypothesis has been applied to corporate takeovers (Roll, 1986; Varaiya, 1988) such that the target shareholders earn large and positive abnormal returns due primarily to the payment of substantial premiums by acquiring firms.

Roll (1986) introduced the hubris hypothesis, which posits that bidding firms infected by hubris simply pay too much for their targets. In line with this argument, numerous studies empirically tested the hubris or overconfidence involved in a takeover. Hayward and Hambrick (1997) reported that CEO hubris increased acquisition premiums, which in turn decreased acquisition performance. Malmendier and Tate (2008) reported evidence that overconfident managers tend to make more acquisitions and that abnormal returns in such cases are lower. Moeller et al. (2004) discussed a size effect in acquisition announcement returns such that the announcement return for acquiring-firm shareholders is lower for large acquirers

irrespective of the form of financing and whether the acquired firm is public or private. Based on the premise that managers of large firms are more likely to be driven by hubris and thus overpay, the authors examined the relationship between premium, firm size, and the probability of the merger success. They reported supporting evidence for the hubris hypothesis: the greater premium paid by large firms was found to decrease the average abnormal return.

As seen thus far, offer premiums have been negatively associated with merger outcomes. However, ultimately, a premium represents payment for the right to control the assets of the target firm (Bradley, 1980), a right which is intended to contribute to synergy creation. Built upon the resource-based theory of the firm, Laamanen (2007) focused on the technology-intensive sector, which is highlighted by R&D and technological resources that take a long time to develop and are difficult to evaluate. The high-tech sector was also found to have paid the highest premiums. Laamanen argued that such high premiums are explained by the existence of a unique value-creating resource combination related to the target's R&D and technological capabilities. Consistent with this view, it was found that although a higher premium is paid for R&D-related assets, the premium does not cause negative abnormal returns.

CHAPTER 3

MERGER AND ACQUISITION ACTIVITIES IN THE LODGING INDUSTRY

In the U.S. as of 2006, the lodging industry included 50,000 properties owned by almost 30,000 distinct firms and sole proprietors (Kalnins, 2006). While the ownership of these physical properties is highly decentralized, more than 70 percent of the properties in the U.S. are affiliated with a chain.[7] According to data released annually by *Lodging Hospitality*, among the top fifty brands in the U.S. (in terms of the number of rooms in the U.S.) the number of franchised properties reached 86 percent in 2006 while the numbers of owned and managed properties accounted for about nine percent and five percent, respectively. As a majority of chain properties are operated under franchising and management contracts, it is common that the ownership of the physical property, the brand, and the management of the property are often separated among different entities. In addition to brand-owning lodging firms which also provide the management and franchise side of operations, there are firms that specialize in owning properties (institutional investment firms including hotel real estate investment trusts (REITs)) and firms that focus on the provision of hotel management services for the owners of the properties.

This rather unique structure of the lodging industry, the separation of property ownership, management, and/or the brand of the property, emerged out of product characteristics and the consumption environment, which have also affected merger and acquisition activities. According to Andrade et al. (2001), the lodging industry was among the top five industries in M&A activities based on the average annual number of mergers in the United States in the 1990s.

[7] Basham, M., Kwon, E., 2009. *Standard and Poor's Industry Surveys Lodging and Gaming* May 21.

In this chapter, I first summarize the M&A activities in the lodging industry. Then, I discuss the rationales for lodging mergers. Drawn from the existing literature on synergy, motivations, and characteristics specific to the lodging industry, the sources of gains to lodging properties are discussed.

3.1 Lodging Industry M&A Activities

Table 1 summarizes mergers and acquisitions in the lodging industry from January 1, 1981, through December 31, 2008. The data are obtained from Securities Data Corporation (SDC) and the sample of the lodging industry mergers and acquisitions that involve U.S. lodging firms was identified by the following criteria: first, either target or acquirer is in SIC 7011, hotels and motels including hotels with gaming operations; second, either target or acquirer has hotel operation in the United States.

The data shows that lodging mergers and acquisitions have seen a cyclical pattern with distinctive peaks in the late 1980s, late 1990s, and mid 2000s, reflecting economic conditions as well as some industry-specific factors. In the mid-1980s, favorable tax laws distorted development of commercial real estate including hotel properties in the U.S., a situation which also encouraged development and mergers. Partially as a result of those laws, Table 1 shows higher total and average overall value of the deals in the period of 1984 to 1987 than in the earlier period. Although general market conditions in the U.S. deteriorated in the late 1980s, the peak stretched until 1989, driven by the liberalization in the global financial investment.

Changes in tax laws altered the industry structure in the early 1990s, but an economic bubble and different tax loopholes drove the most dramatic M&A increase, which reached a peak in 1997, when the total value of the targets reached 53 billion dollars. The tax loopholes involved what was known as the paired-shared REIT.

Table 1. M&A activities in the lodging industry

	Overall			Type			Industry		
Year	Number of Deals	Total	Average	M&A	Asset Acquisition	Other	Horizontal	Hotel Acq. Non-Hotel	Non-Hotel Acq. Hotel
1981	10	$1,200.4	$120.0	$700.4	$500.0	$0.0	$56.4	$578.0	$566.0
1982	4	198.5	49.6	56.5	142.0	0.0	24.5	142.0	32.0
1983	21	1,132.7	53.9	321.1	514.2	297.4	600.5	290.2	241.9
1984	17	2,887.5	192.5	1,357.2	1,530.3	0.0	525.0	423.1	1,939.4
1985	20	2,026.2	225.1	623.2	1,403.0	0.0	1,189.5	496.7	340.0
1986	20	2,057.1	205.7	665.6	1,391.5	0.0	342.0	697.6	1,017.5
1987	22	3,485.0	248.9	73.0	3,348.3	63.7	1,778.7	12.0	1,694.3
1988	44	4,521.4	145.9	1,148.8	3,344.1	28.5	1,853.3	1,014.5	1,653.6
1989	38	5,164.0	198.6	2,225.0	2,888.8	50.2	1,339.9	132.2	3,691.9
1990	32	3,523.2	207.2	2,300.0	1,136.0	87.2	3,037.3	156.5	329.4
1991	25	973.2	74.9	315.5	657.7	0.0	14.9	266.0	692.2
1992	26	3,124.1	208.3	81.4	303.1	2,739.6	281.4	74.5	2,768.1
1993	63	1,933.8	53.7	430.7	877.7	625.5	198.2	703.5	1,032.1
1994	92	3,680.1	60.3	2,459.8	1,135.2	85.1	2,300.5	95.8	1,283.7
1995	111	11,974.1	139.2	2,143.1	2,340.4	7,490.7	1,783.2	825.1	9,365.7
1996	198	18,905.5	126.0	9,368.4	8,216.9	1,320.1	7,599.0	4,824.9	6,481.6
1997	263	53,022.6	257.4	35,822.3	10,481.0	6,719.3	16,953.8	3,194.3	32,874.6
1998	196	16,627.5	136.3	11,188.0	4,503.6	935.9	3,862.4	1,291.5	11,473.6
1999	96	12,798.0	220.7	9,148.7	3,102.7	546.6	10,111.8	228.0	2,458.2
2000	68	10,666.2	217.7	7,060.7	3,036.4	569.1	1,279.2	187.4	9,199.7
2001	40	2,493.5	92.4	1,264.5	1,178.4	50.6	970.6	2.2	1,520.7
2002	46	4,574.1	152.5	2,904.5	1,452.6	217.0	1,097.1	191.2	3,285.8
2003	87	5,329.5	100.6	1,610.1	3,710.9	8.5	1,479.6	154.0	3,695.9
2004	94	24,761.4	467.2	19,081.7	5,457.3	222.5	14,948.8	280.0	9,532.6
2005	172	34,127.2	299.4	4,852.3	19,418.1	9,856.8	8,822.9	387.5	24,916.8
2006	161	44,967.5	478.4	32,851.9	12,002.1	113.4	458.5	32.5	44,476.5
2007	161	39,239.6	523.2	20,949.3	18,280.1	10.2	839.6	48.9	38,351.1
2008	68	1,680.4	38.2	0.0	1,679.5	0.9	239.7	0.0	1,440.7
Total	2195	317,074.3	144.45	171,003.7	114,031.9	32,038.8	83,988.3	16,730.1	216,355.6

Table 1 (Continued)

	Firm Organizational Structure				Tender		Method of Payment		Domestic/International		
Year	Btw. Public	Public Acq. Private	Public Acq. Subs.	Private Acq.	Tender	Non-Tender	Cash	Stock	Domestic	US Acq. Foreign	Foreign Acq. US
1981	$163.3	$411.6	$500.0	$125.5	$12.5	$1,187.9	$1,196.8	$3.6	$684.9	$0.0	515.5
1982	0.0	0.0	180.5	18.0	14.0	184.5	255.2	24.5	198.5	0.0	0.0
1983	473.7	40.6	25.0	593.4	0.0	1,132.7	1,187.7	0.0	1,111.6	11.1	10.0
1984	724.6	8.7	995.0	1,159.2	216.0	2,671.5	2,621.9	508.6	2,876.0	11.5	0.0
1985	58.7	0.0	1,112.5	855.0	564.5	1,461.7	2,019.0	58.7	2,013.2	0.0	13.0
1986	586.0	111.6	1,266.5	93.0	500.5	1,556.6	2,761.0	177.1	1,727.1	58.0	272.0
1987	63.7	82.0	1,531.0	1,808.3	123.7	3,361.3	4,640.9	0.0	2,144.4	30.0	1,310.6
1988	84.0	714.6	1,473.0	2,249.9	1,013.5	3,507.9	5,312.8	0.0	3,006.9	809.5	705.0
1989	0.0	231.7	2,731.5	2,200.8	0.0	5,164.0	3,380.9	2,287.2	1,696.6	62.2	3,405.2
1990	2,348.4	7.7	520.4	646.7	2,348.4	1,174.8	3,880.2	0.0	565.3	20.2	2,937.7
1991	266.0	0.0	56.1	651.1	0.0	973.2	1,142.3	280.6	870.1	44.5	58.5
1992	4.8	93.5	211.8	2,814.0	0.0	3,124.1	3,320.7	11.4	2,944.1	80.3	99.6
1993	65.8	631.9	452.7	783.5	344.0	1,589.8	2,891.2	3.0	1,406.2	216.4	311.2
1994	75.2	375.1	2,344.9	884.9	1,874.7	1,805.3	4,424.4	115.5	3,394.1	103.4	182.6
1995	555.7	1,553.4	840.0	9,025.0	153.4	11,820.7	11,117.6	1,323.0	11,224.2	156.5	593.4
1996	9,096.5	3,136.7	3,854.9	2,817.4	59.7	18,845.8	12,575.5	8,090.8	17,782.0	340.2	783.3
1997	32,363.2	6,121.0	7,374.2	7,164.2	468.2	52,554.4	25,678.1	29,388.5	50,283.8	2,254.9	483.9
1998	8,184.3	1,976.8	2,381.0	4,085.4	0.0	16,627.5	13,603.2	7,761.8	15,674.1	540.5	413.0
1999	5,999.8	1,002.0	4,206.3	1,590.0	1,354.1	11,443.9	13,394.8	566.4	10,180.4	750.4	1,867.2
2000	6,870.8	770.6	1,285.6	1,739.1	409.5	10,256.7	6,245.2	6,693.7	9,889.0	83.4	693.9
2001	136.0	42.3	1,493.3	822.0	2.2	2,491.3	3,731.0	46.8	1,989.1	215.0	289.4
2002	2,781.5	840.5	385.3	566.8	0.0	4,574.1	3,736.9	1,234.6	3,696.9	0.0	877.2
2003	107.6	1,783.2	1,193.1	2,245.6	0.0	5,329.5	6,261.8	136.9	4,518.2	583.2	228.2
2004	14,143.6	3,069.0	1,908.4	5,640.5	0.0	24,761.4	20,854.1	6,332.3	24,388.5	182.7	190.2
2005	0.0	1,054.5	13,427.1	19,645.6	1,056.9	33,070.3	32,824.4	4,095.8	25,256.2	8,380.2	490.9
2006	0.0	1,883.0	3,812.5	39,272.0	0.0	44,967.5	21,992.5	30,132.9	37,594.2	7,046.5	326.8
2007	20,168.3	897.4	4,034.2	14,139.6	0.0	39,239.6	43,542.9	33.9	37,864.1	238.6	1,136.8
2008	0.0	54.3	181.1	1,445.0	0.9	1,679.5	2,911.7	0.0	1,169.5	0.9	510.0
Total	105,321.5	26,893.7	59,777.9	125,081.5	10,516.7	306,557.5	257,504.7	99,307.6	276,149.2	22,220.1	18,705.1

Note: Figures are in millions except for the number of deals. Data are obtained from SDC Platinum.

Starwood Lodging Trust, then a REIT, acquired ITT-Sheraton, defeating the competing hostile bid from Hilton, as well as Westin Hotels in 1997; and Patriot American Hospitality acquired Wyndham Corporation and InterState Hotels in 1997. With a distinct tax advantage awarded to their grandfathered paired-shared status, Starwood and Patriot American Hospitality accounted for 33 percent of the total transaction volume recorded in 1997. In the following year, Meditrust Corporation, another REIT with paired-shared status, acquired La Quinta Inns Inc.

In subsequent years, the "buying spree" by the paired shared REITs tapered off when Congress closed the tax loophole and the U.S. economy slowed down. M&A activities picked up again after 2001 with the real estate bubble created by excess liquidity. Private equity firms accounted for most of the large-scale deals in this decade. The Hilton–Blackstone transaction in 2007 ($26 billion) was recorded as the largest lodging deal in history. Fairmont and Four Seasons Hotels also became the target of private investment firms in the 2000s. The reason that private equity funds were more capable of taking advantage of the low interest rates that prevailed in this period is that they were able to make greater use of debt financing than publicly traded firms, which were placed under a tighter regulatory environment under the Sarbanes-Oxley legislation (Corgel, 2008).

Table 1 also shows the nationality of the target and the acquirer, deal types, method of payment, and the firm status of the lodging acquisitions. The pattern in the nationality of the firms and the attitudes of the deals are straightforward overall. Domestic deals were dominant throughout the sample period except for the late 1980s as explained earlier, and overall, a majority of the deals in the lodging industry were financed with cash.

The deal types show that asset acquisitions are also very active in the lodging industry in addition to full scale mergers and acquisitions. The U.S. lodging industry

exhibits a highly decentralized structure with respect to the ownership of properties. Transactions are not only limited within the lodging industry. Hotel properties are also invested as commercial real estate by various investment institutions. In particular, there are real estate investment trusts (REITs) that specialize in hotel properties, commonly referred to as hotel REITs, such as Host Hotels Corporation, FelCor Lodging, and Sunstone Hotel Investors. Asset acquisition activities were especially strong in the mid-2000s peak, driven by large-scale property sales by brand-owning lodging corporations to hotel REITs.

Another type of asset acquisition is brand acquisition. As lodging firms operate multiple brands, some of the transactions involve the divestiture of a brand that is not deemed to fit in with the strategic portfolio of the target. Often an individual brand unit has the legal status of a subsidiary. Thus, in the firm status category in Table 1, this type of transactions is included in the *other* category, i.e. the acquisition of a subsidiary by a private or public acquirer.

There are numerous private firms on a smaller scale, typically owners/franchisors of the properties as well as private equity funds which invested in hotel properties. Several brand-owning lodging firms have chosen to be privately held, e.g. Hyatt Corporation (which went public in November 2009) and Carlson Hotels. As the industry displays a substantial representation of private firms, transactions between private firms and public firms are also quite active.

3.2 Characteristics of Lodging Product and Rationale for Expansion

There are particular characteristics in the lodging product which affects consumers' purchase behavior and shape the industry's institutional and contractual structure. A hotel product is an experience good, i.e. the quality of the product is known only after it is actually consumed; the overall purchase frequency is generally

low at the individual property level; the service component of the product makes it difficult to evaluate due to its intangibility and subjectivity (Holmstrom, 1985; Mills, 1986; Walsh, 2000); and the product cannot be returned as it is simultaneously consumed and evaluated. Hotel rooms are needed when consumers are away from their own locality, and thus may have limited information about the product and the location where they will stay.

These characteristics lead to high information asymmetries in the buyer-seller relationship, i.e. the buyers do not have full information about the quality of the product, which can impose the additional cost of adverse selection for both consumers and firms (Nayyar, 1990). One of the ways to mitigate the problems of asymmetric information is to establish a contractual arrangement such as the chain system with brand reputation (Akerlof, 1970). From the perspective of buyers, reputation reduces some adverse consequences of information asymmetry (Nayyar, 1993).

Customers may economize on information acquisition costs by favoring current service providers with whom they are satisfied (Nayyar, 1993). Hotels have relatively well-delineated product categories. Although there is no governing regulation that defines each category, properties are roughly categorized into luxury, upscale, midscale, economy, and budget segment by room rates, amenities, and facilities (restaurant or meeting space) attached to the property. Toward the luxury segment, the product is more differentiation-oriented; toward the budget segment, the product is more cost-efficiency oriented. While properties serve mixed groups of customer segments (business, leisure, or convention), depending on the location, each type of property may focus on a particular group of customers. Once brand awareness and, more importantly, brand reputation are established, lodging firms have a great potential to leverage such brand equity on geographic or horizontal diversification (Krishnan, 1996). A successful urban upscale hotel may be able to capitalize on its

business customers who travel at the corporate expense in promoting its more budget-oriented resort properties targeted as family vacation destinations.

Strong seasonality is another factor that favors geographic or horizontal diversification in lodging operations. Seasonality arises from natural (regular climate patterns) and institutional (social/ industrial events or holidays) factors (Jang, 2004). Combined with the capacity constraint and the perishable nature of the product (hotel rooms cannot be stored for future sale), the high degree of seasonality causes fluctuation of cash flows. While seasonality is universal in the lodging industry, it varies considerably from location to location (Butler, 1994). A diversified portfolio across different locations and related product line expansion can mitigate the fluctuation in sales and cash flow.

However, expansion is also a costly task. In order to build brand awareness, lodging firms need to reach consumers in a broad area, which in turn requires extensive marketing efforts, supported by the distribution and reservation systems. Such efforts will not be justified unless the scale of the operation reaches a certain level. The increase in scale means additional properties in diverse geographic locations, especially in superior locations close to demand generators. This requires substantial capital investment in real estate development and knowledge of the specific local market, where the lodging firm may not have expertise.

In order to share capital and knowledge requirements, franchising and managing have been a common operating format in the U.S. lodging industry, where the lodging corporation provides the brand equity and management expertise, and the owner of the property provides the capital investment in the physical property.

At the same time, mergers and acquisitions have also been active in the lodging industry as a means to enter complementary segments or geographic markets that have been already established. For example, in 1997 Marriott International

acquired Renaissance Hotel Group N.V., which doubled Marriott International's overseas operations. The acquisition of Le Méridien brand by Starwood Hotels and Resorts Worldwide was also focused on the strong presence of the target brand in Europe. Marriott International strengthened its luxury segment by acquiring the Ritz-Carlton.

The advantage of M&A over other expansion options, i.e. expanding existing brands or developing new ones, is that it allows the lodging firm to obtain established brands and an entire network of properties in a speedier manner. The pursuit of speed in expansion and its implications in competition were well-expressed in the media coverage of Hyatt Corporation's acquisition of AmeriSuites in 2005[8]: "Hyatt wants AmeriSuites to compete with brands such as Hilton Garden Inn and Courtyard by Marriott in the upscale limited-service, transient sector… Hyatt has a running start with its acquisition of AmeriSuites. Hilton Garden Inn was launched in 1996 and that brand just opened its 150th hotel in 2003… We have 143 AmeriSuites units, plus four under construction, so we have [nearly] a 10-year head start on Hilton Garden Inn… Hyatt plans to grow the brand primarily through franchising and by building a few hotels in highly strategic urban markets where developers don't want to go... There also could be some joint ventures with developers who would own the hotels and Hyatt would manage them."

3.3 Sources of Gains of Lodging Mergers

According to a survey by Kim and Olsen (1999), the top five most important stated objectives for lodging M&A were: to accelerate the growth of their firms; to

[8] Adams, Bruce. January 10, 2005. "Global Hyatt's Plan Includes AmeriSuites." *Hotel and Motel Management.*

enhance stockholders' value; to expand capacity at less cost than constructing new hotel properties; to capture scale economies to save costs through combining two firms within an industry; and to utilize synergistic attributes of the acquired company with reference to the acquiring company. These objectives are broadly aligned with the operating, collusive, and managerial synergies that were discussed in the previous chapter.

In this section, based on the theories of synergy and the motivations for mergers in the lodging industry, I review the areas of synergy creation and their sources specific to the lodging industry in light of the industry's business structure (e.g. product, customer, and procurement system). Along the way, I also discuss possible areas of side effects of M&A.

With more properties within its system, the merged firm may exert greater market power and buying power, which can contribute to positive price change and cost-savings, respectively. As discussed in the literature review, the market power hypothesis predicts that mergers and acquisitions may result in price increases. In the theory of oligopoly, the combined entity re-optimizes the profit maximization from the consolidated production facilities, which results in higher price and lower quantity (Perry and Porter, 1985; Tirole, 1988). In the lodging market, this logic does not fit well. While the acquiring hotel firm holds more properties in its chain system through M&A, due to the high degree of franchised operation, price is largely determined by the individual properties, which act as independent organizations at the local level. Thus, consolidations of the production unit or reduction in the quantity do not occur in general as a consequence of M&A. Thus, presumably, price increases, if present, can be achieved from increased collusive cooperation among the properties. Such collusive cooperation will be easier for the properties at the same location.

In perfect competition where equilibrium price is set to marginal costs, changes in cost are expected to affect the price. Although the U.S. lodging market is highly competitive (Kalnins, 2006), the impact of changes in cost on price seems to be minimal. Lodging operation is characterized by very low marginal costs relative to high fixed costs. Moreover, in each property, capacity is held fixed and regardless of demand the fixed number of room nights is produced. Thus, while any pricing structure of a hotel must cover marginal costs, it should also incorporate all ex ante capacity costs, i.e. the cost of carrying underutilized capacity (Dana, 1998). For this reason, marginal cost based pricing scheme does not suit the lodging industry well. Instead, hedonic pricing or revenue maximization pricing models (revenue management) are more commonly applied (Bitran and Caldentey, 2003; Espinet, 2003).

As discussed in the theories of local competition, there is great incentive for properties to collaborate while they compete. Due to high fixed costs and the perishable nature of hotel rooms, combined with fixed capacity and high seasonality, hotels have temporary overbooking problems as well as great price-cutting incentives. Both can make cooperation a viable solution to solve overflow in demand and can help hotels avoid excessive price cuts. Empirically, Ingram and Roberts (2000) have shown that collaboration with competitors leads to a dramatic improvement in the revenue per available rooms for hotels. While walking overflowing demand to a neighboring competitor may not be viewed as problematic from the regulatory perspective, periodic information exchanges regarding price and occupancy rates can be viewed as price-fixing behavior. The merger effectively abolishes such regulatory concerns and can facilitate cooperation among properties as there is no restriction in sharing information among member properties of a chain. In the merger announcement of Cavanaughs Hospitality Corporation and Westcoast Hotels, Inc. in

1999, it was stated, "Revenue enhancement opportunities include cross-selling among hotels and overflowing to company hotels in cities that have multiple properties, such as Seattle, Washington, where previously Cavanaughs only had one hotel."[9] Thus, mergers are expected to help maintain high prices among the properties of the merged firm.

