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The impact of a management company's scale on hotel market value

Gil Keinan

Pepperdine University

Graziadio School of Business

THE IMPACT OF A MANAGEMENT COMPANY'S SCALE ON HOTEL MARKET VALUE

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Gil Keinan

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Dongshin Kim, Ph.D. – Dissertation Chair

This dissertation, written by

Gil Keinan

under the guidance of a Dissertation Committee and approved by its members, has been submitted to and accepted by the Pepperdine Graziadio Business School in partial fulfillment of the requirements for the degree of

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Doctoral Dissertation Committee:

Dongshin Kim, Ph.D., Supervisor and Chairperson

Abraham U. Park, Ph.D., Secondary Advisor

Prashant Das, Ph.D., External Reviewer

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DEDICATION

I dedicate this dissertation to my father, Hardy Keinan, who was an intelligent and humble man. Dad believed in family, religion, knowledge, and hard work. Sadly, he left this world too early and we miss him dearly.

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I wish to express my gratitude to the many individuals who have made it possible for me to start, participate in, and complete this Doctoral degree. I would like to start by thanking the extraordinary faculty at Pepperdine Graziadio Business School, especially my dissertation committee, Dr. Abraham Park and Dr. Prashant Das, for their insights and support, and a special thank you to my Supervisor and Committee Chair Dr. Dongshin Kim for his kind guidance, clear directions, and ongoing encouragement.

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Most importantly, to my loving wife Cindy, I apologize for the endless weekends and evenings we missed together. Thank you for your understanding and unwavering commitment to getting this dissertation published.

VITA

Gil Keinan is a real estate finance and development professional. Keinan is the Managing Director of Local Equity, an Economic Development Organization that provides financial solutions to community priority projects. Keinan also co-founded HObsequio, a hotel asset management and advisory firm. He previously served as FUSE Executive Fellow with the County of San Bernardino, leading efforts to attract investment into 57 low-income Opportunity Zone census tracts. Keinan's background includes expertise in real estate with known management and investment firms. His hands-on operational insights from Four Seasons Hotels, coupled with strong comfort in marketing, management, development and value creation in private equity, enabled him to lead complicated deals to successful exits. Overall, Keinan provided leadership to over $2 billion in asset management, and supported over $1 billion in transaction volume.

Keinan studied the impact of management groups on hotel sales value as part of his doctoral dissertation research at Pepperdine University. He received his M.B.A. from the University of San Francisco, and is a graduate of the University of Surrey (United Kingdom) School of Hospitality Management.

Keinan is frequently contacted as a resourceful leader for input on multiple non-profits, industry groups, and academia. He serves on the board of directors of the Neighborhood Housing Services of Inland Empire, is a member of the National Real Estate Investor Association, California Association of Local Economic Development, the American Real Estate Society, and the Hospitality Asset Managers Association. His greatest strength is his ability to creatively untangle 'hairy' situations, while building long lasting relationships that provide value to his employees, clients, and partners. He has lived in seven countries and speaks multiple languages, and enjoys discussing the intersection of macro- and micro-economic trends. He currently resides in sunny Southern California with his wife and three boys.

ABSTRACT

The choice of management structure is growing in importance for hotel owners. Most owners' investment theses are based on an attractive acquisition basis, focusing on net cash flow and the sales exit. Depending on the market, transaction price may be influenced by asset level performance which is highly influenced by daily revenue and expense decisions. Hotel brands quantify their value via measures that include market share and loyalty of a customer base. While much research has been conducted on the impact of brands on market value, the influence of hotel management on resale value has not been well investigated. This study seeks to ascertain whether management companies that have a larger reach also have a proportional impact on the sales price, enjoying the economy of scale. The current study isolated the value of a brand to identify the impact of the size of the management company on hotel sales price. Transaction data included U.S. hotel sales over a 19-year timeframe (2001-2019). The impact of management size on hotel sales value is investigated by answering: (1) if there is an economies of scale effect between management size and sale price, (2) if the size of the hotel influences the impact of management, and (3) if such effect differs by location. The results point to a relationship between management size and hotel sales price, which varies by geography and property size. The findings will enable hotel owners to consider an additional investment variable when buying or selling hotels.