Buying power is expected to lower the costs of the merged firm. Lodging operations require ongoing purchasing and procurement of amenities, FF&E (furniture, fixtures and equipment) for the room operations, food and beverages for the restaurants, IT infrastructure (property management system, point-of-sale system, central reservation system, etc.), and housekeeping service/equipment. Thus, collective buying power constitutes an important source of competitiveness for big hotel corporations. Buying conditions are negotiated at the corporate level.

For instance, Hilton Corporation's website states "Leveraging the power of the entire Hilton portfolio of brands of over 3,500 hotels within Hilton Worldwide (HW), HW Supply Management negotiates and implements contracts and agreements with hundreds of suppliers of hospitality products and services. Supply management secures and offers to the hotels competitive, nationally negotiated contract pricing and top quality products and services that meet or exceed each brand's specific standards." Other hotel corporations provide similar purchasing systems which emphasize negotiated savings based on economies of scale. In an attempt to further boost purchasing volume, in the early 2000s Hyatt Hotels Corporation, Marriott International, ClubCorp USA, Inc., and InterContinental Hotel Group together launched an independent purchasing and procurement firm (Lawlor and Jayawardena, 2003).

[9] From http://investor.shareholder.com/rlhcorp/releasedetail.cfm?ReleaseID=12635 viewed on Mar. 2010

By adding more properties to the merged entity, a lodging firm can have greater buying power with its suppliers, which translates into cost savings at the property level. Although it is not mandatory for properties to participate in a chain-wide purchasing system, accessibility to the larger purchasing network may increase bargaining power with the existing suppliers, putting pressure on them to lower input prices.

So far, possible price increases and cost savings through M&A have been discussed. However, many studies have also raised the possibility of adverse impacts of increasing capacity within the local market on price and costs (Olson, 1965; Ingram and Baum 1997; Kalnins, 2004). As discussed, many member hotels operate like independent organizations, maximizing the profit of their own properties. If chain-specific resources are scarce but have to be procured locally, then having more properties within the local region may actually increase the factor cost (Ingram and Baum, 1997). More members of the chain system within the local market may make coordination more costly (Olson, 1965) or create territorial conflict (Azoulay and Shane, 2001; Kalnins, 2004).

Empirical evidence has indicated that additional member properties within the same local market reduce the price of the incumbent properties (Kalnins, 2004). If there is an overlap in the location where both target and the acquirer properties operate, mergers and acquisitions create virtually the same conditions for the target and the acquirer properties as additional family brand properties enter the vicinity. Thus, the local friction argument predicts that a higher concentration of merged properties within a local market will have a negative impact on price and cost savings.

In terms of product line extension, the rationale in the hospitality industry is to better meet more heterogeneous consumer tastes (Tepeci, 1999) by cross-selling different or differentiated products. If customers are loyal to the overall brand family,

they will increase the share of cross-purchases within the brand family of a hotel chain when alternative products become available (Kim and Cha, 2002) instead of seeking the same or substitute lodging products from other chains. In order to incentivize the customer to be retained within the family brand, lodging firms in turn try to develop an attractive customer loyalty program.

The cross-selling motivation is frequently found in press releases announcing mergers and acquisitions. For example, in the merger of Doubletree Corporation and Promus Hotel Corporation in 1997, it was announced, "Our ability to cross-sell and cross-market our brands will be a key driver of our future growth."[10]

Technically, cross-selling is performed by integrating the target properties into the central reservation system (CRS) of the acquirer, and simultaneously consolidating the loyalty programs. CRS is the computerized system for centralizing the reservation process for all of affiliated members within the chain system, and is connected to the various distribution channels such as call centers, the company's own website, or on-line/ off-line travel agents (Egger and Buhalis, 2008). Many major hotel chains have their own CRS, e.g. Holidex (InterContinental Hotel Group), Starlink (Starwood Hotels and Resorts Worldwide), Marsha (Marriott International), and SPIRIT (Hyatt). CRS plays a central role in effectively allocating rooms system-wide.

The significance of the integration of the system is well expressed in the press release upon system integration of Starwood and Le Méridien. In its announcement, Starwood described the expected outcome as follows: "As of today Le Méridien's reservations, distribution, loyalty and sales functions have been fully integrated and these hotels will now be able to harness the power of Starwood's global infrastructure and sales and marketing systems, giving it a solid foundation for growth…. [T]he alignment of the Le Méridien brand with a larger, multi-branded hotel group has

[10] "Doubletree and Promus to merge, creating No. 3 hotel chain." Associate Press September 2, 1997

terrific benefits for the brand and we are committed to enhancing revenue and accelerating growth. … [I]n just the first 100 days, Starwood's global sales force delivered leads worth over $85 million in potential revenue to Le Méridien Hotels." [11]

Again, as discussed, there is a contrasting view of product line extension into the heterogeneous category, which predicts the adverse effect of brand dilution or cannibalization among the brands (Loken, 1993). Although the strategy of brand extension is aimed at encouraging customers to patronize a brand family on various occasions (Jiang, Dev, and Rao, 2002), the acquisition of a budget-oriented brand can dilute the brand equity of an existing upper-tier brand, and a newly introduced upper-tier, differentiation-oriented brand may make it difficult to maintain the brand image if an existing budget image is strong. Conversely, the acquisition of products in similar categories may lead to a more favorable outcome by fortifying customer confidence in the overall family brand image (Aaker and Keller, 1990; Boush and Loken, 1991; Park et al., 1991; Romeo, 1991; DelVecchio and Smith, 2005).

The theory of the market for corporate control argues that a takeover offers a mechanism whereby inefficient managers of the target company are replaced by the more efficient management of the acquirer (Jensen, 1983; Walsh and Ellwood, 1991; Kini, Kracaw, and Mian, 2004). In lodging mergers, while the management at the target corporation may change, management at the individual property level will not necessarily change. Still, better managerial skills and knowhow can flow down to the properties from the newly merged corporation.

With only a small proportion of directly controlled properties, many lodging firms identify themselves as "management" companies, emphasizing the knowledge and intellectual components of management. For example, Accor S.A. recognizes high

[11] "Starwood announces integration of Le Méridien into sales and marketing systems; Merging of loyalty programs brings 100 new hotels to Starwood Preferred Guest" Starwood Hotels and Resorts Worldwide, Inc. Press Release March 21, 2006.

value-added skills and service via technological, marketing, sales, human resources and training, and maintenance as a source of higher operating margins.[12] Thus, if better management is obtained from mergers and acquisitions, overall performance of the target properties is expected to improve.

[12] "Accor hospitality: The new hotel business model" Accor S.A. Press Release October 23, 2007

CHAPTER 4

RESEARCH DESIGN

In this chapter, I develop a research framework to investigate the sources of synergy and their realization into synergistic gains. Motivated by the existing literature and theory on mergers and acquisitions, in Section 4.1 I formulate hypotheses. To guide the reader in understanding the variables that will be used in the test of the hypotheses, Section 4.2 outlines the variables along with their definitions and computation methods. Then, in Section 4.3, I describe the methodology employed in this study, followed by the data sources and sample collection process that was performed to obtain necessary measures and construct the variables in Section 4.4.

4.1 Hypotheses

It is clear from the existing literature that synergy manifests as higher product price, greater quantity of goods sold, cost savings, and/or expense reduction. In this study, I use the term "synergy outcome" for each of these. Combined, the synergy outcome boil down to the net incremental cash flows of the merged firm, which in turn determine the value of synergy. Mergers create conditions under which synergy outcomes can be affected. When these conditions indeed lead to the realization of synergy, they become "sources of synergy". For example, the increased buying power from M&A (source of synergy) leads to cost savings (synergy outcome); the greater market power (source of synergy) results in price increase (synergy outcome).

Based on these insights from the existing research, the key testing strategy employed in this study is as follows: *if a synergy outcome from M&A is realized, then there will be an association between changes in the synergy outcome variable and*

changes in the sources related to the particular synergy outcome. In contrast, if there is no synergy outcome realized from M&A, then there will be no such association. For instance, if cost savings actually materialize as a result of the merger, we will observe that the greater buying power will lead to higher cost savings. If there are no cost savings realized through M&A, then changes in the buying power will have no impact on changes in cost savings. With this testing strategy, Hypotheses 1 through 6 test the relationship between the synergy outcome and the sources of the outcome. In addition, Hypotheses 7 and 8 test the relationship between the operating performance and the tender offer and industry environment, respectively. Hypothesis 9 examines the offer premium and the operating performance.

Hypotheses 1 and 2 are motivated by the market power hypothesis. Unlike previous approaches, which tested the market power hypothesis indirectly by using the stock price reaction of rival firms upon announcement (Eckbo, 1983, 1985; Stillman, 1983; Song and Walkling, 2000, Fee and Thomas, 2004), this study directly examines price. Kim and Singal (1993) also examined price of merger-affected firm and the rivals and found supporting evidence for price increases after mergers in the airline industry. This paper also examines the price directly, but different from Kim and Singal, price improvement is defined as a relative measure to that of the product competitor.

In the lodging industry, price increases are likely to be achieved through enhanced collusive cooperation among the member properties. Then, as more properties are combined between the target and the acquirer relative to the number of properties in their stand-alone status, it is expected that the information exchange will be more active, which will increase the price of the member properties. This leads to hypothesis H1:

H1. The price increase of the target and the acquirer properties is greater with higher property growth induced by the merger.

As discussed, competition among hotel properties is highly localized (Kalnins, 2001; Canina et al., 2005). Thus, in H2, market power is examined through the lens of local competition. Mergers and acquisitions create an opportunity to increase local market power if the target and the acquirer properties co-exist in the same local area (Ingram and Baum, 1997; Kalnins, 2004). This argument suggests that the properties of the target and the acquirer will achieve a greater price increase when there is a higher degree of overlap in the properties of the target and the acquirer within the same local market. This is tested in H2.1.

H2.1. Merger-induced market power in the local market is positively associated with an increase in price of the properties of the target and the acquirer.

There is a contrasting argument. Many studies have raised the possibility of adverse impacts of increasing market power of the properties of the target and the acquirer in the same local market (Olson, 1965; Ingram and Baum 1997; Kalnins, 2004). Territorial conflicts, as defined earlier, refer to the loss of revenue that occurs when franchisors add new units of their brand proximately to their franchisees' existing units. As discussed earlier, mergers and acquisitions put previously unrelated properties within the local market under the same umbrella of the newly merged chain system. Thus, even if there is no new entrant or change of brands, mergers and acquisitions create virtually the same condition where territorial conflicts may occur since target and acquirer properties have to share their territorial privileges with one another. Empirical research on territorial conflict (Azoulay and Shane, 2001; Kalnins,

2004) suggests that additional member properties of the chain in the vicinity negatively affect the incumbents' price. This finding suggests that greater local contact among the properties of the target and the acquirer will decrease the price of the member properties. This leads to H2.2.

H2.2. Merger-induced territorial conflict in the local market is positively associated with a decrease in price of the properties of the target and the acquirer.

In the next set of hypotheses (H3 and H4), I test the buying power hypothesis in relation to the cost-savings effect. As the volume of purchases can increase after the acquisition, the merged firms will have greater buying power over the suppliers (Given, 1996; Snyder, 1996; Fee and Thomas, 2004), which translates into a cost-savings effect down at the property level. If there is a buying power effect induced by a merger, the higher property growth will lead to greater cost savings.

H3. The greater the property growth induced by the mergers, the greater the cost savings.

Again, the local competition literature predicts two contrasting impacts of buying power and cost savings. If the rationale for buying power applies to the local setting, then greater buying power at the local level will lead to greater cost savings (H4.1).

H4.1. The greater buying power in the local market, the greater cost savings of the target and the acquirer properties.

However, if chain-specific resources are scarce in the local region but have to be procured locally, then more properties within the local region may actually increase the factor cost (Ingram and Baum, 1997). More members of the chain system within the local market may make coordination more costly (Olson, 1965). Thus, if the local friction argument prevails, a higher concentration of merged properties within the local market will have a negative impact on cost savings (H4.2).

H4.2. The greater buying power in the local market, the lower cost savings of the target and the acquirer properties.

The next hypotheses (H5 and H6) are motivated by the possible value creation through product extension from the merger and acquisition. The rationale for product extensions in the hospitality industry is to better meet more heterogeneous consumer tastes across the different product categories, i.e. luxury to budget tier (Tepeci, 1999). M&A is an important means for lodging firms to expand into a different product line. If customers are loyal to the firm and have needs for diverse lodging products, they will increase the share of cross-purchases within the brand family (Kim and Cha, 2002) instead of seeking the same or a substitute product from other firms. If this is the case, a combination of more heterogeneous products through acquisition will lead to a greater improvement in the occupancy rate through the spillover of customers across the target and the acquirer brands. This is tested in H5.1 as below:

H5. The greater the product distance between the target and the acquirer, the higher the occupancy rate of the target and the acquirer properties.

However, there is also a contrasting view which predicts detrimental effects of combining heterogeneous products into the product family, such as cannibalization or brand dilution (Loken, 1993). Numerous studies have reported that an extension into a similar product category results in more favorable consumer evaluations in the overall family brand image (Aaker and Keller, 1990; Boush and Loken, 1991; Park et al., 1991; Romeo, 1991). More specifically, increased consumer confidence in the firm contributes to a reduction of the risk involved with the product purchase, which in turn contributes to a price premium for the product provided by the firm (DelVecchi and Smith, 2005). Motivated by this premise, hypothesis H5.2 tests whether a combination of products that are more similar (i.e. lower product distance between the target and the acquirer) contributes to greater price improvements.

H6. A lower product distance between the target and the acquirer contributes to a higher price.

Hypothesis 7 tests the relationship between tender offers and post-acquisition performance. The theory of the market for corporate control claims that mergers and acquisitions replace inefficient managers of the target (Jensen and Ruback, 1983; Jenson, 1986). In particular, in tender offers where the acquirer directly approach to the target shareholder and typically the incumbent managers of the target are replaced, performance is found to be superior to that of non-tender offers (Betton et al., 2007; Bouwman et al., 2009; Jensen and Ruback, 1983; Jensen, 1986). H7 tests whether tender offers perform better than non-tender offers in the lodging industry in terms of operating performance of the target properties. The bidder, seeing that profits would be higher if different strategic choices were made on the target's current operation, acquires a controlling stake of the target from the stock market, takes the company

over, and enforces new profit-maximizing policies through the tender offer (Scherer, 1988). In the lodging industry, if such corporate level strategy is successfully implemented to the target corporation, the effect will be realized at the properties of the target. While most of lodging corporations do not directly manage all the properties, marketing and sales outreach at the national level, novel service concepts, enhanced purchasing power, and human resource management skills and know-how affect operating performance of the properties.

H7. The improvement of operating performance of the target properties is superior with tender offers.

In Hypothesis 8, the relationship between the market/industry environment and post-acquisition operating performance is examined. The performance extrapolation hypothesis predicts that mergers announced in high industry periods perform poorly in the post-acquisition period (Rau and Vermaelen, 1998). If the merger is driven by wrongly extrapolating the past performance into the future, it is likely that the expected synergy is overestimated. It follows that without solid grounds for actual generation of synergy, these deals that are announced during high industry cycles will perform poorly. This is tested in H9:

H8. Transactions announced in a high industry cycle perform poorly in the post-acquisition period.

Finally, Hypothesis 9 tests the relationship between synergy gains and the offer premium. Drawing from the resource-based theory of the firm, Laamanen (2007) argued that in spite of general criticism of excessive premiums, firms continue to pay

premium due to the existence of unique value-creating resource combinations that can be realized only through combining the target firm's resources with those of the acquirer. This view applies to the lodging industry as well. In the lodging industry, the resources of the target, i.e. established brand equity or location, are difficult to replicate or build in a short time. Thus, if the premium is consistent with value creation, it will show a positive relationship with the post-acquisition operating performance. The total synergy is the composite sum of the synergistic gains realized at the individual property level (cost savings, price gain, and so on) as well as at the corporate level (removing the overlapping functional areas). If higher premium is associated with the higher value of synergistic gains of the merged firm, the property performance at the micro level is expected to be positively associated with the premium. This is tested in Hypothesis 9.1.

H9.1. Offer premiums are positively associated with the post-acquisition operating performance of the target and acquirer properties.

Contrasting views argue that offer premiums are excessive and value-destroying, especially to the acquirer. The excessive premium can be driven by the free-rider problem (Grossman and Hart, 1986), winner's curse (Varaiya and Ferris, 1987), or manager's hubris (Roll, 1986; Malmendier and Tate, 2008; Moeller et al., 2004). Often, the underperformance of the acquirer's stock return surrounding the merger announcement is ascribed to the excessive premium paid to the target shareholders (Jarrell and Poulsen, 1989, Agrawal and Jaffe, 2000). If premium reflects a value-destructive motivation, then higher premiums will lead to more negative performance consequences. For this ground, Hypothesis 9.2 tests whether there is a

negative association between the size of the premium and the post-acquisition performance of the acquirer and the target.

H9.2. Offer premiums are negatively associated with the post-acquisition operating performance of the acquirer properties.

The list of hypotheses and the related theoretical/analytical framework are summarized in Table 2. Several points should be noted regarding these hypotheses. First, for Hypotheses 7 through 9, the outcome variable is overall operating performance. The theories do not pinpoint the specific outcome measures related to the tender offer or the offer premium. The regression analysis will actually uncover which measures are more closely related to these factors. In the lodging industry context, given the high proportion of franchising and management contracts, the main source of cash flow for the lodging firm is revenue and operating income, since these are the bases for the franchise fee and the incentive fees from the properties. Thus, it is conjectured that revenue and operating income measures will be more closely related.

Second, many empirical studies examined the payment method in relation to the abnormal stock return of the acquiring firm. It is well documented that bidders experience significantly negative abnormal returns when they pay for their acquisitions with equity. However, the impact of the stock payment is not included in this study. The rationale for the underperformance of stock-financed deals is that they signal that the acquirer share price is overvalued. Therefore, subsequent to the announcement, the market's correction leads to a negative abnormal announcement

Table 2. Hypotheses and related theoretical/analytical framework

Hypotheses	Related theoretical/analytical framework
A. Market Power	
H1. The price increase of the target and the acquirer properties is greater with the higher property growth induced by the merger.	Market power hypothesis
H2.1 The merger-induced market power in the local market is positively associated with the increase in price of the properties of the target and the acquirer.	Local cooperation
H2.2. Merger-induced territorial conflict in the local market is positively associated with a decrease in price of the properties of the target and the acquirer.	Local friction
B. Buying Power	
H3. The cost saving of the target and the acquirer properties is greater with the higher property growth induced by the merger.	Buying power hypothesis
H4.1. The cost saving of the target and the acquirer properties is greater with the higher buying power at the local market.	Local cooperation
H4.2 The cost saving of the target and the acquirer properties is lower with the higher buying power at the local market.	Local friction
C. Relatedness of Target and Acquirer	
H5 The higher the product distance between the target and the acquirer, the higher the occupancy rate of the target and the acquirer.	Cross-selling across heterogeneous product types
H6 The lower product distance between the target and the acquirer contributes to the higher price.	Product confidence
D. Tender Offer	
H7. The operating performance of the target properties is superior with the tender offer.	Market discipline
E. Industry environment	
H8. The transactions announced in a high industry cycle perform poorly in the post-acquisition period.	Performance extrapolation Managerial overconfidence
F. Premium	
H9.1. The offer premium is positively associated with the post-acquisition operating performance of the target and the acquirer properties.	Resource-based theory of firm
H9.2. Offer premiums are negatively associated with the post-acquisition operating performance of the acquirer properties	Management self-interest

return for the acquirer. There is no clear theoretical connection between the ex post realized synergy and the information contained in the method of payment.[13] As presented in the literature review, several studies included the financing method in their regression models testing post-acquisition operating performance, but no significant results were found in case of the stock-financed deals (Ghosh, 2001; Bouwman et al., 2010). Further, Heron and Lie (2002) concluded that there is no association between the method of payment and the acquirer's future operating performance.

In a similar vein, the private and public status of the firms is not included in the study. While research has been suggesting that the firm's status (especially the target's private status) conveys information that can affect the stock price of the acquirer, such a link is unclear about the actual operating performance of the merged firms.

Third, each hypothesis will be tested for the target and the acquirer properties separately. While the main interest is in the post-acquisition performance of the target and the acquirer, there is no theory specifying the direction of the impact for each counterfactual stand-alone entity after the merger.

Fourth, given that merger activities frequently occur in the lodging industry with various degrees and scales, previous merger experience was not included in the test. Similarly, the number of brands was not included either. Most of the target and the acquirer firms were shown to operate the multiple brands. The geographic expansion is commonly tested in the studies of mergers and acquisitions. In this study, the capacity concentration in the local market is examined along with the property

[13] If the deal is financed by debt, then interest expense can affect the net profitability of the merged firm. In operating performance studies, however, in order to exclude the impact of the financing method, operating income measures before interest expense (most typically EBITDA) are used. This study uses a similar measure.

growth. The geographic expansion (or overlap) is not expected to provide discernable information. Thus, this measure is not additionally constructed.

4.2 Variables: Definition and Construction

To facilitate the discussion in the rest of this dissertation, I define the variables in this section. The variables are grouped by the synergy outcome, synergy factor, and control variables. The outcome measures include price, quantity sold, profitability, and cash flow measures, specific to the lodging industry. The definitions of these variables are presented in Section 4.2.1.

It is crucial to evaluate the operating performance against the proper benchmark. Simply using the same firm's pre-merger performance will be unsatisfying since mergers may come in response to an industry shock that changes the prospects for overall firms in the industry (Andrade et al., 2004). In this study, the outcome variables are matched by the properties of the same product type and similar performance. I describe the process about how the peer-adjusted measures are constructed.

In the following section in 4.2.2, the variables related to the sources of synergy are defined. These variables include measures of market power and buying power at the national level and the local level, and the product distance between the target and the acquirer. The control variables are also discussed in this section. In the assessment of synergy creation by M&A, it is important to control for supply and demand conditions, which also affect price and performance of lodging properties.

In Section 4.2.3, moderators and control variables are discussed. Moderators include whether the deal is the tender offer or not; and whether the deal is announced in a high industry cycle or not. Since demand and supply conditions in the local market have profound impacts on the price and performance of the hotel properties,

additional control variables are considered in this study. Finally, in Section 4.2.4, the definitions of offer premium is presented. The list of the variables is summarized in Table 3 at the end of Section 4.2.4.

4.2.1 Synergy Outcome

Price, Quantity Sold, and Revenue. In the hotel industry, the industry term for price is average daily rate (ADR). Hotels charge various room rates depending on the customer segment, booking channel, time of year, day of the week, and so on. ADR is the average of these various rates at which rooms are sold. Formally, ADR is computed by the total annual room revenue divided by the total annual number of rooms sold. The market power hypothesis predicts that mergers and acquisitions will drive ADR higher, while the local friction argument predicts a negative impact of M&A on ADR.

Regarding the quantity of goods sold, the occupancy rate is used. Occupancy rate measures the percentage of rooms occupied on average during the year. Essentially, it represents the degree of capacity utilization in a lodging property. Formally, occupancy rate is computed by the annual number of rooms sold divided by the annual number total rooms available. If cross-selling is successfully achieved by M&A, the occupancy rate of the properties will improve after M&A.

Revenue per available room (RevPAR) is total annual revenue divided by the annual number of rooms. The difference between ADR and RevPAR is that while ADR is per room-sold basis, RevPAR is per room-available basis. In a way, RevPAR can be viewed as a measure of asset turnover which is defined by sales over average assets, where the assets are measured by the number of total rooms. It can be also shown that the above definition of RevPAR is equivalent to ADR multiplied by

occupancy rate. Thus, RevPAR effectively summarizes information of ADR and occupancy simultaneously.

Due to high fixed costs and small marginal costs combined with the perishable nature of the product (fixed room nights are produced each day regardless of demand, but unused inventory cannot be stored for later sale), revenue maximization is a more prevalent business goal in lodging operations rather than profit maximization. Thus, RevPAR is the most widely used performance metric in the lodging industry (Chung and Kalnins, 2001; Canina et al. 2005).

Profitability. Two profitability measures, gross profit margin and operating income margin, are used. Gross profit (*G_PROFIT*) is total revenue less the cost of goods sold divided by the total revenue. It captures changes in cost savings per revenue generated. The buying power hypothesis predicts that greater economies of scale generated by the mergers lead to greater buying power of the post-merger entity, which will result in an improvement in the gross profit margin.

Operating profit margin (*OI*) measures overall operating profitability per unit of sales generated, incorporating the managerial efficiency in the administrative and sales functions in addition to the cost savings but before paying out fixed charges. Operating profit margin is computed by the income before interest, taxes, depreciation and fixed charges divided by the total revenue. If M&A brings about a reduction in expenses through introducing better managerial or sales skills and practice, the operating profit margin will improve after M&A.

Operating Cash Flow Return on Assets. Instead of profitability, which measures the percentage of operating income over sales, operating cash flow return on assets measures the operating income per unit of assets. The most commonly used

measure of operating cash flow is operating income normalized by assets either by book value or market value, depending on the focus of the study. Typically, earnings before interest, depreciation, and amortization (EBITDA) are used as an income measure instead of net income in order to avoid any influence from the financing method of the deal or extraordinary items.

The income measure is usually normalized by the market value or the book value of the assets. Since information on the asset value of the property is not available, I used the annual room supply as a proxy for the size of the assets. Thus, the operating cash flow return (*OCFROA*) is defined by the income before interest, taxes, depreciation and fixed charges divided by the total annual room supply of the property.

Peer-Adjusted Measures. In the evaluation of a financial performance induced by any corporate event, it is crucial to control for industry performance. Raw variables are a noisy measure as it is not discernible whether the observed performance change is due to the event or other factors that affect the performance of the industry as a whole. For instance, Andrade and Stafford (2004) reported that mergers are responses to an industry-specific shock which result in an expansionary and contractionary role in the industry. Under this circumstance, the raw variables are likely to go up or down, which will disguise the impact of the acquisition.

As a control, researchers have used a peer group of companies that were not involved in mergers and then computed the performance of the merged firms relative to this control group. In many cross-sectional industry studies, the industry as a whole was used as the peer group (2- or 4-digit SIC), with the industry median (Andrade et al., 2001; Healy et al., 1992) excluding the merged firms. Barber and Lyon (1996) documented that in the event study framework the long-run operating performance is only well specified when sample firms are matched to firms of similar pre-event

performance within the same industry. Following Barber and Lyon's matching firm approach, the vast event study literature in finance has defined peer firms defined by the two-digit SIC code, similar size and pre-event performance.

In this study, a variant of Barber and Lyon's approach is employed. Specifically, peer properties are defined by the simultaneous consideration of performance (RevPAR) in the pre-acquisition year and product similarity (product type). One of the main purposes of this study is to evaluate the impact of the acquisition on the performance of the company, i.e. the realization of synergy. In order to isolate the synergy correctly, it is important to control for industry conditions that affect the performance of lodging properties overall.

One simple way to identify the direct rivals is to use product type. Products of the same type have similar overall outward characteristics which appeal to the same general customer set; similar types of products are produced from similar resources and capabilities (Peteraf and Bergen, 2003). Nevertheless, it is not an easy task to define the competitors of merged firms. Often firms operate in multiple business lines, or products can be defined very narrowly or broadly. The most commonly used metric is the 4-digit SIC industry codes. However, this unit does not always coincide with a single category of products and their substitutes (e.g. Eckbo (1983) discusses this issue briefly).

In this aspect, the hotel dataset has an advantage as the product type is relatively straightforward. While there are no uniform regulations that define hotel type, hotels are broadly categorized by luxury, upper-upscale, upscale, midscale with and without food and beverage facilities, and economy. In this study, the price segment scheme of Smith Travel Research (STR) is used as a proxy for the product type. More formal definitions of each of these product types are presented in Appendix.

For the matching year, three years prior to announcement was chosen. It is important that event firms must be matched to control firms at a time when the event firms are experiencing 'normal' performance (Barber and Lyon, 1996). The three year prior to the announcement year is expected to provide such normal performance of both event properties and the control properties. The detailed algorithm for choosing the peer properties is as follows:

1. Standard deviations of annual RevPAR were computed for Year -3 using all properties in the sample by product type and year.
2. For each focal property (target or acquirer properties whose peer properties need to be defined), a set of properties were selected from a pool of non-deal involved properties if they were the same product type as the focal property and their RevPAR is within plus or minus one standard deviation from the focal property.
3. In this set of properties, peer properties are only those properties that have data throughout Year -3 to +3.
4. In order to maintain a clean benchmark, the peer properties are restricted to those that are not involved in acquisitions before and after three years from Year -3.
5. For each year and property, peer-adjusted measures are defined by subtracting the peer-group median from the sample firm value. For example, peer-adjusted RevPAR of a firm is RevPAR of the focal hotel minus the median RevPAR of the product peers ($RevPAR_{peer}$), i.e. Peer-adjusted RevPAR (*A_RevPAR*) = RevPAR - $RevPAR_{peer}$

Further, performance change is defined by the peer-adjusted measures in Year +3 and Year -1. For example, peer-adjusted RevPAR change of the focal property is defined by:

Change of peer-adjusted RevPAR (*D_A_RevPAR*)

= Peer-adjusted $\text{RevPAR}_{t=+3}$ – Peer-adjusted $\text{RevPAR}_{t=-1}$

= ($\text{RevPAR}_{t=+3}$ – $\text{RevPAR}_{peer,t=+3}$) – ($\text{RevPAR}_{t=-1}$ – $\text{RevPAR}_{\text{peer},t=-1}$)

The difference-in-difference form of the above is intended to control for any time trends specific to the product type that would have occurred regardless of the acquisition. After such trends are removed, the peer-adjusted improvement measures better represent the synergy created by the acquisition. Still, it is likely that there are some latent factors that drive the properties to be selected into the sample of targets and acquirers. Such selection issues and other details of the estimation are discussed later in Chapter 7.

4.2.2 Sources of Synergy

Property growth. Property growth (*PR_GROWH*) at the national level is constructed by target and acquirer firm. In order to mitigate the scale difference, *PR_GROWH* is defined in terms of the logarithmic growth, which is computed by the natural log of the number of properties of the merged firm as of Year +3 minus the number of properties of the target (acquirer) as of Year -1. Year +3 is used to capture the stable state of post-acquisition operation after the integration is completed. A detailed rationale is given in the next chapter. This variable is constructed to test market power and buying power at the national level (H1 and H3).

Local Market Power. Before defining the measure for market power at the local level, we must first define the boundary of the local market. For the purpose of this study, the local market is defined as a tract unit within a metropolitan statistical

area. According to the U.S. Census Bureau, census tracts are small, relatively permanent statistical subdivisions of a county, which are delineated for most metropolitan areas and other densely populated counties.[14] For example, the Boston MSA is divided into 10 tracts (Canina et al., 2005). While counties and MSAs vary far too greatly in terms of size, zip codes are too small to capture local competition (Kalnins, 2004). Since tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions,[15] tracts serve as a more refined geographic unit for studying the local competition than MSAs, better reflecting the realistic options available to a consumer who desires to visit a particular location (Canina et al., 2005). The lodging competition at the local market level is engaged in relatively small geographic units, which are closely related to regional demand attractions. Thus, this study also uses the tract unit for the local competition.

A variable for the market power in a local market is constructed by the number of rooms of the chain system before and after the acquisition, normalized by the total number of rooms in the tract. Namely, the pre (post)-acquisition market power of the focal property is the number of all the properties of the chain system that the focal property belongs to over the total properties in the tract at Year -1 (+3). The change in the market power (*D_MP*) is then defined as the difference between the post- and pre-acquisition market power. This variable is related to Hypothesis 2.1 and 2.2, and Hypothesis 4.1 and 4.2, which test market power and buying power at the local level, respectively.

[14] From http://www.census.gov/geo/www/cen_tract.html viewed on Mar. 2010.
[15] From https://ask.census.gov/app/answers/detail/a_id/245/kw/tract viewed on Mar. 2010.

Product Extension. Another continuous variable, product distance (*P_DIST*), is defined at each deal level as the absolute difference between the weighted average of product type (measured by the price segment of the STR as mentioned in the previous section) of the target and the acquirer as of Year -1. The weighting scheme is as follows. Each product type is represented by a numeric value from 1 (luxury) to 5 (budget).

The product type of the acquirer firm is then computed by the summation of the product type times the number of properties in that product type over the total number of properties of the firm. The product type of the target firm is computed in the same way. The absolute difference of these measures between the target and the acquirer is defined as the product distance. This variable is constructed to test Hypotheses 5 and 6, which examine the relationship between product line extension and both cross-selling (H5) and brand confidence (H6). The cross-selling argument predicts that if a new product type becomes available through M&A, the firm may attract loyal customers with diverse demands. Thus, the product difference is positively associated with the performance improvement. In contrast, the brand dilution hypothesis predicts that adding more brands into the product line may dilute overall brand loyalty, which will negatively affect performance.

4.2.3 Moderators and Control Variables

In this section, two moderators and control variables are defined. The moderators include the indicator variables for the tender offers and deals announced in high industry cycles. While these are not the sources of synergy, these variables play a moderating role, i.e. a variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent variable (Baron and Kenny1986).

This study also defines various control variables. While the variables are matched by the product category, performance, and the year, peer-adjusted measures can still be affected by various factors such as local supply and demand condition where the property is located. In the lodging operation, the local market condition has a particularly significant impact on the performance of hotel properties. While one may attempt to construct the matching properties to incorporate these factors, the problem is that the narrower the criteria, it becomes more difficult or even infeasible to find the matching properties. Thus, instead, this study defines the peer by conceptually meaningful criteria, i.e. product competitors, and at the same time try to control these other factors in order to discern the impact of mergers and acquisitions more clearly.

Tender Offer. Hypothesis 7 predicts that the operating performance of the target and the acquirer properties will be superior with the tender offer. Thus, a dummy variable *TENDER* is constructed for the tender offers. *TENDER* is equal to one if the deal is identified as a tender offer and zero otherwise.

High Market. A dummy variable *ANN_HIGH* is constructed for deals announced in the high periods in the industry cycle. The purpose of this variable is to test the impact of the industry environment on performance (Hypothesis 8). Based on the notion that that RevPAR growth is explained by GDP (Slattery, 2002), a high market is determined by the relationship between GDP growth and RevPAR growth. First, using annual data from 1982 to 2010, RevPAR growth is regressed on GDP growth.[16] From this, predicted RevPAR and the standard deviation of the residual

[16] The data for RevPAR growth was obtained from the American Hotel and Lodging Association, which report annual industry performance for the properties in the U.S. with 15 or more rooms. The data for GDP growth was obtained from the U.S. Bureau of Economic Analysis.

(differences between the actual and predicted RevPAR) are computed. Then if the actual RevPAR is more than one standard deviation above the predicted RevPAR, that year is defined as a high year; if the actual is less than one standard deviation below the predicted RevPAR, that year is defined as a low year; otherwise, the year is defined as neutral. In all sample deals, the deals are either announced in a high or neutral year. Thus, the dummy variable is created only for high years.

Local Demand Condition. The local demand condition (*D_LOC_DM*) is defined by the changes in the local market occupancy rate between Year -1 and Year +3, using the tract unit as a definition of the local market. In each tract where the focal property is located, total number of room sold and room supplied are computed by aggregating all the properties within the tract except for the focal properties. Local market occupancy rate is then computed by the total room sold over the total room available in the tract.

Local Supply Condition. The local supply condition (*D_LOC_SP*) is defined by the percentage change in the room supply in the tract where the property is located between Year -1 and Year +3. This measure is computed by using all the properties within the tract excluding the focal properties.

Property Size. It is well-documented that the property size affects the performance of the hotels. Thus, property size is included in the most of lodging industry empirical studies (Baum and Mezias 1992; Ingram and Inman 1996, Canina and Enz, 2005). Although main variables (ADR, occupancy rate, RevPAR, profitability, and OCFROA measures) are per-room or per-sales basis and our interest is on the changes in these variables, preliminary analysis showed that still there is a

size impact. Thus, in this study, the size of the property is included in the analysis as the log of the annual room supply (*LOG_RM*). The logarithmic measure is used in order to mitigate the scale difference.

Location. Location is important performance driver of the hotel property. In this study, the location type is included in the model to control the location impact on the outcome variables. The location type has five categories, urban, suburban, high way, airport, and resort. According to O'Neill and Mattila (2006), the location type influences hotel's performance (measured by net operating income percentage), but the region does not significantly affect NOI. Thus, no other locational factors (such as U.S. regions or state) are included in the model.

Product Type. While the peer-adjusted measures are constructed by the properties of the same product type, the level of peer-adjusted measures across different product categories still express statistically significant difference for some outcome measures. In such cases, product type is also included in the model.

4.2.4 Offer Premium

The definition of offer premium varies by study. For example, Moeller et al. (2005) defined the premium as the value of the deal divided by the market value of the target 50 days prior to the announcement day while Betton et al. (2009) used the target share price on day -41 relative to the offer price. Since these studies are mainly focused on the acquirer's bidding strategy, the reference price goes back much earlier in order to reflect the value the shareholders attribute to the company before rumors which trigger a run-up.

Table 3. Description of variables, related hypotheses, and expected impact

Panel A. Synergy Outcome

Name	Description
ADR	Revenue / Number of rooms sold
Occupancy Rate (Occ)	Number of rooms sold /Number of rooms available
RevPAR	Revenue / Total Number of rooms available (= ADR*Occupancy rate)
Gross Profit Margin (G_Profit)	(Revenue – Cost of goods sold)/Revenue
Operating Income Margin (OI)	(Income before interest, tax, and depreciation) /Revenue
Operating Cash Flow Return on Assets (OCFROA)	(Income before interest, tax, and depreciation)/Number of Rooms Available

Panel B. Source of Synergy and Premium

Name	Description	Related Theory	Expected Relationship with Synergy Outcome
Product Distance (*P_DIST*)	Absolute value of weighted price segment difference between target and the acquirer	i) Cross-selling with heterogeneous demand	(+)
		ii) Dilution of loyalty	(-)
Property Growth (*PR_GROWH*)	Log of the number of the properties of the combined firm as of Year +3 over the number of properties of the firm as of Year -1	Market power and buying power at the national level	(+)
Change local market power (*D_LOC_MP*)	Change in the fraction of room inventory in the MSA tract	i) Market power and buying power at the local level	(+)
		ii) Cross-selling at the local market	(+)
		ii) Increased local friction	(-)
PREMIUM	$(p_{fin}-p_{-1})-1$	i) Unique synergy creation	(+)
		ii) Managers self-interest	(-)

Table 3 (Continued)

Panel C. Moderators of Synergy

Name	Description	Hypothesis	Expected Relationship with Synergy Outcome
TENDER	Dummy variable that equals one if the deal is tender offer and zero otherwise.	Managerial discipline	(+)
ANN_HIGH	Dummy variable that equals one if the deal is announced in the high year of the industry cycle, and zero otherwise.	The deal announced in the high industry cycle is likely to be driven by the agency problem. Thus, it performs poorly.	(-)

Panel D. Control Variables

Name	Description
Local Demand Condition (D_LOC_DM)	Change in aggregate room sold / aggregate room supply within the tract
Local Supply Condition (D_LOC_SP)	Percentage change in room supply within the tract
Property Size (LOG_RM)	Log of the annual room supply of the property
Location Type (LOCATION dummies)	1= urban, 2=suburban, 3=highway, 4=airport, 5=resort
Product Type (PRODUCT dummies)	1=luxury, 2=upscale, 3=midscale, 4=economy, 5=budget

The offer premium defined in this way contains the components of the acquirer's toehold, possibility of the target's resistance, the investor's expectations about the progress of the bidding, and potentially competing bidders' response on top of the initial bidder's assessment about the value of the target under the new management. In order to remove these factors, since the main focus of this study is the relationship between the offer premium and the post-acquisition synergy, the premium is defined as a the offer price as a percentage of the target's final offer price one day prior to the announcement of the deal, i.e. $(p_{fin}/p_{-1}) - 1$ where p_{fin} is the final offer price and p_{-1} is the stock price the day before the announcement. Essentially, this measure is the additional value that the acquirer manager is willing to pay on top of all the runups realized in the market. Thus, it better serves as a measure of the acquirer manager's view on the target as valuable resources or the manager's value-destroying motivation.

4.3 Event Study Structure

While the event study framework is widely used in applied work, there is no set rule that prescribes the construction of event windows. In studies of merger performance over a long horizon, Healy et al. (1992) used a five-year period before and after the deal, while Bouwan et al. (2007) used a two-year period. Others (e.g. Magenheim and Mueller (1988), Franks, Harris, and Titman (1991), Rau and Vermalelen (1998), and Ghosh (2001)) used a three-year post event window.

This study also uses a three-year period for two reasons. First, the study needs to isolate the impact of one takeover event without interference from other takeovers in the post-acquisition period. As mergers and acquisitions occur frequently in the lodging industry on various scales, a post-event window longer than three years would lead to dropping too many sample events.

Second, the study has to analyze the steady state of the operation after the completion of the transaction. Since one-time integration costs in the transition period can disguise the operating gains achieved shortly after the merger completion (Piloff and Santomero, 1998), researchers typically exclude Year 0 from the post-acquisition performance analysis (e.g. Healy et al., 1992), assuming that the integration is completed in Year 0. In hotel mergers, the integration phase is expected to be longer due to the geographically dispersed and highly decentralized operations. Some anecdotal examples support this notion about the integration procedure. For instance, in the merger of USFS Inc. by Pritzker Group, which is affiliated with the Hyatt Hotel chain, while the deal was completed in 2000 between the corporations, a vote was held in 2002 among the franchisees to decide whether or not to join Hyatt's loyalty program. According to the USFS bylaws, 66 percent approval was required from open hotels for any change in major cost items to franchisees.[17]

Given that synergistic gains are expected to be generated once the integration is completed, a three-year post-acquisition time frame appears to be adequate in the context of the lodging industry. In parallel to the three-year post-acquisition period, the pre-acquisition window is defined as the three years prior to the announcement. For the same consideration, performance change is defined by the change in peer-adjusted performance between Year -1 and Year +3 in order to reflect the post-acquisition performance in the stable state after the integration phase has passed.

[17] From Adams, Bruce. "USFS aims for 950 properties." *Hotel and Motel Management* April 1, 2002. The same source also reported that the cost of the points-based frequent stay program would impose a 6.75 percent assessment on franchisees.

CHAPTER 5
SAMPLE AND DATA

This chapter describes the sample and the data. In Section 5.1, data sources and the sample collection process are described. In Section 5.2, the final sample is described in a series of representation with respect to the industry environment and property characteristics. Once the final sample was established, all the necessary variables were identified or constructed. Section 5.3 briefly describes the explanatory variables that were obtained or computed from the sample data. Summary statistics for the offer premiums for the public targets are also presented in this section. Section 5.4 is devoted to the peer-adjusted performance measures, i.e. peer-adjusted ADR, occupancy rate, RevPAR, gross profit margin, operating income margin, and OCFROA by event year. In particular, the peer-adjusted measures are presented at the property level and at the firm level separately for the target and the acquirer as well as from the merged firm's perspective. The rationale for presenting both property-level and the firm-level analyses is provided in Section 5.4.

5.1 Data Sources and Sample

The primary data for the hotel properties were obtained from Smith Travel Research (STR) from 1991 to 2009. Smith Travel Research is an independent private company that specializes in lodging property data in the U.S. and North America. STR supplied two databases. The first consist of monthly room revenue, number of rooms available and rooms sold. For each property, the annual ADR, occupancy rate and RevPAR are computed by aggregating monthly room revenue, the number of rooms sold, and the number of rooms available. The database also provides the product type, location type, tract information, and chain affiliation of the hotel properties. For a

smaller subset of the hotel properties, annual revenue and expense data are available from The Hotel Operating Statistics (HOST) data of STR. According to STR, it is currently the most extensive database on the U.S. hotel industry.

Merger and acquisition information was collected from the SDC global mergers and acquisition database for the period of 1994 to 2006 in consideration of the event window structure (Year -3 to +3) and the availability of the hotel property data (1991 to 2009). The qualifying transactions were identified through the following criteria. First, the deal was completed. Rumored or unsuccessful deals were not included. Second, both the target and the acquirer were in the lodging industry, defined by the four-digit SIC of 7011. The REITs with paired-shared status, which have exclusive rights to operate the hotel properties, were included. A total of 1,736 deals were identified at this step. Third, only transactions that involved the whole unit of single or multiple lodging brands were included. This includes full-blown mergers between two corporations as well as the acquisition of a brand unit from another lodging firm (e.g. Starwood purchases the Le Méridien brand), but excludes transactions involving physical hotel properties between hotel-owning firms, or REITs without paired-shared status (e.g. Starwood purchases a single or group of Ritz-Carlton properties). As shown in Table 1 earlier, deals identified in step 2 are mostly asset transactions, i.e. transactions regarding an individual hotel property or a group of properties. After removing these deals, 58 transactions are identified.

Next, the STR datasets are matched with the SDC data. After this step, only transactions where the target or the acquirer was not resold within three years from the completion of the deal were maintained in the sample. This resulted in the final sample of 32 deals. Many deals were dropped as the target or the acquirer which purchased the targets was resold to another acquirer within three years from the completion date. Some of the offer premium data were not available from the SDC. In such cases, the

offer premiums were computed using the stock price from the CRSP daily database and the offer price from the various media sources.

5.2 Sample Description

Table 4 shows the number of deals by year in the final sample as well as various industry statistics by year. Panel A presents the industry environment of the sample period. The number of deals by year show a very similar pattern found in the overall M&A activities of the lodging industry, which were presented in Chapter 3. The sample also shows that the peaks in M&A activities are observed in the late 1990s (1995 to 1999) and mid 2000s (2005 and 2006), which also coincide with a strong industry RevPAR. Thus, although a relatively small number of deals are drawn from the total acquisitions in the lodging industry, the sample seems to be a reasonable representation of the merger activities in the lodging industry.

Panel B summarizes mean, median, standard deviation, minimum, and maximum of the raw price (ADR), occupancy rate, profitability, and cash flow measures by the target versus acquirer and by the product type as of one year before the announcement. A total of 11,358 property-year data are included in the acquirer group; a total of 2,522 property-year data are included in the target group. Among these properties, the profitability and cash flow return on assets measures were available for 1,797 property-year data for the acquirer group and 796 property-year data for the target group.