Keywords: Hotel Management, Real Estate Investment, Commercial Real Estate

CHAPTER 1: INTRODUCTION

Overview

The Real Estate (RE) investment market includes many asset classes. Higher risk RE asset categories are those that historically exhibit increased performance impact due to market volatility, wherein subject knowledge is required to operate at, or above, average market profitability (Newell & Seabrook, 2006). This research focuses on hotels as a higher-risk asset class. Specific focus is given to the relationship between a management company's size and transaction price impact.

Hotels are often described as an operating business given their quick reaction to customer and market trends as well as their need to operate 24 hours a day, seven days a week. Unlike other real estate asset classes, asset valuation does not depend on monthly rent collections and vacancy factors (Worsley, 2015); rather, it is affected by daily market demand fluctuation and expense management (Dick, 2019). The main revenue source for hotels is rooms rental revenue, traditionally followed by food and beverage sales and, "other" revenues which encompass parking, commissions, resort fees, etc.

A typical hotel property has many stakeholders affecting its performance but, contractually, there are four main forces driving decision making: (1) the owner, (2) the management company, (3) the franchisor (often referred to as the brand), and (4) the Hotel Asset Manager, a third party who represents an owner in an owner-operator relationship. A hotel owner is defined as any person, company, or equity investor possessing the registered right to the physical real estate comprising the building, its grounds, or having the rights to such real estate via a lease, land lease, or other arrangement. The franchisor is described as delivering added brand value that is intangible in nature but which provides an important influence on the buying

consideration of the consumer (Carvell et al., 2016; Chernatony & McDonald, 1998). Aaker (1991) was first to coin the term brand equity, arguing that it helps a product differentiate in the marketplace and decrease competition; hence, allowing for charge premium. Finally, the management company is hired by the owner under the structure of a management agreement to manage the hotel on its behalf (Hodari et al., 2017). Hotel valuation is often a more complicated exercise than other property types because of the greater risk of daily revenue management and high fixed costs associated with running the business which can quickly turn a profitable investment into a loss (Fu et al., 2013). Fu et al. (2013) also established that, unlike other property types, hotel asset valuation often uses discounted cash flow models rather than sales comparison or replacement methodologies because brand and management influence the operation. Also, because of the fixed cost of operating and keeping a hotel open, the impact of sufficient cash flow on income has overwhelming effects on value. Ultimately, this is explained as an argument of income and expense. In other property types, an owner may charge a triple-net-lease and defray all costs to tenants. However, when it comes to hotels, every additional dollar in revenue and expense flows to the bottom affecting the property value.

The objective of this research was to investigate whether management size impacts hotel sales prices. Creating a management company is not an easy feat and requires accessibility to systems, best practices, human capital, and negotiating power amongst many other capabilities to effectively compete in today's market. The theoretical model used is that of economies and diseconomies of scale. The literature describes scale as somewhat of a reverse U-shape effect, described as economies of scale (Chandler & Hikino, 2009; Jain & Robinson, 2020; Wicker et al., 2014) and diseconomies of scale (Bolton & Dewatripont, 1994; Garicano, 2000; Stein, 2002; Williamson, 1975) that is not exponential to growth, initially rising at a faster pace, then tapering

which may drag a company's productivity downwards after a certain degree of complexity. In hotels, this may implicate an initial value increase as management size increases, then a level of optimization in size, followed by a decrease in associated premium when management companies increase too much value that diminishes with every additional hotel under management. Therefore, this research addressed the size of the management company as a potential factor of the success of the owner in selling the asset. To test the relationship between management company size and sales price, the research examined three suppositions: (1) if there is an economy of scale effect between management size and sale price, (2) if the size of the hotel influences the impact of management, and (3) if such effect differs by location. Previous research has evaded the separation of management effects from brand effects. This study fills such void by focusing on management and testing the impact by market dynamic.