Table 4. Sample description

Panel A. Industry Environment during the Sample Period

Year of Announe-ment	Number of Deals in Sample	Industry Environment						
		Average Room Rate	CPI-Adj* ADR	Average Occupancy Rate	RevPAR**	CPI-Adj.* RevPAR	Industry Sales ($ billions)	CPI-Adj.* Industry Sales ($ billions)
1991	1	$58.08	$88.50	60.9%	$35.37	$53.90	$62.9	$95.85
1992	0	$58.91	$84.85	61.7%	$36.35	$52.35	$59.5	$85.70
1993	1	$60.53	$84.79	63.6%	$38.50	$55.66	$61.7	$85.43
1994	1	$62.86	$85.48	65.2%	$40.98	$57.14	$66.0	$89.06
1995	3	$66.65	$87.06	65.5%	$43.66	$59.98	$72.0	$93.04
1996	2	$70.93	$88.06	65.2%	$46.25	$59.88	$75.4	$92.78
1997	3	$75.31	$89.16	64.5%	$48.57	$59.66	$85.6	$99.74
1998	3	$78.62	$88.95	64.0%	$50.32	$59.20	$93.1	$103.95
1999	4	$81.33	$89.46	63.2%	$51.40	$59.50	$99.7	$107.09
2000	2	$85.89	$90.28	63.7%	$54.71	$60.91	$108.5	$111.83
2001	0	$88.27	$92.20	60.3%	$53.23	$57.92	$103.6	$104.90
2002	2	$83.54	$88.16	59.1%	$49.37	$54.65	$102.6	$104.49
2003	2	$82.52	$86.81	50.4%	$41.61	$45.74	$105.3	$111.17
2004	0	$86.23	$86.23	61.3%	$52.86	$56.96	$113.7	$110.49
2005	6	$90.88	$87.93	63.1%	$57.35	$59.15	$122.7	$113.11
2006	2	$97.78	$90.83	63.3%	$61.93	$57.53	$133.4	$123.92
Overall	32	$76.77	$88.05	$0.62	$47.65	$56.88	$91.6	$102.03

* Based on Consumer Price Index - All urban consumers not seasonally adjusted item: Other lodging away from home including hotels and motels by The U.S. Bureau of Labor Statistics.

** Average RevPAR of the U.S. lodging properties from American Hotel and Lodging Association

Table 4 (Continued)

Panel B. Sample Description by Product Type

The sample properties include properties in the year before the announcement. ADR, RevPAR and Operating Income per Room are CPI-adjusted with 2004=100. Product Type is as follows: 1=Luxury, 2=Upscale, 3=Midscale, 4=Economy, and 5 = Budget.

	Overall		**Acquirer**					**Target**				
	Acquirer	Target	Product Type					Product Type				
			1	2	3	4	5	1	2	3	4	5
N	11358	2522	1027	2831	4191	1980	1329	270	457	850	582	363
(% of total)			9.0%	24.9%	36.9%	17.4%	11.7%	10.7%	18.1%	33.7%	23.1%	14.4%
ADR												
N	11358	2522	1027	2831	4191	1980	1329	270	457	850	582	363
Mean	68.5	71.8	122.4	82.3	63.2	50	41.5	140.4	82.2	65.2	55.7	48.8
Median	61.4	62.2	113.9	77.8	59.9	48.3	40.9	131.1	75	62.8	53.5	48.2
St Dev.	27.8	32.7	36.3	20	14	8.1	6.2	43.6	23	13.1	9.8	10.4
Maximum	296.3	313	296.3	194	149	88.7	68.1	313	201	134	101	88.9
Minimum	23.6	23.6	63.4	50.4	42	34.2	23.6	63.8	52.4	44.7	34.6	23.6
Occupancy Rate												
N	11358	2522	1027	2831	4191	1980	1329	270	457	850	582	363
Mean	61.3%	67.9%	74.3%	66.2%	58.7%	55.5%	57.5%	73.3%	69.9%	66.6%	67.5%	65.4%
Median	61.9%	69.8%	75.6%	66.8%	58.8%	54.7%	58.4%	73.7%	71.2%	68.0%	69.7%	66.5%
St Dev.	14.3%	12.0%	8.9%	12.5%	13.7%	14.2%	14.1%	6.1%	10.6%	12.2%	12.6%	13.7%
Maximum	92.1%	95.1%	91.4%	92.0%	92.1%	90.3%	89.5%	88.5%	90.4%	92.9%	95.1%	91.4%
Minimum	21.1%	29.4%	44.0%	31.0%	26.4%	24.5%	21.1%	52.6%	35.1%	33.9%	33.9%	29.4%
RevPAR												
N	11358	2522	1027	2831	4191	1980	1329	270	457	850	582	363
Mean	43.6	49.5	91.2	55.3	37.6	28	24	103.5	57.6	43.8	37.5	31.6
Median	36.9	42.2	86.5	51.3	35.2	26.4	23.7	95.4	54.1	42.1	37.3	31.2
St Dev.	24.7	26.6	29.9	19.6	14.2	9.6	7.2	35.3	19.1	13.3	9.6	8.6
Maximum	231.8	265.1	231.8	147	115	66	47.4	265.1	147	108	75.8	60.2
Minimum	7.7	13	35.5	20.1	13.8	11.4	7.7	48.4	25.3	19.3	17.5	13
Gross Profit Margin												
N	1797	796	618	661	380	102	36	137	96	307	178	78
Mean	66.1%	71.4%	63.5%	66.8%	67.9%	70.3%	67.6%	65.3%	69.0%	72.0%	74.4%	76.0%
Median	67.5%	72.8%	61.5%	69.2%	70.1%	71.8%	69.2%	65.0%	71.5%	72.3%	76.5%	78.5%
St Dev.	9.4%	8.5%	9.3%	9.7%	8.4%	8.4%	8.9%	9.9%	8.3%	5.9%	8.8%	6.9%
Maximum	89.6%	89.2%	83.0%	83.7%	86.5%	89.6%	80.9%	83.0%	82.0%	89.2%	86.9%	84.9%
Minimum	35.7%	34.3%	43.0%	44.2%	43.4%	35.7%	45.0%	41.0%	46.0%	47.4%	34.3%	54.6%
Operating Income Margin												
N	1797	796	618	661	380	102	36	137	96	307	178	78
Mean	41.2%	47.7%	40.2%	41.9%	42.2%	42.4%	31.3%	41.6%	45.9%	49.4%	49.8%	49.2%
Median	41.7%	50.0%	39.0%	43.1%	43.7%	44.6%	32.8%	41.6%	49.5%	50.0%	52.5%	53.5%
St Dev.	11.5%	12.0%	10.8%	12.1%	11.3%	11.6%	10.5%	12.4%	11.1%	9.8%	13.9%	11.7%
Maximum	69.3%	71.2%	65.0%	69.3%	65.9%	67.4%	49.1%	65.0%	63.7%	71.2%	69.6%	65.8%
Minimum	-6.0%	4.0%	13.0%	9.1%	8.5%	-6.0%	9.0%	5.4%	14.1%	18.7%	4.0%	22.1%
Cash Flow Return on Assets												
N	1797	796	618	661	380	102	36	137	96	307	178	78
Mean	38.8	29.1	53.7	36.9	25.8	18.8	10.9	58.4	33.5	22.7	20.6	16.9
Median	36.2	23.6	50.1	36	23	18.2	9.6	52.8	29	21.3	20.9	17.8
St Dev.	20.9	19.7	20.8	16.2	12.8	7.8	6.8	24.9	16	9.4	8.4	6
Maximum	131.3	148.6	131.3	93.9	76.2	39.6	30.5	148.6	104	74.7	45.7	34.4
Minimum	-2.5	0.6	11.7	4.4	4.6	-2.5	1.6	9.9	9.3	4.8	0.6	2.5

Table 4 (Continued)

Panel C. Property Characteristics as of Year -1

	Acquirer		Target	
	Mean	Median	Mean	Median
Number of Brands	3.75	3.50	1.45	1.00
Number of Properties*	709.88	347.50	76.40	18.00
Number of States	37.81	44.00	14.24	10.00
Age (Years)*	34.77	23.00	24.35	17.00

Modes of operation	Number of Properties	Percent	Number of Properties	Percent
Owned	103	0.2%	78	1.6%
Managed	3133	14.1%	1440	29.5%
Franchised	13648	85.7%	3368	68.9%

* Since the data does not cover the entire universe of lodging properties, information on the number of properties of the lodging firm are collected from 10-K reports, the industry media (The Brand Report, *Lodging Hospitality*), and database search (Factiva). Firm age is collected from the same sources.

Comparing the overall acquirer to the target, ADR, occupancy rate, RevPAR, and profitability measures (gross profit margin and operating income margin) are slightly higher for the target than for the acquirer. Although the operating cash flow return on assets show a lower value for the target properties, this seems to be driven by the lower performance of the upscale and midscale properties of the target as shown in the data by product type. While the managerial discipline hypothesis argues that M&A is intended to improve poorly performing firms by replacing inefficient management of the target, this result does not appear to support the claim. Agrawal and Jaffe (2003) also found little evidence that target firms were performing poorly prior to the acquisition.

Panel C shows the number of brands, properties, and states where properties are present as well as the firm age and the modes of operation as of one year before the announcement. The acquirer firms have more brands (3.75 in mean) than the target firms (1.45 in mean) in broader geographic areas (on average in 37.81 states) than the target (on average in 14.24 states). In addition, as expected, acquirer firms have more properties in their systems (709.88 properties in mean) than do target firms (76.40 properties in mean). Thus, the property growth realized by the merger will be much bigger for the target side than for the acquirer side. Acquirers are also shown as more mature firms (average age of 34.76) than the target firms (or brands) (average age of 24.35). This observation is consistent with the life cycle view of the mergers and acquisition, which claims that the mature acquirers are more willing to participate actively in mergers and acquisitions (Owen and Yawson, 2010). The modes of operation shows that franchised properties account for an absolute majority for both acquirer and target firms (80.8% overall, 85.7% for acquirer, and 68.9% for the target in mean). This indicates that for the lodging corporations in the sample, the franchise fees from the properties constitute a major portion of operating cash flows. Franchise

fees are determined as a fixed percentage of the room revenue of a franchised property. In management contracts, base fees are tied to gross revenue, and incentive fees are tied to profits (deRoos, 2010). Thus, the financial performance of a hotel corporation is critically dependent on the revenue of the member hotel properties. Among the variables defined earlier, RevPAR measures the revenue in per-room basis. Thus, the analysis will examine the change in RevPAR thoroughly in the discussion.

5.3 Explanatory Variables

This section presents the descriptive statistics for the major explanatory variables, i.e. property growth, changes in local market power, changes in local demand and supply, number of rooms, and product type. The property characteristics shown in the previous section (Table 4 Panel C) indicated that the acquirer and target properties are not alike in terms of the number of brands and properties, the geographic presence, and the firm age. These findings lead to an expectation that the explanatory variables mentioned above may also exhibit differences between the target and the acquirer properties.

In Table 5, the property growth between Year -1 and Year +3 (*PR_GROWH*), shows that the target has a much greater growth (0.94) than that of the acquirer (0.26). As shown earlier, target firms have a much smaller number of properties prior to the merger, and thus the property growth impact is bigger on the target side.

The change in the market power at the local level between Year -1 and Year +3 (*D_LOC_MP*) shows a slight negative change on average overall (-0.53% in mean and -0.06% in median). This means that on average, the fraction of the total room inventory accounted for by the sample properties within the tract declined from Year -1 to Year +3, although the change is small. So, it appears that new properties opened on average in these locations. While the mean reduction is shown to be bigger for the

acquirer properties, the median reduction shows an opposite result. This is because there are a few acquirer properties experiencing a relatively high reduction in the local market power, dragging the mean down.

For the local market demand and supply conditions, the local demand change (*D_LOC_DM*) shows a slight reduction for both target and acquirer properties in the tract. The target group (-0.029) shows a lower reduction than the acquirer group (-0.039). In contrast, for the local market supply condition, the local supply change (*D_LOC_SP*) shows a slight increase in the room supply in the local market, with the target properties showing a higher figure (0.15) than those of the acquirer (0.09).

The gap between the supply change and the demand change is greater for the target properties. Since the supply change is the change in the number of room and the demand change is the occupancy rate, the lower occupancy growth means that the supply growth exceeds the increase in demand in the local market. When the rate of supply growth exceeds the increase in demand, the market tends to be oversupplied and hotel occupancies decline (Rushmore and Goldhoff, 1997). This result again confirms the importance of controlling for the local demand and supply factors. The target properties may show different performance pattern from that of the acquirer not because of the impact of the merger, but because of certain locational attributes. For example, supporting the different local market dynamics and cyclical demand and supply patterns, Rushmore et al. (1997) argued that in the early 1990s, the southern California cities were the last to feel the downturn, but these markets showed lagged the recovery in the subsequent upturn. With respect to property characteristics, target properties are shown to be slightly bigger in terms of the number of rooms. In terms of the product type, both target and acquirer properties are centered in the midscale category.

Table 5. Descriptive statistics for independent variables*

	Overall	Acquirer	Target
Property Growth (*PR_GROWH*)			
N	13325	11476	1849
Mean	0.35	0.26	0.94
Median	0.11	0.11	0.25
SD	0.63	0.44	1.13
Minimum	0.04	0.04	0.04
Maximum	3.49	2.75	3.49

	Overall	Acquirer	Target
Change in Local Market Power (*D_LOC_MP*)			
N	9990	8261	1729
Mean	-0.53%	-0.62%	-0.06%
Median	-0.06%	-0.03%	-0.23%
SD	3.98%	3.94%	4.10%
Minimum	-31.89%	-31.89%	-18.46%
Maximum	19.01%	15.80%	19.01%

	Overall	Acquirer	Target
Change in Local Demand (*D_LOC_DM*)			
N	12974	11230	1744
Mean	-0.038	-0.039	-0.029
Median	-0.042	-0.044	-0.032
SD	0.072	0.072	0.075
Minimum	-0.335	-0.335	-0.265
Maximum	0.279	0.279	0.209

	Overall	Acquirer	Target
Change in Local Supply (*D_LOC_SP*)			
N	12974	11230	1744
Mean	0.099	0.091	0.155
Median	0.018	0.018	0.028
SD	0.418	0.411	0.457
Minimum	-0.959	-0.959	-0.504
Maximum	15.442	15.442	6.881

	Overall	Acquirer	Target
Number of Rooms (*LOG_RM*)			
N	13151	11358	1793
Mean	10.47	10.42	10.79
Median	10.46	10.30	10.70
SD	0.63	0.64	0.44
Minimum	9.30	9.30	9.73
Maximum	12.30	12.30	12.30

	Overall	Acquirer	Target
Product Type (*PRODUCT*) (1=luxury, … 5 = budget)			
N	13325	11476	1849
Mean	2.98	2.98	2.96
Median	3	3	3
SD	1.14	1.12	1.23
Minimum	1	1	1
Maximum	5	5	5

* Differences between target and acquirer are significant at 1% level except for price segment, which is insignificant.

Table 6. Offer premium for the public target

Table 6 presents the mean (median) run-up and final offer premium of the public targets defined by $p_{-1}/p_{-42} - 1$ and $p_{offer}/p_{-1} - 1$, respectively. Superscripts indicate the level of significance of the one-sided test: a indicates significance at the 10% level, b indicates significance at the 5% percent level and c indicates significance at the 1% level.

	Run-up $p_{-1}/p_{-42} - 1$ N = 14	Final Offer Premium $p_{offer}/p_{-1} - 1$ N = 14
Mean	8.48% [b]	27.43% [a]
Median	11.39% [b]	23.47% [a]
Standard Deviation	13.35%	24.84%
Max	29.17%	94.29%
Min	-17.77%	3.07%

Finally, Table 6 summarizes the offer premiums for the public targets in the sample. Both runups ($p_{-1}/p_{-42} - 1$) and post-runup final offer premiums ($p_{offer}/p_{-1} - 1$) are computed. Following Betton et al. (2008), the runup is measured by the stock price of price prior to 42 trading days before the announcement (p_{-42}) and one trading day prior to the announcement (p_{-1}). The run-up is shown as 8.48% for mean and 11.39% for median. The offer premium is 27.43% for mean and 23.47% for median. These results indicate that the stock price of the target on average increased 8.48% from day -42 to day -1 and the final bid price jumped 27.43% from day -1 to the final offer price on the announcement date. In a study using cross-sectional market-wide data over the period between 1980 and 2002, Betton et al. (2008) reported[18] that the mean runup and final offer premium for successful bids were 14.5% and 27.8%, respectively.

[18] The final offer premium in this paper ($p_{offer}/p_{-1} - 1$) is referred to as "markup" in Betton et al. (2008).

The average final offer premium of this lodging industry sample is remarkably similar to the results found in the market wide cross-sectional study of Betton et al. (2008). However, the average runup in this study is lower than that found by Betton et al. (2008). Runups reflect the additional information conveyed by the takeover of the target's fundamental or stand-alone value (Schwert, 1996), while the offer price fundamentally reflects the value of synergy (Betton et al., 2008).

If the market already has a good estimate of the stand-alone value of the target, the run-up may not be very high. In the lodging industry, there may be a low degree of uncertainty regarding the current supply of rooms, the future development pipeline, and the demand forecasts in the local market since they are relatively well-known. As these supply and demand factors are critical to project the future cash flows of the lodging operation, it may be the case that there is a relatively lower surprise component in the merger related news compared to other industries with higher uncertainty regarding the product development and competition. Nonetheless, the lower runup may not necessarily indicate a lower final offer premium. Because of the unique non-replicable nature of the resources of the target, the synergy value to the merged firm can be still as high as that of the overall market level.

5.4 Peer-Adjusted Measures

This section delves into the peer-adjusted ADR, occupancy rate, RevPAR, gross profit margin, operating income margin, and OCFROA measures by event year. In Section 5.4.1, the mean and median of each peer-adjusted variable are examined at the property level. The purpose of this analysis is to identify the general patterns over the event horizon. Since the peer group consists of the product competitors with similar performance, the peer-adjusted measures represent the relative competitive position of properties within the industry. While these year-by-year measures are

computed as a preliminary step to construct the performance change, which is defined by the difference between Year -1 and Year +3, the analysis by event year itself provides useful information about the pre- and the post-acquisition competitive conditions of the target and the acquirer. Such information helps illuminate the underlying nature of the merger by revealing the competitive strengths of each party.

While this study focuses on the synergistic impacts at the property level, firm-level analyses are also performed by aggregating the property data. The results are presented in Section 5.4.2. The biggest difference between the property-level measures and the firm-level measures is that at the property-level, each of the properties are equally weighted, i.e. big properties and small properties are treated equally, while at the firm level, small-sized properties have proportionally less weight. Merger decisions are made at the corporate level and eventually the aggregate synergy measure enters the decision-making process. Thus, the aggregate analysis provides meaningful information regarding the performance of mergers and acquisitions.

The firm-level analyses are further broken down into an analysis that separates the target and acquirer and an analysis of the target and the acquirer aggregated. The former provides insights into the separate firm-level post-acquisition performance trends of the target and the acquirer. The question of value creation after the merger evaluates the post-acquisition performance of the merged firm. To make the evaluation comparable, the post-acquisition performance is compared with the pre-acquisition performance of the aggregate target and the acquirer. Thus, the latter analysis illustrates the performance of the aggregate combined entity in the pre- and post-acquisition period. The weighting scheme is presented in Section 5.4.2 in detail.

In all of the analyses, the raw variables are Winsorized at the first and 99th percentiles in order to control for the influence of extreme values. All dollar variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars.

5.4.1 Property-Level Analysis

Table 7 presents the peer-adjusted measures for the target and the acquirer properties. In Panel A, which shows the mean and median by event year from -3 to +3, it is first noted that the target and the acquirer properties maintain overall consistent signs within each measure. This pattern suggests that there are no drastic changes in the competitive position before and after the merger, although values do change. The discussion in this section is organized by each peer-adjusted measure.

For the peer-adjusted ADR, both the target and the acquirer properties show negative signs throughout the event years, meaning that these properties charged a lower price than their product competitors. Hotels often attempt to lower their price compared to their competitors to win customers. If this strategy is successful, the peer-adjusted occupancy rate will show a positive sign for both the target and the acquirer properties. In Panel A, the target properties indeed show significantly positive peer-adjusted occupancy rates throughout the event years. However, the acquirer properties show mixed signs in the mean, although the median is consistently positive.

ADR and occupancy rate jointly affect RevPAR. According to Enz, Canina, and Lomano (2009), the lower price relative to competitors does not boost the occupancy rate enough to increase revenue. For revenue to increase, demand should be quite elastic so that a small cut boosts the demand substantially. In general, this is not the case for the lodging products. Consistent with this notion, the acquirer group shows significantly negative or insignificant results in peer-adjusted RevPAR. However, the target properties show consistently positive peer-adjusted RevPAR throughout the event years.

In order to verify whether the observed differences in value between the target and the acquirer group are statistically meaningful or not, the group differences in

each measure are also analyzed. The results are depicted in Panel B. The values are presented as the acquirer's measure minus the corresponding target's measure for each peer-adjusted variable by event year. The differences are significant except for the peer-adjusted ADR and the peer-adjusted OCFROA.

No statistical differences in peer-adjusted ADR between the target and the acquirer mean that both target and acquirer properties offered the same degree of price discount relative to their peers. However, this pricing tactic led to a positive impact on the RevPAR only for the target group. These findings suggest that the target properties are quite competitive in terms of RevPAR performance.

The profitability and cash flow measures are only available for a much smaller subset of the data. The peer-adjusted gross profit margins are significantly positive for both target and acquirer properties. Further, as Panel B shows, the acquirer's measure is significantly higher than the target's except for Year +3, indicating superior cost efficiency of the acquirer group especially in the pre-merger period.

Since the acquirers were shown to have more properties in their system than the targets, they are expected to exert greater buying power. In Year +3, the target properties show a substantial improvement in the peer-adjusted gross profit margin, suggesting a possible synergy impact from the M&A. Such performance improvements will be discussed in detail in a later chapter.

Table 7. Peer-adjusted performance measures: Property level

The pre-merger period is the years before the announcement and the post-merger period is the years after the completion of the merger. The peer group is same-product type with similar RevPAR excluding the properties that were involved in the acquisition before or after the three-year period for the given year. The peer-adjusted variables are calculated from the observations that are Winsorized at the 1st and 99th percentile. All non-ratio variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars. Superscripts a, b, and c indicate significance at the 1, 5, and 10% level of the two-sided t-test for mean and Wilcoxon-Mann-Whitney test for median.