Problem Addressed

Most owners' investment plans are based on a combination of an attractive basis, focusing on net operating cash flow and the sales exit, which ideally occur when the hotel is sold at a premium to acquisition. Unless an investor is looking to buy a stabilized asset (a hotel performing at a mature stage at or above market benchmark), a common model of 'value-add' hotel investors is to buy a hotel and make capital investments and management changes to effectuate an improved product, service, and operating profit. The question is how much the management change increases the value of the property.

Hotel properties are sensitive to the daily market rate fluctuations and they are exposed to high fixed expense overhead unlike other property types that charge monthly rent. Thus, the risk profile associated with hotels are often described as alternative investments and the market valuation heavily relies on the future discounted cash flow models (Fu et al., 2013) rather than

sales comparison or cost approach. Specifically, valuation is then derived from a multiple (1/capitalization rate) of a discounted annual forecast of net operating income (Das, 2015; Dick, 2019; O'Neill & Matilda, 2007).

Given management's strong influence on profitability via daily revenue management and expense controls, the current study was carried out to understand the relationship between the size of the management company and the resale value of a hotel under the framework of economies of scale. On one hand, the literature revealed there is a plethora of research that links the value of a brand to resale value (Chandler et al., 2009; Jain & Robinson, 2018), in which brand value is measured by using calculation to account for elements that are influenced by management; hence, the term brand and management are used synonymously at times which can potentially misrepresent cause and effect. On the other hand, and according to my current knowledge, the assumed effect of a contractual relationship with hotel management and its ability to drive profitability, and the subsequent impact on resale value, has been examined only in a single research study (Hodari et al., 2017). Hodari et al. (2017) examined the market myth that hotels that are unencumbered of management sell for a premium to properties that are contractually obligated via a management agreement or a lease. This hypothesis challenging that market myth was based on transactions that happened in 2006, where ownership decided to encumber hotels before marketing them for sale. Their study of 442 U.K. hotels controlled for the size of the hotel, branding, and chain segment (e.g., economy, midscale, upscale, luxury, all suites), as well as other physical characteristics, location, and year of sale to determine the relationship between variables and their value as the elements of a Hedonic pricing model. The findings revealed that hotels in the U.K. that were subjected to a management agreement sold for a premium of 17.9%, and those subjected to a lease agreement sold for a premium of 15.6%. For

leased hotels, the authors explained that the stability of cashflow enabled investors to assign a risk reduction premium on sales price over unencumbered hotels. Hotels under management contracts achieved the mentioned 15.6% over unencumbered hotels, explained by the assumption that contractual terms were attractive comparative to the U.K. market which is mainly lease focused. Their recommendations for further research highlighted a somewhat basic way that management is examined and suggested to subcategorize third-party and branded management companies to understand impact on hotel market values. As a matter of practice, hotel lease structures are not common in the U.S. In addition, legal employment and insurance requirements in the U.S. effectively encumber every hotel with a management agreement, even if it is effectively owner managed, or if such management agreement can be terminated upon sale.

In the current study, the transaction price is correlated to management company and property level data in the U.S. In addition to the geographic difference, the larger sample of 6,395 hotels enabled a focus on the impact of management leading up to terminal value; hence, historical value creation versus the implied perceived value that a management contract or a lease might have on a going-forward basis. This study builds on hedonic pricing as a more sophisticated econometric technique similar to Hodari et al. (2017) and parlayed quantitative elements that enable management to better perform, such as size and match, with the types of properties under management. Thus, this research contributes to the existing literature by further enhancing knowledge of the determinants of hotel sales prices.