Panel A. Performance by each year

	Acquirer Properties							Target Properties						
	Yr -3	Yr -2	Yr -1	Yr 0	Yr+1	Yr+2	Yr +3	Yr -3	Yr -2	Yr -1	Yr 0	Yr+1	Yr+2	Yr +3
Peer-Adjusted ADR														
N	11355	11356	11356	11356	11359	11360	11361	1821	1820	1820	1820	1815	1814	1813
Mean	-2.52 [a]	-2.45 [a]	-2.53 [a]	-3.02 [a]	-3.13 [a]	-3.09 [a]	-2.71 [a]	-2.22 [a]	-2.57 [a]	-3.43 [a]	-4.25 [a]	-4.14 [a]	-4.42 [a]	-4.92 [a]
Median	-2.92 [a]	-2.67 [a]	-2.47 [a]	-2.73 [a]	-2.91 [a]	-2.83 [a]	-2.57 [a]	-2.63 [a]	-2.68 [a]	-3.62 [a]	-3.44 [a]	-3.10 [a]	-3.46 [a]	-3.69 [a]
Peer-Adjusted Occupancy Rate														
N	11355	11356	11356	11356	11359	11360	11361	1821	1820	1820	1820	1815	1814	1813
Mean	0.8% [a]	0.0%	-0.5% [a]	-0.8% [a]	-0.2% [c]	0.0%	0.9% [a]	4.0% [a]	4.3% [a]	5.3% [a]	5.0% [a]	3.8% [a]	4.8% [a]	5.5% [a]
Median	1.4% [a]	0.7% [b]	0.4%	0.5% [c]	1.0% [b]	1.0% [a]	1.6% [a]	4.5% [a]	5.0% [a]	5.9% [a]	5.5% [a]	4.7% [a]	5.5% [a]	6.6% [a]
Peer-Adjusted RevPAR														
N	11355	11356	11356	11356	11359	11360	11361	1821	1820	1820	1820	1815	1814	1813
Mean	-0.55 [a]	-0.71 [a]	-0.93 [a]	-1.14 [a]	-0.96 [a]	-0.70 [a]	0.13	1.48 [a]	1.74 [a]	1.64 [a]	1.06 [a]	0.26	1.00 [a]	1.38 [a]
Median	-0.31 [a]	-0.83 [a]	-1.23 [a]	-1.41 [a]	-1.28 [a]	-1.23 [a]	-0.44 [c]	2.47 [a]	2.26 [a]	1.95 [a]	1.71 [a]	1.06 [b]	1.45 [a]	1.58 [a]
Peer-Adjusted Gross Profit Margin														
N	529	529	528	528	528	529	529	184	184	184	184	183	184	183
Mean	3.9% [a]	4.6% [a]	3.8% [a]	4.1% [a]	2.4% [a]	3.7% [a]	2.7% [a]	2.3% [a]	2.3% [a]	2.7% [a]	2.2% [a]	1.7% [a]	1.5% [b]	11.0% [a]
Median	4.3% [a]	4.1% [a]	3.5% [a]	4.2% [a]	1.4% [a]	3.1% [a]	3.0% [a]	0.9% [a]	0.3% [b]	1.2% [a]	0.8% [a]	0.7% [b]	-0.2%	11.4% [a]
Peer-Adjusted Operating Income Margin														
N	529	529	528	528	528	529	529	184	184	184	184	183	184	183
Mean	7.1% [a]	7.3% [a]	7.2% [a]	5.9% [a]	4.6% [a]	3.9% [a]	4.1% [a]	10.0% [a]	11.4% [a]	9.1% [a]	9.4% [a]	5.8% [a]	6.4% [a]	10.8% [a]
Median	7.8% [a]	7.1% [a]	7.7% [a]	8.1% [a]	5.0% [a]	3.8% [a]	4.8% [a]	11.3% [a]	12.6% [a]	9.3% [a]	10.2% [a]	6.5% [a]	6.5% [a]	10.9% [a]
Peer-Adjusted Operating Cash Flow Return on Assets														
N	529	529	528	528	528	529	529	184	184	184	184	183	184	183
Mean	7.64 [a]	6.67 [a]	8.05 [a]	7.71 [a]	4.17 [a]	2.33 [a]	2.87 [a]	2.65 [a]	3.97 [a]	2.95 [a]	2.19 [a]	0.54	0.01	3.12 [a]
Median	7.53 [a]	5.59 [a]	7.58 [a]	6.89 [a]	2.26 [a]	1.28 [a]	2.27 [a]	3.42 [a]	3.48 [a]	2.71 [a]	3.01 [a]	-0.06	-0.56	1.54 [a]

Table 7 (Continued)

Panel B. Difference between Acquirer and Target Properties

	Acquirer minus Target						
	Yr -3	Yr -2	Yr -1	Yr 0	Yr+1	Yr+2	Yr +3
Peer-Adjusted ADR							
Mean	-0.30 [c]	0.12 [c]	0.90	1.23	1.01 [c]	1.33	2.21
Median	-0.29 [a]	0.01 [a]	1.15	0.71	0.19 [a]	0.63	1.12
Peer-Adjusted Occupancy Rate							
Mean	-3.20% [a]	-4.30% [a]	-5.80% [a]	-5.80% [a]	-4.00% [a]	-4.80% [a]	-4.60% [a]
Median	-3.10% [a]	-4.30% [a]	-5.50% [a]	-5.00% [a]	-3.70% [a]	-4.50% [a]	-5.00% [a]
Peer-Adjusted RevPAR							
Mean	-2.03 [a]	-2.45 [a]	-2.57 [a]	-2.2 [a]	-1.22 [a]	-1.7 [a]	-1.25 [a]
Median	-2.78 [a]	-3.09 [a]	-3.18 [a]	-3.12 [a]	-2.34 [a]	-2.68 [a]	-2.02 [a]
Peer-Adjusted Gross Profit Margin							
Mean	1.60% [a]	2.30% [a]	1.10%	1.90% [a]	0.70% [a]	2.20% [b]	-8.30% [a]
Median	3.40% [a]	3.80% [a]	2.30% [c]	3.40% [a]	0.70% [a]	3.30% [b]	-8.40% [a]
Peer-Adjusted Operating Income Margin							
Mean	-2.90% [a]	-4.10% [a]	-1.90% [a]	-3.50% [a]	-1.20% [a]	-2.50% [a]	-6.70% [a]
Median	-3.50% [a]	-5.50% [a]	-1.60% [a]	-2.10% [a]	-1.50% [a]	-2.70% [a]	-6.10% [a]
Peer-Adjusted Operating Cash Flow Return on Assets							
Mean	4.99 [a]	2.7 [b]	5.1 [a]	5.52	3.63	2.32	-0.25
Median	4.11 [a]	2.11	4.87 [b]	3.88	2.32	1.84 [c]	0.73

The peer-adjusted operating income margin is also positive for both acquirer and target properties throughout the event period year. Between the target and the acquirer, target properties have a significantly higher peer-adjusted operating income margin, suggesting that the target is already operating better than the acquirer with some degree of operating efficiency.

Finally, peer-adjusted operating cash flow return on assets shows overall positive signs for both the target and the acquirer. Moreover, in the pre-acquisition years (up to Year -1), the acquirer's value is significantly higher than the target's. However, Panel B shows that in the post-acquisition period, the difference between the target and the acquirer is insignificant. Thus, the acquirer's competitive advantage relative to the target appears to dwindle toward Year +3, although peer-adjusted operating cash flow return on assets still remains in the positive range.

In sum, the peer-adjusted measures by event year show that the target properties have superior peer-adjusted RevPAR performance thanks to the strong occupancy rate, while the acquirer properties have superior peer-adjusted gross profitability. Both the target and the acquirer group show overall robust operating cash flow performance relative to their peers. While the acquirer group shows superior operating cash flow performance compared to the target group in the pre-acquisition period, the difference becomes insignificant toward the post-acquisition period. As in other studies (Ravenscraft and Scherer, 1989; McGuckin and Nguyen, 1995; Agrawal and Jaffe, 2003), the target does not appear to underperform prior to the merger, which contradicts the argument that, among many reasons for mergers, the takeover occurs in order to improve the underperforming target firms through more efficient management.

5.4.2 Firm-Level Analysis

Table 8 illustrates the peer-adjusted measures on an aggregate basis by firm. In each deal, the performance measures are computed by aggregating the property data for the target and for the acquirer firm. For example, an acquirer's ADR in year *t* is computed by the aggregate room revenue over the aggregate rooms sold for all the properties of the acquirer firm in that year, i.e. by treating the firm as one big hotel property. For the peer group, the peer properties of the acquirer are aggregated in the same manner. All the other measures (occupancy rates, RevPAR, and so on) are computed in the same way.

Some of the peer-adjusted measures show a different pattern at the firm level compared to the property-level analysis. In Table 8, both the target and the acquirer group display insignificant results in peer-adjusted ADR, which is in contrast with the negative results for both groups in the property-level analysis. For the peer-adjusted occupancy rate, both groups show positive results in Table 8. Together with the insignificant peer-adjusted ADR at the firm level for both, these results indicate that at the firm level, both the target and acquirer achieved higher occupancy rates by charging the same price as their product peers. For the peer-adjusted RevPAR, the acquirer firms show significantly positive results throughout the event period; the target firms also show positive results, but they are significant only in the pre-acquisition years. In the property-level analysis, the acquirer showed mostly negative results in peer-adjusted RevPAR while the target showed positive results.

Table 8. Peer-adjusted aggregate performance measure: Firm level

The pre-merger period is the years before the announcement and the post-merger period is the years after the completion of the merger. Property-level data are aggregated by the firm. Peer group performance is constructed by aggregating the peer properties. The peer-adjusted variables are calculated from the observations that are Winsorized at the 1st and 99th percentile. All non-ratio variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars. Superscripts a, b, and c indicate significance at the 1, 5, and 10% level of the two-sided t-test for mean and Wilcoxon-Mann-Whitney test for median.

	Acquirer							Target						
	Yr-3	Yr-2	Yr-1	Yr0	Yr+1	Yr+2	Yr+3	Yr-3	Yr-2	Yr-1	Yr0	Yr+1	Yr+2	Yr+3
Peer-Adjusted ADR														
N	17	17	17	17	17	17	17	31	31	31	31	31	31	31
Mean	0.6	-0.2	0.4	-1.0	1.2	2.8	2.1	3.8	2.5	0.6	1.9	0.8	-1.1	-2.2
Median	0.9	0.3	0.2	0.3	0.3	2.9	1.0	-0.6	0.7	-1.2	-1.8	-0.9	-1.0	-3.6 [c]
Peer-Adjusted Occupancy														
N	17	17	17	17	17	17	17	31	31	31	31	31	31	31
Mean	3.0% [b]	2.6% [c]	2.2% [c]	2.0% [c]	3.1% [b]	4.5% [a]	3.8% [a]	4.1% [a]	3.0% [b]	3.7% [b]	3.2% [b]	2.6% [c]	2.8% [c]	2.8% [c]
Median	2.2% [b]	1.2% [b]	1.2% [c]	1.7% [c]	3.2% [b]	4.3% [a]	4.2% [a]	4.6% [a]	3.9% [b]	3.7% [b]	3.0% [c]	0.7%	3.1% [c]	2.8%
Peer-Adjusted RevPAR														
N	17	17	17	17	17	17	17	31	31	31	31	31	31	31
Mean	3.1 [a]	2.2 [a]	2.5 [b]	1.3	4.1 [a]	5.7 [a]	4.9 [a]	3.8 [a]	2.8 [b]	2.9	3.2 [c]	2.2	1.8	0.6
Median	3.0 [a]	1.7 [b]	2.6 [b]	0.1	2.5 [b]	4.9 [a]	4.4 [a]	3.4 [a]	2.2 [a]	1.8 [c]	1.4	0.3	3.1	0.9
Peer-Adjusted Gross Profit Margin														
N	12	12	12	12	12	12	12	8	8	8	8	8	8	8
Mean	1.0%	1.5%	1.2%	1.4%	2.0% [b]	2.8% [b]	3.6% [a]	7.0%	3.2%	3.3%	5.5% [b]	5.1% [c]	6.0% [b]	7.9% [a]
Median	1.3%	0.7%	1.3%	1.3%	1.8% [b]	2.1% [b]	3.5% [a]	6.1%	2.3%	0.6%	5.4% [c]	2.7% [a]	4.8% [b]	7.6% [a]
Peer-Adjusted Operating Income Margin														
N	12	12	12	12	12	12	12	8	8	8	8	8	8	8
Mean	4.1% [b]	4.4% [b]	4.7% [b]	4.3% [b]	5.6% [a]	5.6% [a]	7.0% [a]	12.6%	7.2%	6.7%	10.0% [a]	7.8% [a]	10.3% [a]	9.7% [a]
Median	4.4% [b]	3.9% [b]	5.4% [a]	4.2% [b]	6.5% [a]	6.1% [a]	7.3% [a]	11.3%	7.0%	5.7%	11.6% [b]	7.1% [a]	8.2% [a]	11.0% [a]
Peer-Adjusted Operating Cash Flow Return on Assets														
N	12	12	12	12	12	12	12	8	8	8	8	8	8	8
Mean	0.4	0.0	2.1	-1.0	0.1	0.8	3.7	2.5	-0.3	-0.8	-3.5	-3.9	-0.2	-1.2
Median	1.2	-1.9	-0.6	-2.2	-3.2	-2.9	0.9	0.0	1.1	0.9	-1.1	-2.9	0.5	-2.3

The differences between the firm-level and the property-level analysis indicate that there is a size effect in the performance. The size effect was statistically verified as well by dividing the properties by size quintile. For example, for the peer-adjusted RevPAR, the acquirer group showed that a large number of small properties perform poorly and a small number of very big properties perform well. Since the size effect is not the main focus of this paper, the results of this quintile analysis are not reported herein.

Thus, when the properties are aggregated disproportionately into the firm, the firm-level mean and median can be different from the results obtained in the property-level mean and median. Commenting on the size effect, McGuckin and Nguyen (1995), who examined the post-acquisition productivity change, stated that the productivity aggregated at the firm level may hide important information on the productivity of each of the components of the firm.

For the remaining profitability and cash flow measures, the peer-adjusted gross profit margin shows that the acquirer group has significantly positive results throughout the event years, and the target group has significantly positive results in the post-acquisition period but non-significant results in the pre-acquisition period, again suggesting possible cost-savings benefits from the merger. For the peer-adjusted operating income margin, the acquirer group exhibits consistently positive peer-adjusted operating income margin, demonstrating operational efficiency. The target group again shows insignificant results in the pre-acquisition period and significantly positive results in the post-acquisition period. For the peer-adjusted cash flow return on assets, both the target and the acquirer group show insignificant results.

Table 9. Peer-adjusted aggregate performance measure: Merged firm

The pre-merger period is the years before the announcement and the post-merger period is the years after the completion of the merger. The performance in each event year is aggregated performance of the merged firm. The peer-adjusted variables are calculated from the observations that are Winsorized that the 1st and 99th percentile. All non-ratio variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars. Superscripts a, b, and c indicate significance at the 1, 5, 10% level of the two-sided t-test for mean and Wilcoxon-Mann-Whitney test for median.

	Year-3	Year-2	Year-1	Year0	Year+1	Year+2	Year+3
Peer-Adjusted ADR							
N	16	16	16	16	16	16	16
Mean	1.50	0.86	0.61	-0.26	0.73	1.59	1.19
Median	2.19	1.79	0.20	-0.93	1.21	0.03	1.05
Peer-Adjusted Occupancy Rate							
N	16	16	16	16	16	16	16
Mean	2.18% c	1.78%	1.69%	1.37%	1.99%	2.91% b	3.36% b
Median	1.55% c	1.02%	1.10%	1.98%	2.98%	3.73% c	3.90% b
Peer-Adjusted RevPAR							
N	16	16	16	16	16	16	16
Mean	2.95 a	2.18 a	2.12 b	1.34	2.70 b	4.12 a	4.03 a
Median	2.62 a	2.12 b	1.58 b	0.21	0.89	4.30 a	4.07 a
Peer-Adjusted Gross Profit Margin							
N	11	11	11	11	11	11	11
Mean	3.23%	3.51%	2.78%	2.52%	2.58% b	3.50% b	4.51% a
Median	1.26%	0.86%	1.80%	1.63%	2.58% b	2.40% b	3.51% a
Peer-Adjusted Operating Income Margin							
N	11	11	11	11	11	11	11
Mean	6.59% b	6.31% b	6.47% b	5.10% b	5.54% a	6.46% a	8.00% a
Median	6.14% b	6.56% b	7.05% a	6.12% b	6.65% a	6.27% a	7.45% a
Peer-Adjusted Operating Cash Flow Return on Assets							
N	11	11	11	11	11	11	11
Mean	0.61	0.75	2.81	-0.50	2.04	3.24	5.13
Median	0.51	-2.25	2.49	-2.01	-3.21	-3.26	1.17

In sum, the analysis so far shows that i) there is a size effect which may lead to different performance consequences for the property-level and the aggregate firm-level analysis, ii) the peer-adjusted measures show that both the target and the acquirer firms possess a certain degree of competitiveness relative to their product peers in terms of occupancy rate, RevPAR, and profitability, and iii) profitability measures of the target (peer-adjusted gross profit margin and operating income margin) exhibit a possible performance improvement in the post-acquisition period.

Now the analysis turns to the perspective of the merged firm on the aggregate basis. The results are presented in Table 9. Merged firms sustain a positive peer-adjusted RevPAR throughout event period (except for Year 0). Although the peer-adjusted ADR is insignificant throughout event years, peer-adjusted occupancy rate show mostly positive results while it is not all significant. The peer-adjusted gross profit margin (except for Year -3) and operating income margin also show positive results overall. Ghosh (2001) and Heron and Lie (2002) also reported above-peer operating income margin for the acquiring firms both before and after acquisition. Thus, although this study looks into a single industry sector, the general pattern does not seem to be different from that of other industries.

One of the main interests in studying post-acquisition operating performance is to determine whether or not performance actually improves. In Table 9, a roughly upward trend is detected in the peer-adjusted occupancy rate, RevPAR, and the profitability measures. The performance change is formally presented and analyzed in the next chapter.

CHAPTER 6
PERFORMANCE IMPROVEMENT

The main focus of studies on post-acquisition performance is first, whether performance improves after the merger relative to a control group and second, whether performance changes are in fact due to the merger. This second point is then related to the sources of gain (or loss) realized in the post-acquisition period. In this paper, the first aspect was analyzed by investigating the changes in peer-adjusted synergy outcome measures. The second aspect was verified by regression analysis. The following two chapters present these analyses and discuss the results.

This chapter reports the changes in performance by the change in peer-adjusted ADR, occupancy rate, RevPAR, gross profit margin, operating income margin, and the OCFROA. As before, the analyses are performed at the property level (Section 6.1) as well as the firm level (Section 6.2). Although the performance changes in Year +1 and +2 relative to Year -1 are also presented, the discussion will mainly focus on the change in Year +3 relative to Year -1.

6.1 Property-Level Analysis

This section discusses the performance changes in the peer-adjusted measures at the property level. The mean and median are examined for each year. In order to verify whether the observed change is meaningful in a statistical sense, t-tests are performed for the significance of the mean, and Wilcoxon-Mann-Whitney tests are performed for the median. Table 10 summarizes the results. The discussion in the remaining section is presented by each peer-adjusted measure.

The changes in peer-adjusted ADR are significantly negative for both the target and the acquirer properties (-0.19 and -1.46 by mean, -0.21 and -0.77 by median, respectively). The findings here show that on average the merger does not raise the

price at the property level relative to the product peers. The market power hypothesis predicts that after horizontal mergers the merged firm consolidates production and limits output, which leads to a price increase. Such a scenario is not plausible for lodging properties. At each property, the quantity of room nights is fixed. Neither do lodging mergers lead to a consolidation of multiple properties. An investigation by the Federal Trade Commission (FTC) also found no evidence of possible anticompetitive pricing behavior following a lodging industry merger. In 2005, a pricing analysis was performed by the FTC in connection with the proposed acquisition of Mandalay Resort Group by MGM Mirage Inc. The Commission concluded that due to the complexity involved in hotel pricing with volatility in the booking cycle, it was not likely that the acquisition would lead to anticompetitive pricing behavior (Gotts and Hemli, 2006).

The observed price changes are rather consistent with the local friction argument (Olson, 1965; Azoulay and Shane, 2001; Kalnins, 2004). The fear of losing guests coming into the local area by sharing a common reservation network may drive the member properties of the merged firm to lower prices. Alternatively, there may be a brand dilution (Jiang et al., 2002) associated with the product extension which negatively affects the price of the properties. These suppositions are tested more formally through regression analysis in the next chapter.

Regarding the occupancy rate, the acquirer properties show a significant improvement in peer-adjusted occupancy rate (1.4% in mean and 1.2% in median) while the target properties show a positive but insignificant result. For the acquirer properties, the improvement found in the acquirer group seems to support the cross-selling effect realized by the acquisition (Mahajan et al., 1994; Morgan and Rego, 2009). It is intriguing to see that the improvement was only significant for the acquirer

Table 10. Changes in peer-adjusted measures: Property level

The pre-merger period is the years before the announcement and the post-merger period is the years after the completion of the merger. The peer group is same-product type with similar RevPAR excluding the properties that were involved in the acquisition before or after the three-year period for the given year. The peer-adjusted variables are calculated from the observations that are Winsorized that the 1st and 99th percentile. All non-ratio variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars. Superscripts a, b, and c indicate significance at the 1, 5, 10% level of the two-sided t-test for mean and Wilcoxon-Mann-Whitney test for median.

	Acquirer Properties			Target Properties		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Peer-Adjusted ADR						
N	11356	11356	11355	1815	1814	1813
Mean	-0.61 [a]	-0.58 [a]	-0.19 [b]	-0.68 [a]	-0.96 [a]	-1.46 [a]
Median	-0.69 [a]	-0.78 [a]	-0.21 [a]	-0.34 [a]	-0.59 [a]	-0.77 [a]
Peer-Adjusted Occupancy Rate						
N	11356	11356	11355	1815	1814	1813
Mean	0.20% [a]	0.40% [a]	1.40% [a]	-1.50% [a]	-0.60% [a]	0.10%
Median	-0.10%	0.20% [a]	1.20% [a]	-1.30% [a]	-0.40% [b]	0.30%
Peer-Adjusted RevPAR						
N	11356	11356	11355	1815	1814	1813
Mean	-0.03	0.23 [a]	1.06 [a]	-1.39 [a]	-0.65 [a]	-0.27
Median	-0.26 [b]	0.05 [c]	1.06 [a]	-0.98 [a]	-0.35 [b]	-0.12
Peer-adjusted Gross Profit						
N	1068	1240	1273	488	495	289
Mean	-1.20% [a]	0.50% [a]	-0.20%	1.10% [a]	2.00% [a]	6.20% [a]
Median	-1.50% [a]	0.80% [a]	0.00%	0.60% [a]	1.90% [a]	6.20% [a]
Peer-Adjusted Operating Income Margin						
N	1068	1240	1273	488	495	289
Mean	-2.20% [a]	-1.20% [a]	-0.80% [a]	-1.30% [a]	1.10% [a]	1.40% [a]
Median	-2.10% [a]	-1.10% [a]	-0.50% [a]	-1.40% [a]	1.50% [a]	1.10% [a]
Peer-Adjusted Operating Cash Flow Return on Assets						
N	1068	1240	1273	488	495	289
Mean	-3.54 [a]	-3.69 [a]	-2.61 [a]	-3.1 [a]	-2.13 [a]	0.48
Median	-3.69 [a]	-3.52 [a]	-1.9 [a]	-3.3 [a]	-2.27 [a]	0.05

properties. Although the target properties showed an insignificant improvement, recall that that the target had consistently positive peer-adjusted occupancy rate throughout the event years while the acquirer showed mixed results (in Table 7). Thus, these results indicate that while the target properties, which demonstrated competitive occupancy performance relative to their peers, their performance still stayed above their competitors through Year +3.

Similarly, peer-adjusted RevPAR shows a significant improvement for the acquirer properties only (1.06 for both mean and median). The results in peer-adjusted ADR and occupancy improvements indicate that such RevPAR gains stem from the improvement in occupancy rate. For the target, while the properties maintained competitiveness throughout Year -3 to +3 (see Table 7), no significant improvement is found between Year -1 and +3. In addition, it is also detected that for the peer-adjusted occupancy rate and RevPAR, the changes from Year -1 to +1, +2, and +3 in Table 10 show an upward trend for both the target and acquirer properties, suggesting that the improvements in these measures occur gradually.

Next, in profitability measures (gross profit margin and operating income margin), the most distinctive finding is a strong improvement in the peer-adjusted gross profit margin, which reflects cost savings for target properties (6.2% in both mean and median). For acquirer properties, the result is insignificant. While other studies also reported significant cost savings in horizontal mergers (Fee and Thomas, 2004), these results show that on average the benefit is greater on the target side at the property level. As discussed earlier, collective buying power is an important source of competitiveness for hotel corporations. With more properties in their system, acquirers are expected to have greater buying power and therefore higher cost efficiency. The improvement found in the target indicates that the cost efficiency of the acquirer may

spill over to the target properties. Again, this claim will be tested through regression analysis.

The peer-adjusted operating income margin of the target and acquirer properties shows that they move in opposite directions. The acquirer properties show a significantly negative change (-0.8% in mean and -0.5% in median) while the target properties show a significantly positive change (1.4% in mean and 1.1% in median). It might be the case that the acquirer intends to rejuvenate its property base through mergers and acquisitions.

While the reason behind the deterioration of the operating income margin for the acquirer properties is not immediately clear, a possible explanation may be related to the property's age. Researchers have reported a negative association between property age and revenue for franchised properties (Sorenson and Sørensen, 2001). As shown earlier, the acquirer firms in the sample are more mature in terms of firm age. Thus, it is likely that their properties are also relatively older. Since maintenance expenses tend to increase with property age, the operating income margin of a property tends to decline with age.

It is also important to note that in spite of the decrease in the peer-adjusted operating income margin in Year +3 relative to Year -1, it still remained above the peer group in Year +3 (+4.1% in mean, shown in Table 7). Thus, the change between Year -1 and +3 indicates that the competitive basis of the acquirer properties is maintained but dwindling. McGuckin and Nguyen (1994) also reported similar findings. They found that acquirers were the most productive firms and experienced a small decline in relative productivity in the post-acquisition period. Such a decline was most salient in the firm's existing old plants.

The decline in the peer-adjusted operating income margin found in the acquirer properties is contrasted by the strong improvement found in the target properties. It

should be noted that such positive result in target properties is entirely due to the gains created in cost savings. If there is an additional reduction in the operating expenses, the improvement of the peer-adjusted operating income margin should be greater than the improvement of the peer-adjusted gross profit margin, which is not the case observed here.[19] Thus, there is no evidence of improved managerial efficiency found in the target properties.

The operating cash flow return on assets (OCFROA) shows a significant decrease for the acquirer properties (-2.61 in mean) and an insignificant result for the target properties. It can be shown that the OCFROA measure is jointly affected by the operating income margin and RevPAR as below:

$$\begin{aligned}\text{OCF Return on assets} &= \text{Operating Income/Room Available} \\ &= [\text{Operating Income} / (\text{Room Sold} \times \text{ADR})] \\ &\quad \times (\text{Room Sold} / \text{Room Available}) \times \text{ADR} \\ &= \text{Operating Income Margin} \times \text{RevPAR}\end{aligned}$$

Thus, the target properties show an insignificant OCFROA change in spite of an improvement in the peer-adjusted operating income margin, due to the weak result in the RevPAR improvement. For the acquirer properties, while the RevPAR shows a

[19] Peer-adjusted operating income margin can be decomposed into the gross profit margin and the expense to revenue as follows:
Peer-adjusted Operating Income Margin=Operating Income Margin $_{focal}$ - Operating Income Margin $_{peer}$
= $[(\text{Gross Income} - \text{Expense})/\text{Revenue}]_{focal} - [(\text{Gross Income} - \text{Expense})/\text{Revenue}]_{peer}$
= $[\text{Gross Profit Margin} - \text{Expense to Revenue}]_{focal} - [\text{Gross Profit Margin} - \text{Expense to Revenue}]_{peer}$
= [Peer-adjusted Gross Profit Margin] – [Peer-adjusted Expense to Revenue]
Thus, ΔPeer-adjusted Operating Income Margin = [ΔPeer-adjusted Gross Profit Margin] – [ΔPeer-adjusted Expense to Revenue]
If there is additional expense reduction, then ΔPeer-adjusted Operating Income Margin should be bigger than ΔPeer-adjusted Gross Profit Margin.

significant improvement, operating income margin shows a significantly negative result, driving the improvement of peer-adjusted OCFROA to be negative as well. The peer-adjusted OCFROA measure also shows a roughly upward trend in Year -1 to +1, +2, and +3 for both target and acquirer properties. In an additional analysis that looked into year-to-year changes (results are not reported, for brevity), the acquirer properties displayed a roughly downward trend for these measures while the target properties exhibited no distinct trend. Thus, while no significant change is detected for the peer-adjusted OCFROA between Year -1 and Year +3, there might be a trend reversal in the post-acquisition period.

To summarize, the property-level analysis does show some evidence of performance improvements after the merger. Most notably, the acquirer properties show RevPAR improvement relative to their peers driven by positive occupancy gains; the target properties show an improvement in the gross profit margin, which also affects the improvement in the operating income margin. Although these gains did not result in a positive improvement in the final cash flow measure (peer-adjusted operating cash flow return on assets), at least both the target and the acquirer properties show an upward trend in the post-acquisition period as shown in the improvements in each post-acquisition event year (Year +1, +2, and +3) relative to Year -1.

6.2 Firm- Level Analysis

In this section, the performance changes are analyzed on the aggregate basis. Table 11 shows the changes in the peer-adjusted measures by the target and the acquirer firm separately. Table 12 reports the aggregate results from the merged firm's perspective. Again, the firm-level results are not exactly the same as the property-level results. Some improvements found in the property-level analysis are no longer

detected in the firm-level analysis and vice versa. As discussed earlier, the difference is ascribed to the size effect and the different weight schemes between the property-level metric and the aggregate metric. Detailed explanations of these respects are presented as the discussion goes through the change in each peer-adjusted measure.

First, findings in Table 11 are discussed. The discussion is arranged by results found in the acquirer firms followed by those of the target firms. For the acquiring firms, the peer-adjusted ADR improvement is insignificant. Recall that in the property-level analysis, the result was significantly negative. In order to investigate the differences found in outcome, the size effect was examined by breaking down properties by size quintile with the size being the number of rooms. Overall, an inverse U-shaped relationship was found between the peer-adjusted ADR improvement and the property size (results are not reported herein). In particular, the largest properties (in quintile 5) displayed severe underperformance, which were driven by negative changes in the property-level analysis. However, when the properties were aggregated by firm, the underperforming properties are spread into a few firms. While the performance changes in those firms were negative, their impact was not dominant in the overall mean and median. As a result, the firm-level mean and median for the acquirer are positive but insignificant.

The peer-adjusted occupancy rate and RevPAR for the acquirer firms show improvements as in the property-level analysis. The results in peer-adjusted ADR and occupancy rate suggest that such improvement in the peer-adjusted RevPAR for acquirer firms is achieved through an enhanced occupancy rate relative to the peers.

The change in the peer-adjusted gross profit margin of the acquirer also shows a different result from the property-level analysis. While the property-level analysis showed an insignificant decline, the firm-level analysis shows a significant improvement. Here, the size effect showed that properties in the top two size quintiles

exhibited positive improvements while the other quintile groups showed negative changes. Since there are more properties that experienced a decrease, the mean change at the property level was negative although it was insignificant. When aggregated, the results become positive as properties are disproportionately distributed among the firms.

The changes in the peer-adjusted operating income margin and cash flow return on assets of the acquirer firms also show similar results. Both measures show positive results, although only the improvement of the peer-adjusted operating income margin is significant. In the property-level analysis both measures showed significantly negative results. The underlying reason is the same as before, i.e. the size and aggregation effect.

Now, the discussion turns to the target firms in Table 11. For the target firms, all the changes between Year -1 and Year +3 are insignificant. In the property-level analysis, the strongest improvement for the target group was found in the peer-adjusted gross profit margin and operating income margin. Here, the change is still positive but it is no longer significant. Different from the acquirer properties, where the big properties showed the strongest cost-saving effect, the target properties showed the strongest gross profitability improvements among the small-scale properties in the lower quintiles (quintiles 1 through 3). It makes sense because the larger properties of the target may not be able to promptly discontinue the existing supplier relationship and switch to the merged firm's procurement network. Larger properties (quintiles 4 and 5) showed conspicuously lower improvement, although it was still positive on average. Driven by the improvements realized in many small properties, the mean at the property level was positive. However, when aggregated, the positive result did not persist.

The same pattern is detected in the peer-adjusted operating income margin; the target showed a significant improvement in the property-level analysis, but the result becomes insignificant in the firm-level analysis. For the peer-adjusted operating cash flow return on assets, the improvement is insignificant as in the property-level analysis.

In sum, the aggregate analysis by target and acquirer firms show that there are gains realized from M&A although they are only shown in acquirer firms. The acquirer firms show improvements in the peer-adjusted occupancy rate, RevPAR, gross profit margin, and operating income margin. The property level gains detected in the target group no longer persist through aggregation. In spite of such neutral results found on the target side, given that the gains realized by the acquirer would not have been materialized without mergers, the findings here support the value creation from M&A.

Findings thus far also provide useful precautions about the regression analysis. As seen so far, the property-level improvement does not imply the same results at the firm level due to the size effect and the aggregation effect. Thus, first, although all the measures are normalized either by revenue or number of rooms, the property size still needs to be controlled for in later analysis. Second, some of the complementary nature is detected in synergy creation, for example, a possible spillover of the acquirer's buying power to the target. Thus, in order to control for such characteristics, the deal effect is incorporated in the regression model. Details about the regression model are presented in the next chapter.

Table 11. Changes in peer-adjusted measures: Firm level

The pre-merger period is the years before the announcement and the post-merger period is the years after the completion of the merger. Property-level data are aggregated by the firm. Peer group performance is constructed by aggregating the peer properties. The peer-adjusted variables are calculated from the observations that are Winsorized at the 1st and 99th percentile. All non-ratio variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars. Superscripts a, b, and c indicate significance at the 1, 5, and 10% level of the two-sided t-test for mean and Wilcoxon-Mann-Whitney test for median.

	Acquirer			Target		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Peer-Adjusted ADR						
N	17	17	17	31	31	31
Mean	0.83	2.37	1.71	0.22	-1.7	-2.73
Median	0.85	0.87	0.56	-0.28	-0.79	-1.97
Peer-Adjusted Occupancy						
N	17	17	17	31	31	31
Mean	0.90%[c]	2.30%[b]	1.70%[b]	-1.10%	-0.90%	-0.90%
Median	1.20%[b]	1.90%[a]	2.20%[b]	-1.00%	-1.70%	-0.60%
Peer-Adjusted RevPAR						
N	17	17	17	31	31	31
Mean	1.58	3.19[a]	2.34[b]	-0.73	-1.11	-2.31
Median	0.68	1.84[a]	1.78[a]	-0.97	-0.74	-1.39
Peer-Adjusted Gross Profit Margin						
N	12	12	12	8	8	8
Mean	0.90%	1.60%[c]	2.50%[b]	1.80%	2.70%	4.60%
Median	1.40%	1.30%	2.40%[b]	1.90%	1.00%	4.80%
Peer-Adjusted Operating Income Margin						
N	12	12	12	8	8	8
Mean	0.90%	0.90%	2.30%[b]	1.00%	3.60%	3.00%
Median	-0.20%	0.40%	3.50%[c]	0.90%	1.50%	3.70%
Peer-Adjusted Cash Flow Return on Assets						
N	12	12	12	8	8	8
Mean	-1.96	-1.26	1.61	-3.13	0.6	-0.46
Median	-2.08	-3.61	0.21	-2.98	-0.56	-2.25

The remainder of the section is devoted to an aggregate analysis from the merged firm's perspective. The results are summarized in Table 12. Again, focusing on the changes between Year -1 and Year +3, significant improvements are found in the peer-adjusted occupancy rate and RevPAR. The changes in peer-adjusted ADR, profitability measures, and operating cash flow return on assets show insignificant results although they are all positive. As discussed earlier, from the corporation's perspective, cash flow from properties largely depends on the revenue and operating profit. Thus, the improvement in the peer-adjusted RevPAR indicates a beneficial impact of mergers and acquisition.

It should be noted that the profitability and cash flow measures in Table 12 do not represent the merged firm's income statement. The figures shown in Table 12 are the property measures aggregated by the merged firm. Thus, they represent the profitability and cash flow return on asset in on the aggregate system base. In the merged firm's accounting book, the costs and the expenses reflect those that occur in the owned properties and at the corporate offices. Thus, additional cost savings (or losses) occur by merging the corporate offices of the target and the acquirer by consolidating functional areas of the two organizations. While Table 12 captures the main sources of cash flow to the lodging corporations (RevPAR) and the system-wide cost efficiency, it does not reflect the impact of integrating functional areas of the corporations.

Table 12. Changes in peer-adjusted measures: Merged firm

The pre-merger period is the years before the announcement and the post-merger period is the years after the completion of the merger. The performance in each event year is aggregated performance of the merged firm. The peer-adjusted variables are calculated from the observations that are Winsorized that the 1st and 99th percentile. All non-ratio variables are adjusted by the relevant Consumer Price Index (CPI) to 2004 dollars. Superscripts a, b, and c indicate significance at the 1, 5, 10% level of the two-sided t-test for mean and Wilcoxon-Mann-Whitney test for median.

	Combined Acquirer and Target		
	-1 to +1	-1 to +2	-1 to +3
Peer-Adjusted ADR			
N	16	16	16
Mean	0.12	0.98	0.58
Median	0.24	0.04	0.79
Peer-Adjusted Occupancy Rate			
N	16	16	16
Mean	0.29%	1.21% b	1.67% b
Median	0.80%	1.45% c	1.50% b
Peer-Adjusted RevPAR			
N	16	16	16
Mean	0.58	2.00 b	1.92 b
Median	0.46	1.51 b	2.25 b
Peer-Adjusted Gross Profit			
N	11	11	11
Mean	-0.21%	0.72%	1.73%
Median	-0.79%	0.83%	0.94%
Peer-Adjusted Operating Income Margin			
N	11	11	11
Mean	-0.93%	-0.01%	1.53%
Median	-0.95%	-0.50%	0.87%
Peer-Adjusted Operating Cash Flow Return on Assets			
N	11	11	11
Mean	-0.78	0.42	2.32
Median	-2.65	-2.70	2.42

CHAPTER 7

REGRESSION ANALYSIS

In this chapter, regression methodologies and the results are presented. In the regression analysis, the deal-level random effects and the possible selection issues are considered in the modeling process. The regression results are examined with respect to each hypothesis that relates the sources of synergy and its expected outcome.

7.1 Regression Methodology

In order to test the hypotheses defined in Section 4.1, multivariate regression was employed using the change in the peer-adjusted performance measure as a dependent variable and the factors that are expected to affect the realization of the synergy as independent variables, along with control variables.

The dependent variables are the changes in peer-adjusted ADR (*D_A_ADR*), peer-adjusted occupancy rate (*D_A_OCC*), peer-adjusted RevPAR (*D_A_REVPAR*), peer-adjusted profitability measures (gross profit margin and operating profit margin, denoted by *D_A_G_PROFIT* and *D_A_OI* respectively), and peer-adjusted cash flow return on assets (*D_A_CFROA*), taking a form of difference-in-difference form of Year +3 versus -1 as below:

$$\textit{Peer-adjusted Performance Change} = (y_{t=+3} - y^{P}{}_{t=+3}) - (y_{t=-1} - y^{P}{}_{t=-1}) \quad (1)$$

where y_t denotes the performance measure of the focal properties at event year t and $y^{P}{}_{t}$ is the corresponding measure of the median peer-adjusted properties of the same product type and similar performance in the same calendar year.

The dependent variable was constructed in this way due to its meaningful interpretation as a measure of relative competitive gain achieved through mergers and acquisition, since peers are defined by the product competitors. From an econometric standpoint, the advantage of a difference-in-difference form is that it may resolve problems involving selection bias. Given that the properties of the target and the acquirer are likely to be a non-random sample, there may be underlying characteristics that affect the probability of being selected into the sample as well as the performance the properties. If selection bias is present, the application of OLS leads to inconsistent parameter estimates (Heckman, 1979).

Assuming that the contributing factors underlying selection bias are constant in different time periods before and after the merger, differencing the differences between merger-affected properties and peers can eliminates such bias (Heckman, Ichimura, Smith, and Todd, 1998). This can be shown as below:

$$E[y_{t=+3} \mid M=1] - E[\, y^{P}_{t=+3} \mid M=0\,] = f(X_{t=+3}) + \textit{selection bias} + \textit{synergy} \quad (2)$$

$$E[y_{t=-1} \mid M=1] - E[\, y^{P}_{t=-1} \mid M=0\,] = f(X_{t=-1}) + \textit{selection bias} \quad (3)$$

where $M = 1$ indicates that the property is a subject of a M&A at $t = 0$ and M = 0 when it is not. X_t refers to the observed covariates that explain the performance difference between the focal property and its peers. *Selection bias* is unobservable attributes that may present in the properties of the target and the acquirer. *Synergy* refers to the synergistic gain realized in the merger affected properties in t = 3. Subtraction of (3) from (2) removes the selection bias. The synergy is modeled by the function of the sources of synergy, i.e. property growth, local market power, product distance, and so on. Control variables are included in the model for the known attributes that affect the performance. In addition, in order to account for the cross-correlation between error

terms for properties in the same deal, a random effect specification was employed. Since several variables are defined at the deal level (e.g. product distance between the target and the acquirer), there is no within-deal variation and thus fixed effects are not feasible. Therefore, a random effect model is used instead of a fixed effect model. A random effect model was used in a similar context in La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) and Hau (2001). The final model is shown as below:

$$y^*_{ij} = \beta_0 + \beta_1 TENDER + \beta_2 P\_DIST + \beta_3 D\_LOC\_MP + \beta_4 PR\_GROWH + \beta_5 ANN\_HIGH + \beta_6 D\_LOC\_DM + \beta_7 D\_LOC\_SP + \beta_8 LOG\_RM + [Product\ Dummies] + [Location\ Dummies] + \zeta_j + \varepsilon_{ij} \quad (4)$$

Here, for simplicity y^*_{ij} is used for the change in the peer-adjusted performance measure of the property i of deal j. y^*_{ij} ,which captures the synergistic outcome, is modeled as a function of the sources of synergy, moderators, and the control variables. ζ_j is the deal random effect which is distributed normally with mean zero and variance σ_j^2. ε_{ij} is a random error distributed normally with mean zero and variance σ^2. Equation (4) is estimated separately by the target and the acquirer properties.

The validity of the random effect is tested by the z-test through examining whether σ_j^2 (variance of ζ_j, random effect for deal j, in Equations (4) and (5)) is zero or not (Littell et al., 2006). While Breusch and Pagan Lagrange multiplier test is often used to check the validity of the random effect, it is only applicable when the dataset is balanced panel. Since our sample is unbalanced, this method is not feasible. When the random effect is insignificant, the estimation is performed by ordinary least square with a verification of no heteroscedasticity through White's test.

In order to test Hypotheses 9.1 and 9.2, the relationship between the post-acquisition performance and the offer premium is examined in separate regressions.

As stated in Chapter 5, the offer premium is defined by taking the final offer price per stock over the price one day prior to the announcement and subtracting one from that (p_{fin}/p_{-1}) -1. Theoretically, both p_{fin} and p_{-1} are expected to be associated with the expected synergy of the acquisition. In particular, p_{-1}, which incorporates all the run-ups realized in the market until a day before the announcement, reflects information updated in the market about the value of synergy released by the takeover rumors. Thus, the premium measure used in here, (p_{fin}/p_{-1}) -1, which is a post-runup premium, may actually capture additional information about the expected synergy which is only available to the managers (Eckbo et al., 2008) or a value destructive motivation driven by the manager's self-interest (Roll, 1986).

In order to avoid multicollinearity between the deal unit explanatory variables and premiums, only property level explanatory variables are included in the model. While there are alternative ways to construct the model, i.e. a structural equation modeling in which premium is separately modeled, given that there are such a small number of deals with the offer premium data, these other methods were not viable. A random effect model is again applied since the premium is defined at the deal unit. The final model is shown as below:

$$\begin{aligned} y^{*}_{ij} = {} & \beta_0 + \beta_1 PREMIUM + \beta_2 D\_MP + \beta_3 D\_LOC\_DM \\ & + \beta_4 D\_LOC\_SP + \beta_5 LOG\_RM \\ & + [Product\ Dummies] + [Location\ Dummies] + \zeta_j + \varepsilon_{ij} \end{aligned} \qquad (5)$$

The critical assumption of difference-in-difference estimator is that selection bias is non-time varying. With this implicit assumption, most of studies that used a difference-in-difference measure as a dependent variable estimated the model of interest without addressing the selection issue (e.g. Ghosh (2001), Heron and Lie

(2002), and Zollo and Singh (2004)). However, it is possible that this assumption may not hold. The unobservable attributes underlying selection bias may be time varying and such time variant change may actually drive the corporate event of interest (Campa and Kedia, 2002; Li and Prabhala, 2007). In such case, the difference-in-difference form of Equation (1) will still contain the selection component and omitting the selection component in the model leads to a specification error (Heckman, 1979; Maddala, 1983).

Thus, in order to verify the robustness of the results, a two-stage selection model was also estimated. In the first stage, a probit model was estimated to obtain the probability of being a target or acquirer property using the pre-acquisition RevPAR (in Year -1), product dummy and year dummy variables[20]. The inverse Mill's ratio was obtained from this first stage and included in the second stage regression models as an additional independent variable (*SELECTION*) in Equation (4) and (5).

Technical details of the two step procedures are as follows. The equation of primary interest is written as:

$$y_i^* = \beta' \mathbf{x}_i + \varepsilon_i \qquad (6)$$

where y_i^* is the peer-adjusted performance measure as in Equation (4) and (5).

The probability that a property would be a subject of the target or the acquirer in the sample is estimated through the probit regression. The general form of the selection equation is as follows:

[20] The probability of being a target or acquirer property was estimated separately. The inverse Mill's ratio for the target (acquirer) group was obtained from the probit model applied to the target (acquirer) properties and the non-merger affected properties. Supporting the independence of irrelevant alternatives, when the probability of being a target (acquirer) property was computed against the non-merger affect group pooled with the acquirer (target) properties, there was no material change in the Mill's ratio. The second stage regression results remained the same for both methods.

$$z_i^* = \gamma' \mathbf{w}_i + u_i \tag{7}$$

where z_i^* is the selection variable, which equals 1 if the subject is selected into the sample and 0 otherwise; γ is a vector of probit coefficients; and $\mathbf{w}_i$ is publicly known information influencing the sample selection.

The selection means that y_i^*, which contains the synergy created by the acquisition, is only observed when z_i^* is greater than zero, i.e. when the properties are selected into the sample. Assuming that ε_i and u_i in (6) and (7) have a bivariate normal distribution with zero means and correlation ρ, then for the observed values of dependent variable y_i, given that y_i is selected into the sample, we have:

$$\begin{aligned} E[y_i^* \mid z_i^* > 0] &= E[y_i \mid u_i > -\gamma' \mathbf{w}_i] \\ &= \beta' \mathbf{x}_i + E[\varepsilon_i \mid u_i > -\gamma' \mathbf{w}_i] \\ &= \beta' \mathbf{x}_i + \rho \sigma_\varepsilon \lambda_i(\alpha_u) \\ &= \beta' \mathbf{x}_i + \beta_\lambda \lambda_i(\alpha_u) \end{aligned} \tag{8}$$

where $\alpha_u = -\gamma' \mathbf{w}_i / \sigma_u$ and $\lambda_i(\alpha_u) = \phi(-\gamma' \mathbf{w}_i / \sigma_u) / \Phi(-\gamma' \mathbf{w}_i / \sigma_u)$ (9)

In Equation (7) and (8), u_i is the part of z_i^* not explained by public variable $\mathbf{w}$. Thus, u_i can be viewed as the private information that drives a corporate decision (Li and Prabhala, 2007). In Equation (9), ϕ (.) and Φ(.) denote the standard normal probability density function and the standard normal cumulative density function, respectively. $\lambda_i(\alpha_u)$ is commonly referred to as the inverse Mill's ratio and is obtained from the first stage of the probit estimation. Thus, we have:

$$y_i^* \mid z_i^* > 0 = E[y_i \mid z_i^*] + v_i$$
$$= \beta' \mathbf{x}_i + \beta_\lambda \lambda_i(\alpha_u) + v_i \quad (10)$$

In the second stage, the regression is estimated by adding $\lambda_i(\alpha_u)$ as a regressor to the **x** variables of the model using maximum likelihood estimation. Technically, the selection model is an omitted variable bias problem which we solve by adding the selection variable $\lambda_i(\alpha_u)$.When $\lambda_i(\alpha_u)$ is ignored, the specification error of an omitted variable occurs. Consequently, in the presence of selection issues, the application of OLS in (6) alone leads to inconsistent estimation of β. The sign of the coefficient of $\lambda(\alpha_u)$ is determined by the sign of ρ (the correlation between the error terms in ε_i and u_i), which appears in the derivation of Equation (8).