Until the mid-1990s, owners had very few choices of third-party management firms. Most options they did have were larger hotel brands (e.g., Marriott, Hilton). Hodari et al. (2017) noted that with increased ease of electronic connectivity, more independent management companies were able to get established to operate multiple hotel properties and scale their

operation geographically. Depending on the type of building, many current hotel owners are larger, sophisticated private equity or institutional investors who lack the know-how to operate a hotel; and they generally are not equipped or interested in getting involved in the operation. Therefore, contracting with a professional hotel management company enables owners to focus on their capabilities in financial planning and redeployment of capital.

On the other hand, management companies can run an asset-light model with no start-up expense to invest in real estate and defray all costs to ownership (Blal & Bianchi, 2019; Sohn et al., 2014) which enables them to grow rapidly. Sohn et al. (2014) explained asset-light models as businesses that pursue a fee-based business model without large capital investments. Several management companies and franchisors operate asset-light businesses in the hotel business as they provide services to the hotel owner with little or no investment in the physical brick and mortar. Management firms tout their reach, staff retention, and best practices for revenue/expense management as reasons why owners should contract with them. They develop and leverage complicated information technology (IT) systems that manage revenue yield, payroll, accounting, marketing, negotiated purchase order procurement, and have regional access to staffing quicker than standalone operations. Much of the duties described, including IT systems, revenue management, and operating best-practices, take years to create and come with a high cost that can usually only be absorbed above a specific platform size. This creates an unofficial relationship between the ability of a firm to optimize its output and the number of locations it has under management.

Given that management relies on subject matter expertise, economies of scale, and resources, my research examines the effect of management size as an element of economies of scale to ascertain its impact. For example, a recent interview with the leadership of a large

independent hotel management company pointed to scale as a leading force for their recent success (Wroten, 2020). Given the rise of management firms over the last 20+ years, it has become increasingly important to create tools that enable investors to make intelligent business decisions on management firms that can help yield the highest returns for their real estate assets.

Research Question

This research study investigated the impact of the management company on the hotel property sale price. It specifically tested whether the size of the management company influences transaction prices. A company's size was measured by the number of hotel properties under management. The following research question provided focus to the research:

> ***What is the relationship between the number of properties that a hotel management company manages (management size) and the corresponding sale price premium?***

Three hypotheses were examined to provide detailed clarity and progressive depth to the research question. First, the question of a reverse U-shape effect on sales price was tested to examine if there is a correlation and if such correlation is indeed reverse U-shape (positive initially, then negative for larger management groups). Second, the impact of the hotel size was examined to ascertain if internal scale within the building because of local operational capabilities has a positive or adverse effect on management size impact. Finally, the basic concept of location premium was tested to quantify the effects of market compression and urban resources on management size impact.

Significance of the Research

Hodari et al. (2017) acknowledged the impact of management contracts focusing on the effect of such contractual encumbrance on the transaction price. My proposed approach

attempted to take their finding a step further by investigating potential effect of economies of scale of the management company as an independent variable. Thus, my study attempted to fill a void in academic research and introduce a new variable in hedonic pricing models.