If one wishes to test whether the private information in a firm's choice affected post-choice outcomes, we would regress outcome y on $E(u_i \mid z^* > 0)$. Qualitatively, the variable added to correct for self-selection, $\lambda_i(\alpha_u)$, can be interpreted as an estimate of the private information underlying a firm's choice since u_i, recalling Equation (7), is the component not explained by public variable vector $\mathbf{w}_i$. The ex-ante expectation of u_i is zero. Ex-post, after property i becomes the target or acquirer, the expectations of u_i is updated. The revised expectation is an updated estimate of the firm's private information. Thus, testing its significance is a test of whether private information possessed by a firm explains ex-post outcomes (Li and Prabhala, 2007).

The Heckman procedure, which is widely used in applied work, uses OLS in the second stage. Although the Heckman procedure provides consistent estimators, researchers have pointed out that the maximum likelihood (ML) method is more efficient than OLS (Greene, 2000; Kennedy, 2003). Thus, in this study, maximum likelihood estimation is chosen over the OLS procedure.

Table 13. Descriptive Statistics and Correlation Coefficients*

	N	Mean	St.Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.D_A_ADR	13148	-0.35	8.63	1.00																
2.D_A_OCC	13148	0.01	0.11	-0.01	1.00															
3.D_A_REVPAR	13148	0.89	8.94	0.59	0.73	1.00														
4.D_A_G_PROFIT	1553	0.01	0.06	0.10	0.25	0.17	1.00													
5.D_A_OI	1553	0.00	0.08	0.20	0.40	0.36	0.72	1.00												
6.D_A_CFROA	1553	-2.01	12.81	0.48	0.47	0.68	0.50	0.74	1.00											
7.TARGET	13151	0.14	0.34	-0.05	-0.04	-0.05	0.41	0.12	0.10	1.00										
8.TENDER	13151	0.09	0.29	-0.04	0.07	0.02	0.06	0.22	0.16	-0.01	1.00									
9.PR_GROWH	13151	0.34	0.62	-0.08	-0.05	-0.08	0.11	0.25	0.18	0.38	0.40	1.00								
10.D_LOC_MP	9827	-0.55	3.99	-0.02	-0.12	-0.07	-0.11	-0.15	-0.09	0.05	-0.28	-0.02	1.00							
11.P_DIST	12490	1.05	0.52	0.00	-0.11	-0.08	0.05	0.01	0.03	-0.27	-0.07	-0.03	0.07	1.00						
12.D_LOC_DM	12974	-0.04	0.07	0.21	0.23	0.31	0.08	0.09	0.22	0.04	-0.07	0.02	0.00	0.14	1.00					
13.D_LOC_SP	12974	0.10	0.42	0.02	0.02	0.00	0.18	0.07	0.01	0.05	-0.08	0.10	-0.36	0.04	0.04	1.00				
14.ANN_HIGH	13151	0.22	0.41	0.01	0.08	0.05	0.02	-0.01	0.02	-0.16	-0.17	-0.11	0.08	-0.64	-0.25	-0.03	1.00			
15.LOG_RM	13151	10.47	0.63	-0.09	-0.07	-0.09	-0.03	0.06	0.02	0.20	0.15	0.33	-0.19	-0.12	0.15	0.17	-0.23	1.00		
16.PRICE	13151	2.98	1.13	0.11	0.06	0.06	0.16	-0.04	0.07	0.00	0.08	-0.17	0.06	-0.04	-0.16	-0.12	0.18	-0.40	1.00	
17.SELECTION	13151	1.55	0.91	0.01	-0.06	-0.05	0.29	0.11	0.10	0.62	0.04	0.25	-0.08	-0.49	0.09	0.16	0.07	0.27	-0.02	1.00

* Coefficient of 0.07 and above are significant at $p < 0.05$ and those above 0.09 are significant at $p < 0.0001$.

7.2 Correlation and Descriptive Statistics

As a preliminary analysis, Pearson correlation coefficients between the variables were analyzed. The results are presented in Table 13. As is typical for differenced variables, no strong correlation is detected between the dependent variables (the change in peer-ADR, occupancy rate, RevPAR, gross profit margin, operating income margin, and OCFROA) and the explanatory variables. Changes in local market power (*D_LOC_MP*) show a moderately negative relationship with occupancy rate (-0.12). The peer-adjusted gross profit change shows a moderate

positive correlation with property growth (0.11) and target (0.41), suggesting a positive impact of property growth on cost savings, with the target being more strongly affected. The property growth and target show a significant positive correlation (0.38). Among the independent variables, *ANN_HIGH* and *P_DIST* show a fairly high negative correlation (-0.64).

7.3 Regression Results

In this section, the regression results are presented in connection with each hypothesis. Several points are clarified before the results are discussed. The regression results are reported in Table 14 for models (1) through (6) which are arranged according to the dependent variable, i.e. the change in peer-adjusted ADR, occupancy rate, RevPAR, gross profit margin, operating income margin, and OCFORA for each model. Each model is estimated separately for the target and the acquirer properties in order to investigate how synergy creation differs between the target and the acquirer, and to infer what role is played by the target and the acquirer. The separate estimation approach is also supported by the previously performed descriptive analyses, which suggested that the target and the acquirer differ in both synergy outcome variables (changes in peer-adjusted measures) and their characteristics (number of properties, firm age, and so on).

Panel A reports the results without the selection variable and Panel B presents the results with the selection variable. In Panel A, all the models are presented; in Panel B, only models (1) through (3), (ADR, occupancy rate, and RevPAR models) are presented. When the selection variable was added to the model, it was significant only for models (1) through (3), except for the RevPAR models for the acquirer group. For models (4) through (6) (gross profit margin, operating income margin, and OCFROA models), *SELECTION* was insignificant while all the main results remained

the same as in the model without *SELECTION*. Thus, the estimation results are not reported. In the models where *SELECTION* is included, the main results remain strongly robust. In this regard, the results refer to both Panel A and B unless otherwise specified. The only exception is *P_GROWTH* in occupancy rate and RevPAR models for the acquirer and the implications of *SELECTION* itself. These aspects will be discussed in detail later in this section.

In the estimation, product and location dummies are included only if there is a significant fixed effect for the dependent variable.[21] The rationale is that while it is necessary to control for the relevant factors in order to evaluate the sources of synergy more accurately, too many dummy variables cause a loss of degree of freedom, which may make the parameter estimates less reliable (Chase, 2009). This can be especially problematic in profitability and operating cash flow models where the observation is only available for a small subset of the data. Following this criterion, location dummies are not included in Model (4) through (6). Also in Models (4) through (6), no observations are available for *TENDER* and *ANN_HIGH* for the target group. Thus, the coefficients for these variables are estimated only for the acquirer.

Now the results of the regression analysis are discussed. The discussion focuses on the verification of the hypotheses. Recall that the first hypothesis (H1) stated that the price increase of the target and the acquirer properties is greater with higher property growth induced by the merger. H1 is tested in model 1. In model (1), the coefficients of the property growth (*PR_GROWTH*) are insignificant for both the target and the acquirer group. Thus, H1 does not appear to be supported. Given that the price is generally determined by local economic forces, property growth at the

[21] For each dependent variable of property i, a multi-factor fixed effect model is estimated as: $y_{ijkt} = \mu + p_j + l_k + y_t + \varepsilon_{ijk}$, where y_{ijk} is property i with product type p_j and location type l_k in year t. ε_{ijk} is a random error term. The product type and location are not included in the regression model if the fixed effect is not significant as determined by the joint F-test.

national level does not seem to be related to collusion among the properties. In addition, with a high proportion of franchised operations, the property owners, who are also responsible for day-to-day management including pricing, are highly decentralized nationwide. Thus, collusion among the properties at the national level is not very plausible.

Hypothesis 2.1 and 2.2 presents contrasting views about the relationship between local market power and price. H2.1 predicts a positive relationship whereas H2.2 predicts an inverse relationship. These hypotheses are also tested in Model (1). The variable that captures the change in the local market power is *D_LOC_ MP,* the change in the fraction of the room inventory within the tract. The higher the overlap in the target and the acquirer properties in the local market, defined by the tract, *D_LOC_MP* will be greater. In Model (1), both the target and the acquirer group show negative and significant coefficients for *D_LOC_MP*. This result supports the local friction argument (H2.1), which predicts that increasing contact of the properties of the merged firm within the local tract unit by the merger results in a peer-adjusted ADR loss. The local friction argument explains such loss by elevated price competition between the members of the same chain properties within the local market (Azoulay and Shane, 2001; Kalnins, 2004). There are several theoretical explanations possible, which are all aligned in the local friction argument. Through mergers and acquisitions, perceived substitutability of the properties of the target and the acquirer within the same local market will increase than before the acquisition. The theory of microeconomics predicts that the availability of the substitutes decreases the equilibrium price. Due to the concern of losing the territorial privilege, the properties may lower the price in order to attract more customers of the chain system into their properties. Alternatively, the negative result may be due to the increasing difficulty of

coordination (Olson, 1965) as the number of member properties of the merged chain increases within the local market.

The negative result is against the local collusion argument (H2.2), which predicts that greater contact between the target and the acquirer properties within the local market leads to higher collusive cooperation and thereby a price increase.

In order to understand let's look at the relationship between market power and RevPAR. Territorial conflict argument also shows a consistent result in Model (3), namely, Model (3) shows that *D_LOC_MP* is also negatively associated with the change in peer-adjusted RevPAR. Thus, this result is consistent with the supposition of territorial conflicts, which refer to the loss of revenue due to the increasing properties of the same chain within the local market. The detrimental impact of local competition is also reflected in the occupancy rate model. In Model (2), *D_LOC_MP* is negative for both groups with a significant result for the acquirer group. The fact that the local market power (*D_LOC_MP*) is negative for the peer-adjusted ADR and occupancy indicates that the increasing local contact within the tract unit can lead to substantial value erosion for the merged firm.

Hypotheses 3 and 4 test buying power at the national and the local level. These hypotheses are tested in Model (4). Supporting Hypothesis 3, Model (4) shows that property growth (*PR_GROWH*) is positively associated with the change in the peer-adjusted gross profit margin for both target and acquirer properties. Many lodging firms emphasize the collective buying power as their competitive advantage. The results show that indeed the increasing number of properties for both target and the acquirer result in a significant cost-saving effect.

Regarding buying power at the local market level (H4.1 and H4.2), H4.1 predicts that greater market power contributes to cost savings by placing greater pressure on local suppliers to reduce input prices. In contrast, H4.2 predicts that

greater market power makes it more difficult for the properties to monitor and coordinate with one another and therefore buying power is actually diluted with a higher concentration of properties in the local market. The results in Model (4) show that *D_LOC_MP* is insignificant for both the target and the acquirer. There may be no significant part of supplies that are dependent on the local condition. If so, local market power will not have any impact on costs. Thus, neither Hypothesis 4.1 nor Hypothesis 4.2 is supported for either target or acquirer properties.

Hypothesis 5 relates higher occupancy gains to a more heterogeneous combination of the product families of the target and the acquirer. Model (2), which presents the regression of the peer-adjusted occupancy changes, shows that the product distance (*P_DIST*) is insignificant for both the target and acquirer. Thus, the heterogeneous demand hypothesis (H5) is not supported. This result indicates that the product difference between the target and the acquirer does not seem to facilitate cross-purchases across the different brands. Perhaps customer demand is not quite heterogeneous but rather it is more segmented into a particular product category.

Regarding the cross-selling effect, it is worth mentioning that in Model (2), *P_GROWTH* shows different results in Panel (A) and (B), i.e. *P_GROWTH* is insignificant in Panel (A) but it is significant and positive in Panel (B) for the acquirer properties. The property growth captures an increasing availability of merged company properties in more locations, which can contribute to a higher occupancy rate of these properties if successful cross-selling is performed. The positive result for the acquirer suggests that there is a spillover of target customers to the acquirer properties. However, the same effect is not detected for the target properties (from the acquirer customers). Given that the acquirer was shown to have a broader geographic presence, once the target is merged with the acquirer, the target customers may find it beneficial to purchase hotel rooms in previously unavailable locations within the newly

expanded system instead of from other firms. In addition, the effect is only detected when the probability of being an acquirer property (*SELECTION*) is included in the model. While this selection variable will be discussed in detail later in this section, a negative sign for the acquirer means that the probability of being an acquirer property is negatively associated with the change in the peer-adjusted occupancy rate. Geographical cross-selling may become significant only when such a tendency of the acquirer properties is controlled for.

Hypothesis 6 predicts that lower product distance between the target and the acquirer contributes to higher prices by boosting consumer confidence regarding the product category. In model (1), which regresses the peer-adjusted ADR changes, the coefficient of the product distance between the target firm and the acquirer firm (*P_DIST*) is indeed negative and significant but it is only for the target. This result suggests that as hypothesized the lower the product distance, i.e. a more homogeneous combination of the brand families of the target and the acquirer, the greater the price changes, supporting the product confidence hypothesis (H6). However, this is true only for the target. It is likely that the acquirer, which has higher firm age and a broader geographic presence, already enjoys a higher degree of brand recognition and stability. By being merged into the acquirer, targets seem to gain benefits in terms of the brand equity of the acquirer.

Hypothesis 7 tests whether the tender offer is positively associated with the operating performance of the target properties. The tender offer (*TENDER*) is found to be insignificant in all the models where it is included. From this result, the argument that mergers and acquisitions replace the inefficient managers of the target and improve the efficiency (H7) does not seem to be supported. While the disciplinary role of the takeover through a tender offer was supported in some studies (Martin and McConnell, 1991; Kini, Kracaw, and Mian, 2004), others refuted the idea on the

grounds that the target typically did not underperform in the pre-acquisition period (McGuckin and Nguyen, 1995; Agrawal and Jaffee, 2003) and thus the motivation of improving the target's performance by removing inefficiency is not validated.

Regarding Hypothesis 8, which tests whether M&As announced in a high industry cycle perform poorly in the post-acquisition period, the dummy variable *ANN_HIGH* is found to be negative for the target properties in the ADR model, and for the acquirer properties in OCFROA models. In the OCFROA models, the *ANN_HIGH* was not tested for the target due to the lack of available data. Thus, the performance extrapolation hypothesis (H8) seems to be supported for both the target and acquirer properties, i.e. management may overestimate the post-acquisition performance in the deals announced in the high industry environment.

The regression analysis also shows useful information about which synergy sources affect the revenue and operating cash flow. Model (3), which reports the regression results for the peer-adjusted RevPAR changes, shows that for the acquirer, the peer-adjusted revenue change is mainly related to: local market power, which affects both price and occupancy rate; and property growth (in Panel B), which affects the occupancy rate. For the target, the peer-adjusted revenue change is again associated with the local market power and the product distance between the target and the acquirer, both of which affect ADR.

Model (6) shows that for both target and acquirer properties, cost savings induced by the property growth flow down to the peer-adjusted OCFROA measure. For the target, *P_DIST* is negative and significant in models (4), (5), and (6), indicating that when the products are more similar, then the volume purchase benefit is stronger. Overall, the results show that the operating cash flow measure is most strongly affected by the cost savings effect of the M&A.

Table 14. Multivariate regression: Sources of synergy

PANEL A. Estimation without the selection variable

The model validity for the random effect model is tested by the log likelihood ratio, which tests the null model likelihood ratio that measures the difference between the given model specification and one with a constant intercept only, with degrees of freedom equal to the number of covariate coefficients minus one. Standard errors are in parentheses. Superscripts a, b, and c indicate significance at the 1, 5, and 10% level.

	(1)		(2)		(3)	
	D_Peer_ADR		D_Peer_Occ		D_Peer_RevPAR	
	Acquirer	Target	Acquirer	Target	Acquirer	Target
Intercept	15.6812 a	47.4227 a	0.1644 a	-0.2029	20.0334 a	23.79 c
	(2.3889)	(14.874)	(0.0472)	(0.0913)	(3.7864)	(12.7581)
TENDER	-1.2267	0.8508	0.05471	0.07749	2.7758	5.0366
	(0.9521)	(21.0879)	(0.0389)	(0.0587)	(3.0480)	(16.6347)
PR_GROWTH	0.05079	9.0959	0.009048	0.004845	-0.1104	6.6163
	(0.5047)	(5.532)	(0.0172)	(0.0184)	(1.3544)	(4.4189)
D_LOC_MP	-0.08298 a	-0.1806 b	-0.00138 a	-0.00089	-0.1113 a	-0.171 b
	(0.0294)	(0.0771)	(0.0004)	(0.0007)	(0.0296)	(0.0721)
P_DIST	0.1557	-18.2128 a	-0.04783	-0.03149	-2.8546	-15.5442 c
	(0.7462)	(10.8945)	(0.0297)	(0.0362)	(2.3279)	(8.6861)
D_LOC_DM	27.7733 a	38.065 a	0.7199 a	0.6463 a	65.1351 a	73.6901 a
	(1.5939)	(4.9814)	(0.0190)	(0.0477)	(1.5972)	(4.6603)
D_LOC_SP	0.5114 b	3.0031 b	0.000606	0.006108	0.4891 b	2.9627 b
	(0.2378)	(1.3059)	(0.0029)	(0.0123)	(0.2395)	(1.2208)
ANN_HIGH	-0.1485	-27.2261 b	0.001402	0.04233	-1.3766	-15.5797
	(0.8858)	(14.3069)	(0.0337)	(0.0482)	(2.6468)	(11.4362)
LOG_RM	-1.1345	-4.5375 a	-0.01105 a	0.01738 b	-1.4115 a	-2.2227 a
	(0.201)	(0.8719)	(0.0024)	(0.0075)	(0.2006)	(0.8155)
Product Dummies	Yes	Yes	Yes	No	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Random Effect	Yes	Yes	Yes	Yes	Yes	Yes
Z-stat for Random Effect	1.32 c	2.33 a	2.26 b	1.73 b	2.24 b	2.27 b
N	8149	1045	8149	1045	8149	1045
Chi-square	11.82 a	110.37 a	629.81 a	50.21 a	478.83 a	139.19 a

Table 14 (Continued)

PANEL A. (Continued)

	(4)		(5)		(6)	
	D_Peer_G_Profit		D_Peer_OI		D_Peer_OCFROA	
	Acquirer	Target	Acquirer	Target	Acquirer	Target
Intercept	0.0217	-0.04836	-0.0547	-0.0081	-10.0121	-0.0081
	(0.0515)	(0.1438)	(0.0869)	(0.9692)	(12.3449)	(0.9692)
TENDER	0.00582		0.0069		0.5425	
	(0.0242)		(0.0469)		(6.1844)	
PR_GROWTH	0.0174 a	0.01407 b	0.0376 b	0.0178 b	5.2527 a	0.01781 b
	(0.0097)	(0.0068)	(0.0184)	(0.0747)	(2.4536)	(0.0747)
D_LOC_MP	-0.00002	-0.0010	-0.0006	-0.0019	-0.09418	-0.00186
	(0.0004)	(0.0009)	(0.0006)	(0.1514)	(0.0899)	(0.1514)
P_DIST	-0.0020	-0.05622 b	0.0069	-0.0985 a	1.1849	-0.09846 a
	(0.016)	(0.0225)	(0.0304)	(0.0032)	(4.0438)	(0.0032)
D_LOC_DM	0.1703 a	0.03172	0.3395 a	0.1165	63.5700 a	0.11646
	(0.0306)	(0.0702)	(0.0501)	(0.2561)	(7.2383)	(0.2561)
D_LOC_SP	0.0010	0.0002	0.0086 c	0.0307	1.0245	0.03072
	(0.0029)	(0.0208)	(0.0048)	(0.312)	(0.6929)	(0.312)
ANN_HIGH	-0.0061		-0.0548		-8.6062 a	
	(0.0195)		(0.0366)		(4.9021)	
LOG_RM	-0.0063 c	0.00989	-0.0004	0.00459	0.2130	0.00459
	(0.0038)	(0.0125)	(0.0062)	(0.8012)	(0.9032)	(0.8012)
Product Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Location Dummies	No	No	No	No	No	No
Random Effect	Yes	No	Yes	No	Yes	No
Z-stat for Random Effect	1.58 c	N/A	1.63 c	N/A	1.55 c	N/A
N	800	120	800	120	800	120
Chi-Squared	50.08 a	N/A	55.64 a	N/A	39.44 a	N/A
F-Stat	N/A	7.28 a	N/A	8.21 a	N/A	3.55 a

Table 14 (Continued)

PANEL B. Estimation with the selection variable

The model validity for the random effect model is tested by the log likelihood ratio, which tests the null model likelihood ratio that measures the difference between the given model specification and one with a constant intercept only, with degrees of freedom equal to the number of covariate coefficients minus one. Standard errors are in parentheses. Superscripts a, b, and c indicate significance at the 1, 5, and 10% level.

	(1)		(2)		(3)	
	D_Peer_ADR		D_Peer_Occ		D_Peer_RevPAR	
	Acquirer	Target	Acquirer	Target	Acquirer	Target
Intercept	15.1798 a	7.3178	0.2895 a	-0.4244	27.3173 a	-34.4001 c
	(2.370)	(19.364)	(0.0689)	(0.1333)	(4.5666)	(17.9347)
TENDER	-1.1059	10.8865	0.01565	0.1308	0.5471	19.6649
	(0.861)	(22.685)	(0.0636)	(0.0813)	(3.96)	(20.9873)
PR_GROWTH	-0.252	9.0438	0.09188 a	0.005411	4.6888 a	6.7572
	(0.517)	(5.876)	(0.0278)	(0.0233)	(1.764)	(5.4369)
D_LOC_MP	-0.08265 a	-0.1568 b	-0.0012 a	-0.00071	-0.1012 a	-0.1378 c
	(0.0293)	(0.0769)	(0.0003)	(0.0007)	(0.02929)	(0.07132)
P_DIST	0.07174	-21.3748 c	-0.04057	-0.05128	-2.3559	-20.562 c
	(0.672)	(11.611)	(0.0481)	(0.0458)	(3.0053)	(10.7429)
D_LOC_DM	27.925 a	34.084 a	0.6696 a	0.6275 a	62.1772 a	67.976 a
	(1.600)	(5.088)	(0.0188)	(0.0488)	(1.5964)	(4.7166)
D_LOC_SP	0.4955 b	3.1057 b	-0.00087	0.005254	0.418 c	3.1652 a
	(0.237)	(1.299)	(0.0028)	(0.0124)	(0.2371)	(1.2039)
ANN_HIGH	-0.463	-35.0566 b	0.06601	-0.00539	2.4934	-27.6308 c
	(0.856)	(15.345)	(0.0548)	(0.0629)	(3.4293)	(14.1986)
LOG_RM	-1.1579 a	-3.8524 a	-0.00727 a	0.02154 a	-1.1837 a	-1.2318
	(0.202)	(0.890)	(0.0023)	(0.0077)	(0.1992)	(0.8253)
SELECTION	0.7902	12.319 a	-0.1704 a	0.06781 a	-10.0567 a	17.8667 a
	(0.625)	(3.600)	(0.0087)	(0.0288)	(0.7357)	(3.3359)
Product Dummies	Yes	Yes	Yes	No	Yes	Yes
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Z-stat for Random Effect	1.21	2.36 a	2.26 a	1.68 b	2.19 b	2.39 a
N	8149	1045	8149	1045	8149	1045
Chi-square	8.32 a	123.24 a	910.64 a	54.25 a	595.36	166.71 a

There are several points that are worth mentioning about the regression models presented in Table 14. First, the control variables regarding the local market condition (*D_LOC_DM* and *D_LOC_SP*) and the property size (*LOG_RM*) are significant in many models. This shows the validity of adding these factors to the model and the robustness of the findings since the results are obtained while controlling for these factors.

Second, *SELECTION* reveals useful information regarding the nature of resource combination between the target and the acquirer. In Panel (B), the target group shows consistently positive coefficients for *SELECTION* while the acquirer group shows consistently negative coefficients where they are significant. This means that the probability of being a target property is positively associated with the dependent variable in the model, while the probability of being an acquirer property is negatively associated with the dependent variable. These results imply the complementary nature of the growth pattern of the target and the acquirer properties. Researchers have recognized that when one of the merging firms has an imbalance between its resources and growth opportunities and the other firm has an opposite but complementary imbalance, their combination creates value (Myers and Majluf, 1984; Sudarsanam, Holl, and Salami, 1996; Morellec and Zhdanova, 2008). Findings in *SELECTION* are consistent with such notion.

The pattern found in *SELECTION* is also consistent with the findings in the performance improvement analysis. If we focus on the peer-adjusted RevPAR performance, which is the main performance variable in the lodging industry, recall that Table 7 showed that the acquirer properties displayed consistently negative results while the target properties showed consistently positive results. When the existing properties, although they have a broad brand recognition, have a weak performance compare to the product competitors in the market, it will be difficult to attract

developers and franchisors for the additional properties, placing great constraints on future growth. In this situation, firms can develop a new brand of their own or alternatively, they can merge with a firm with a stronger current competitive position with strong growth perspectives. In return, the acquirer may share its broad recognition with the target.

Next, pertaining to Hypotheses 9.1 and 9.2, the relationship between performance changes and premium is tested. The results are summarized in Table 15. Since the main interest here is whether the premium is related to net synergy creation or destruction, the model is estimated only for the peer-adjusted change in RevPAR and OCFROA, which are the main sources of cash flow from the properties to the lodging corporation. Premiums are known to be related to the deal characteristics, the firm characteristics, and the year-specific effect (Betton et al., 2008). Thus, deal- and firm-dependent variables are excluded and only property-dependent variables are included. As before, Panel (A) reports the results without the selection variable and Panel (B) with the selection variable. In Panel (A), *PREMIUM* is significant only in the OCFROA model for the acquirer. When *SELECTION* is added, the results in Panel (B) show that *PREMIUM* is significant for the acquirer in both ADR and OCFROA models.

These results suggest that a higher premium is associated with higher performance change of the acquirer. However, this relationship was not found for the target properties. As was found in the earlier estimation, *SELECTION* shows negative and significant coefficients for the acquirer, which means that the probability of being an acquirer property is negatively associated with the ex post performance changes.

Put together, the results for the acquirer suggest that given that SELECTION is controlled for, i.e. the acquirer's performance improvement tends to be lower ex post, higher premiums are associated with higher performance improvements.

Table 15. Multivariate regression with offer premium

PANEL A. Estimation with the selection variable

Dependent variables are peer-adjusted performance changes defined by the difference between Year +3 and Year -1 for each property. Superscripts a, b, and c indicate significance at the 1, 5, and 10% levels in the two-sided test. Standard errors are in parentheses.

	(1)		(2)	
	D_Peer_RevPAR		D_OCFROA	
	Acquirer	Target	Acquirer	Target
Intercept	32.4264 a	7.6045	14.7747	-15.147
	(7.2995)	(9.6695)	(16.0939)	(31.2697)
PREMIUM	-0.619	-2.6497	14.8261 a	5.8879
	(4.4976)	(7.0895)	(8.3915)	(8.4259)
D_LOC MP	-0.1271 a	-0.2434	-0.07877	-0.1476
	(0.04742)	(0.08506)	(0.0964)	(0.1811)
D_LOC_DM	67.0927 a	75.2188 a	70.6836 a	76.2734 a
	(4.1099)	(5.4729)	(9.3052)	(12.6387)
D_LOC_SP	0.4365	1.7826	0.9594	0.8303
	(0.5072)	(0.6732)	(0.7141)	(0.9123)
LOG_RM	-2.6497	-0.9254	-1.7555	1.0546
	(0.6182)	(0.8507)	(1.3179)	(2.807)
Product Dummies	Yes	Yes	Yes	No
Location Dummies	Yes	Yes	Yes	Yes
Random Effect	Yes	Yes	No	No
Z-stat for Random Effect	2.00 b	1.65 c	n/a	n/a
N	1180	761	384	217
Chi-square	27.84 a	88.87 a	n/a	n/a

Table 15 (Continued)

PANEL B. Estimation with the selection variable

Dependent variables are peer-adjusted performance changes defined by the difference between Year +3 and Year -1 for each property. Superscripts a, b, and c indicate significance at the 1, 5, and 10% levels in the two-sided test. Standard errors are in parentheses.

	(1)		(2)	
	D_Peer_RevPAR		D_OCFROA	
	Acquirer	Target	Acquirer	Target
Intercept	30.9906 a	1.6492	42.0184	-21.4798
	(6.4892)	(12.076)	(14.5473)	(32.1662)
PREMIUM	16.0413 a	-1.714	34.5633 a	3.9621
	(3.0318)	(7.3332)	(5.2903)	(4.3548)
D_LOC MP	-0.1100 b	-0.2275 a	-0.0899	-0.1284
	(0.0450)	(0.0862)	(0.0935)	(0.1824)
D_LOC_DM	65.8488 a	74.4111 a	71.9000 a	74.3932 a
	(3.9624)	(5.4969)	(9.2003)	(12.6721)
D_LOC_SP	1.3435 a	1.7049 b	1.0725	0.5886
	(0.4766)	(0.6769)	(0.7148)	(0.9109)
LOG_RM	-1.2501 b	-0.7400	-2.2221 c	1.5464
	(0.5946)	(0.9869)	(1.2367)	(2.8643)
SELECTION	-10.4999 a	0.9765	-17.2496 a	-0.6506
	(1.2141)	(1.1464)	(3.1334)	(1.2981)
Product Dummies	Yes	Yes	Yes	Yes
Location Dummies	Yes	Yes	Yes	No
Random Effect	No	Yes	No	Yes
Z-stat for Random Effect	n/a	1.65 c	n/a	n/a
N	1180	761	384	217
Chi-square	n/a	33.43	n/a	n/a
F-Statistic	33.72 a	n/a	8.18 a	6.76 a

Thus, Hypothesis 9.1, which claims that higher premiums are associated with better post-acquisition performance, is supported for the acquirer properties. In contrast, no evidence is found for Hypothesis 9.2, which claims that higher premiums are associated with poor post- acquisition performance.

While researchers have persistently found positive combined abnormal returns for the target and the acquirer, decomposition of these joint outcomes revealed that targets accounted for the majority of those gains, with acquiring firms contributing neutral or negative returns (i.e., Bradley et al., 1988; Houston et al., 2001; Leeth and Borg, 2000). One explanation for the unequal results between the target and the acquirer has been that premiums have to be paid to the target shareholders. Findings in this study indicate that the premium, which is paid in the absence of any relationship with the target's ex post performance improvement, is still justified as a payment for achieving the acquirer's performance improvement.

Finally, as a summary, Table 16 presents the results of the hypotheses formulated and tested in this study. The analyses found supporting evidence for local market conflict impact on price for both target and acquirer properties (H2.2), positive buying power effect from property growth for both target and acquirer properties (H3), positive product confidence effect for the target properties only (H6) , underperformance of deals announced in high industry cycles for the target in RevPAR performance and for the acquirer in OCF measure (H8), and a positive association between performance and the premium paid for the acquirer properties in RevPAR and OCF measures (H9.1).

No evidence was found regarding national property growth and price (H1), local collusion (H2.1), the effect of local conflict on cost savings (H4.1 and 4.2), cross-selling impact across heterogeneous product (H5), disciplinary role of takeover (H7), and the destructive implication of the offer premium (H9.2).

Table 16. Summary of the results

Hypotheses	Related theoretical/analytical framework	Result
A. Market Power		
H1. The price increase of the target and the acquirer properties is greater with the higher property growth induced by the merger.	Market power hypothesis	Not Supported
H2.1 The merger-induced market power in the local market is positively associated with the increase in price of the properties of the target and the acquirer.	Local cooperation	Not supported
H2.2. Merger-induced territorial conflict in the local market is positively associated with a decrease in price of the properties of the target and the acquirer.	Local erosion	Supported
B. Buying Power		
H3. The cost saving of the target and the acquirer properties is greater with the higher property growth induced by the merger.	Buying power hypothesis	Supported
H4.1. The cost saving of the target and the acquirer properties is greater with the higher buying power at the local market.	Local cooperation	Not supported
H4.2 The cost saving of the target and the acquirer properties is lower with the higher buying power at the local market.	Local erosion	Not supported
C. Relatedness of Target and Acquirer		
H5 The higher the product distance between the target and the acquirer, the higher the occupancy rate of the target and the acquirer.	Cross-selling across heterogeneous product types	Not supported
H6 The lower product distance between the target and the acquirer contributes to the higher price.	Product confidence	Supported
D. Tender Offer		
H7. The operating performance of the target properties is superior with the tender offer.	Market discipline	Not supported
E. Industry/market environment		
H8. The transactions announced in a high industry cycle perform poorly in the post-acquisition period.	Performance extrapolation Managerial overconfidence	Supported
F. Premium		
H9.1 The offer premium is positively associated with the post-acquisition operating performance of the target.	Resource-based theory of firm	Supported
H9.2 The offer premium is negatively associated with the post-acquisition operating performance of the target.	Managers self-interest	Not supported

CHAPTER 8

CONCLUSION

Synergistic gains are the most frequently stated rationale for mergers and acquisitions. Nonetheless, most of the academic literature has found limited evidence for value creation. As an attempt to explain this apparent contradiction, this paper examined the performance changes, the sources of synergy, and their realization into synergistic gains more directly. Rich information from the lodging industry dataset served as a good laboratory to isolate the impact of M&A on performance changes of the acquirer and target separately while controlling for other factors that can also affect performance. In this chapter, the findings of this study are consolidated into concluding remarks. The main discussion will focus on the observed performance changes as well as the synergy outcome and the sources of synergy which are verified by regression analysis.

This study investigated whether performance actually improves after mergers and acquisitions at the property and the aggregate firm level. The results at the property level showed that the target properties achieved strong cost savings reflected in the improvement in the gross profit margin, which also affected improvement in the operating income margin. The price measure (ADR) showed a significant negative change, but the impact on revenue was insignificant. On the other hand, the acquirer properties showed a significant RevPAR improvement achieved by the occupancy rate improvement. No cost-saving effect was detected and the operating income margin exhibited significant deterioration for the acquirer in the property-level analysis.

On the aggregate basis, the firm-level analyses showed significant RevPAR gains and cost savings for the aggregate merged firm. The separate firm-level analysis by the target and acquirer reveals that most gains were realized on the acquirer side.

The ADR and occupancy rate analyses showed that RevPAR gains were attained by the improvement in the occupancy rate. Given that lodging operations are predominantly franchised, the RevPAR gains found in the combined firm indicate positive value creation from the mergers and acquisition. Although a significant cost-saving effect was detected for the target at the property level, it was not shown for the target firms in the firm-level analysis due to size and aggregate effects.

Next, this study performed regression analysis in order to identify the sources of synergy. While the property-level data was used, the regression model was carefully designed to control the unobserved deal-level characteristics, possible selection bias, and other factors that can also affect the performance. For both target and the acquirer, the buying power was verified as a source of cost savings as shown in the positive results of property growth (*PR_GROWTH*) in the gross profit margin model. Against the collusion hypothesis, property growth was found to be insignificant for both the target and the acquirer.

For the revenue, the target and the acquirer showed different sources of synergy. The target properties, although no significant changes were found in either property-level or the firm-level analysis, the regression results show that RevPAR change is associated with the nature of product combination. As shown in the negative coefficient of the product distance (*P_DIST*), the closer the brand families of the target and the acquirer, the more beneficial for the RevPAR of the target relative to the product competitors. The ADR and occupancy model reveals that such a RevPAR impact stem from the ADR change, i.e. *P_DIST* was significant only in the ADR model. For the acquirer properties, however, *P_DIST* was insignificant in the corresponding models. These results indicate that the acquirer's brand recognition spills over to the target and increases the brand confidence when the target's brands are merged into the acquirer's brand family. Thus, the acquirer's brand equity is

identified as a source of the target's price and revenue gains in this type of brand combination. For the acquirer, which already has a brand recognition, there is no further gain or loss.

For the acquirer, the RevPAR gain was found to stem from the cross-selling effect. When the selection was controlled, the property growth (*P_GROWTH*) was significantly positive in the RevPAR model for the acquirer. Since *P_GROWTH* was insignificant in the price model while it was significant in the occupancy rate model, the RevPAR gain is clearly attributed to the occupancy enhancement. These results can be explained by the target customers' cross-purchase of the acquirer's properties. However, the same effect was not found for the target properties. Thus, an increase in geographic availability achieved by the merger is identified as the source of acquirer's revenue and occupancy gains.

Along the way, this study identified the sources of value erosion from mergers and acquisitions. Increasing room capacity within the local market was shown to have a detrimental impact on ADR, occupancy rate (significantly for the acquirer), and RevPAR for both acquirer and target properties. This is contrary to the view that enhanced local cooperation by building capacity within the local market would lead to an increase in price and/or occupancy rate. The fact that both ADR and occupancy rate show the negative coefficient demonstrates that mergers can cause a particularly detrimental impact on the target and the acquirer properties within the same local market. Thus, an increase in local contact is identified as the source of value erosion for both the target and the acquirer. With respect to the product distance, the flipside of the negative coefficient of *P_DIST* indicates that more heterogeneous brand combination has a detrimental effect, presumably from brand dilution. Again, such results only affected the target. Given that the acquirer firms were found to be older,

they may have solidly established brand equity, which may not be affected by the target's brand characteristics.

Two moderators of merger performance were also examined in this study: deals announced in high industry cycles and tender offers. The deals announced in the high industry cycles showed a negative association with the target's ADR changes and the acquirer's operating cash flow changes relative to their peers, indicating that the deal may have been driven by a non-value enhancing motivation or over-optimism. Refuting the disciplinary role of the takeover market, the tender offers showed no significant association with any of the synergy measures.

This study also found that even if there is synergy created from underlying sources, the gains may not manifest due to the offsetting value erosion or size/aggregation effects. For example, the regression analysis combined with the findings in the analyses of performance changes both at the property level and the firm level showed that property growth is positively associated with the target property's cost savings. Such gain was found in the property analysis where all the properties received equal weight. Once properties were aggregated for the target firm, the cost-saving effect was no longer significant because the gain was mainly realized in the small-scale properties.

In terms of the relationship between the offer premium and post-acquisition synergy measures, the offer premium showed a significant positive association with the RevPAR and OCFROA gains for the acquirer properties and positive but insignificant results for the target properties. While the finding supports the supposition that the premium reflects the value of synergy, interestingly, it is suggested that the target serves as a crucial resource to improve the acquirer's performance, and the premium is a payment to gain access to such a resource, rather than that the premium is the payment for the future improvement of the target per se.

Finally, the results also indicated that the lodging mergers demonstrate the complementary nature of resource combination between the target and the acquirer. It was found that the acquirer's buying power and brand recognition can have a positive spillover effect on the target's cost saving and price premium; target's customers may cross-purchase the acquirer's properties. The complementarity is also implied in the opposite signs of the selection variable (positive for the target and the negative for the acquirer).

CHAPTER 9

DISCUSSION

9.1 Contribution

Motivated by the theories and literature of mergers and acquisitions, this paper examined the realization and the sources of synergy more directly. The detailed mechanism of value creation underlying mergers and acquisitions has been largely unknown. For example, while post-merger price change has received relatively greater attention, the task of identifying the sources of such change has been quite elusive due to the general inability of economists to empirically disentangle the market power element of performance from that of efficiency (Carter, 1977). In this regard, the primary contribution of this study is to provide a clearer picture of the creation of synergy and its sources in an isolated manner by examining each component items (e.g. price and quantity measure for revenue) as well as the composite ones. For the example above, the results in this study indicated that while property growth has no impact on price increase, it leads to a significant cost savings. Moreover, these results were obtained while controlling for the supply and demand condition, product types, and location. Thus, clearly, this study shows that the collusion hypothesis is not supported without ambiguity. More specifically, the multivariate regression results indicate that a unit change in the property growth, which corresponds to 28 percent annual growth rate in the number of properties, leads to about a 1.7 percent and 1.4 percent improvement in peer-adjusted gross profit for the acquirer and the target group, respectively.

The second contribution of this study is that it investigated the impact of synergy creation by the target and the acquirer separately and thereby shed light on the

role played by the target and the acquirer regarding the creation of synergy. For example, studies have pointed out that product line extension can enhance revenues after the merger if the managers exploit the strong reputation of a merging business brand (Capron and Hulland, 1999). However, it has not been very clear about the detailed mechanism of how such gain is obtained. The findings in this study show that the revenue gains are achieved when the target's brands are combined with a similar brand family of the acquirer. Also, the gain is more likely to be realized on the target side. In addition, it was shown that the revenue gain is generated from the price gain. For another example, property growth was shown to have a positive impact on the acquirer's revenue through occupancy gain. In this case, this result indicates that there is a cross-selling effect from the target customer to the acquirer properties.

The third contribution of this study is that it incorporated the value erosion as well as the value creation of mergers and acquisitions. The possible value erosion is obvious from the theory but it has not been discussed much in existing empirical research. This study provided evidence that local market conflict and brand dilution from the heterogeneous brand combination can be detrimental on the performance. Given that many mergers are criticized given that the promised synergy gains fail to realize, findings in this study provide valuable insight for both academics as well as industry practitioners.

Finally, this study evaluated the relationship between the premium and the post-acquisitions operating performance. The results showed that premiums are associated with the ex post performance improvement not of the target but of the acquirer. Combined with the value gains to the acquirer shown in the aggregate analysis, this result indicate that the premium is required to gain control over the target's assets which can be valuable in improving the acquirer even though the target's synergy on the aggregate basis does not manifest.

9.2 Limitations and Future Research

The lodging industry provides a unique opportunity to test the impact of mergers and acquisitions while controlling for other confounding factors of the market. In studies of large-scale data and even at industry-level studies looking at other industries, estimating and controlling for such conditions can be extremely challenging. This was possible in this study because there is no major substitute for hotel rooms; the product type and geographic market boundary are relatively well defined; and the data is available for a substantial portion of U.S. hotel properties. However, given that the results of this study were drawn from the lodging industry, there is no guarantee that the results will apply to other industries.

In order to examine the realization of synergy at the root of the organizational structure, this study examined the data at the micro level from hotel properties. However, the organizational integration and modifications at the corporate level are expected to affect the post-acquisition synergy creation (Canina, Kim, and Ma, 2010). In the trend of asset-light strategy in the lodging industry,[22] core assets of lodging corporations are shifting to intellectual capital, i.e. codified knowledge about an organization's systems and operations (systems capital); knowledge about customers, markets, and distribution (customer capital); and knowledge acquired from people skills and expertise (human capital) (Walsh, Enz, and Canina, 2008). While Zollo and Singh (2004) examined the knowledge codification on the performance of mergers and acquisitions and reported a positive impact on the post-acquisition operating performance, an investigation of a broader range of intellectual capital in relation to mergers and acquisitions will also add value to M&A research.

[22] Asset-light or asset-right? *The Economist*, Nov 11 2010.

Regarding the event study framework, econometric caveats and responding refinement of the design and methodology are continuing among academics. Despite an extensive literature, as Kothari and Warner (2008) put it, there is still no clear winner in this horse race. In addition, there are many alternative ways of constructing peer performance. One may estimate the counterfactual performance, i.e. the performance in the hypothetical state if a property were not involved in the merger and acquisition. This dissertation defined the peer by the product competitors in the market so that a practical interpretation is possible in terms of the competitive advantage of the merger-affected properties over non merger-affected ones. However, it will also be meaningful to examine the outcomes by different methodologies. The comparison itself may not be of much significance because these two methods can answer different questions, i.e. whether the merged firms perform better than the competitors versus whether the merged firms perform better than if they were not the subject of a merger.

Another issue related to the event study is the sample selection process. In order to analyze the impact of a single deal without any interference of other deals, this study identified the sample in a non-overlapping manner, which led to dropping hotel firms that make multiple acquisitions over a short span of years. Focusing on the relatively infrequent acquirers can overweight a sample with mergers that were poorly implemented, because successful acquirers will tend to seek new and bigger deals while failed acquirers will tend to abstain from future acquisitions (Houston et al., 2001). The performance of the hotel properties of frequently acquiring firms remains as a future research area.

In terms of the offer premium, the findings indicated that the premium is positively associated with the improvement in the post-acquisition performance of the acquirer, refuting the idea of premium as a proxy for value destruction. Nonetheless, it

is still possible that the acquirer has paid above the true value of the synergy. Additional study involving further cash flow projection and estimation will be necessary to fully evaluate such a statement.

With a limited number of deals between public companies, this study was not able to link the announcement returns and realized performance improvements in the post-acquisition period. However, some conjecture is possible. In peer-adjusted RevPAR and OCFROA improvements, the aggregate firm-level analyses separately by target and acquirer showed a positive result for the acquirer in RevPAR and insignificant results for the target. Still, it was found that the premium had to be paid to the target shareholders to realize such gain on the acquirer. Combined, various scenarios are possible. Both target and acquirer can experience a positive announcement return as in Canina (2001). For the target, this outcome can be driven by the premium, and for the acquirer, it can be driven by the expected synergy gain. If the premium is excessive relative to the acquirer's synergy gain, then, the acquirer will experience a negative announcement return while the target will experience a positive return (again from the premium). Future research may further verify these points.

APPENDIX

Hotel Product Types

Industry Sector and Quality Levels	Characteristics of Quality levels	Brand Exemplar
Luxury	Elegant; distinctive; highest-quality décor; upscale restaurants; full range of first-class amenities and customized services	Four Seasons
Upscale	Well-integrated décor; quality furnishings; premium guest-room amenities and facilities; high staff to guest ratio.	Hyatt, Crowne Plaza
Midscale with food and beverage	Nicely appointed rooms; range of facilities; good-quality amenities; some special services available; restaurants.	Holiday Inn
Midscale without food and beverage	Nicely appointed rooms; range of facilities may be limited; good quality amenities.	Hampton Inn
Economy	Clean and comfortable; minimum of services and amenities	Days Inn

Source: Canina, Enz, and Harrison (2005)

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