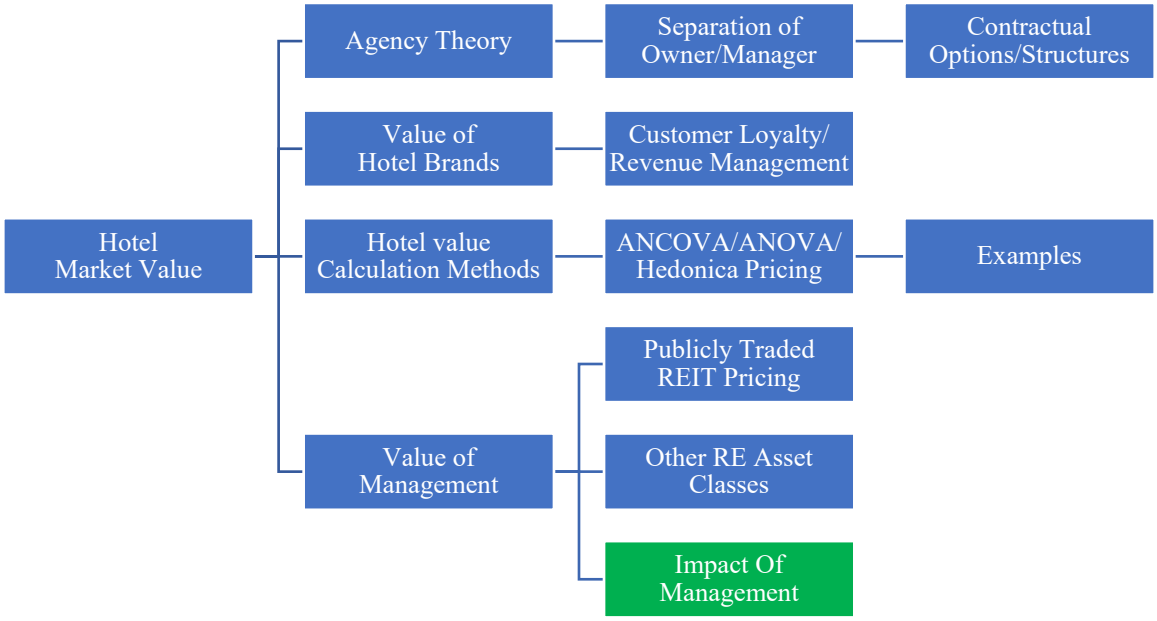
Findings from this research might help to increase investment power and decision-making capacity. They could also provide guidance for buyers and owners to better model and quantitatively benchmark optimal management companies to derive the highest market value for each investment deal. The findings might also be used by an owner in negotiating more competitive fee structures with management firms that drive lower premiums in sales price. In addition, lenders could use the data to include probabilities of borrowers presented business models to increase or decrease debt/value ratios. Ultimately, the appropriate matching of a property and management will increase an investor's success by optimizing potential sales value.

CHAPTER 2: LITERATURE REVIEW

While some ownership groups also manage hotels, this research did not distinguish management companies who are independent from hotel ownership, given its general focus to understand the impact of management on hotel resale premiums. Management companies present their value as being able to leverage "superior operating expertise, economies of scale, and resources" (Hodari et al., 2017) in order to drive increased operating results. In addition, while some management agreements are signed with a brand (i.e., who is/has the choice to license the mark or to negotiate a management agreement), this research did not distinguish between management contracts that come with a franchise or without; albeit the study did control for brand impact within the analysis. Previous research can be organized into four interdependent specialties: (a) Agency Theory; (b) Value of Branding; (c) Market Valuation Methods; and (d) Value of Management. However, the relationship between the management size and the hotel property value has not been investigated in the existing body of research. To fill the void, this study analyzed the impact of hotel management size as proxied by the number of hotels under management, on the hotel value as proxied by the sale price. The area of focus in the current study is depicted in the green box illustrated in Figure 1.

Figure 1

Determinants Influencing Hotel Transaction Value



Agency Theory

A major group in the literature addresses the Agency Theory, which describes varying conflicts between stakeholders, in this case between owners and management companies. Eisenhardt (1989) defined agency theory as a conflict of goals and desires between the parties with the inability of one to verify the action of the other. Eisenhardt (1989) also examined different attitudes towards risk given conflicting priorities.

In this context, the basics relate to contractual capital terms in which both a management company and a brand are incentivized to grow management fee income that are most commonly laid out in a hotel management agreement (HMA) or a Franchise Agreement (FA) as a percentage of total hotel revenue (Hodari et al., 2018; Schlup, 2004). Conversely, owners focus on income and profitability to meet debt and shareholder distribution commitments and calculate property value. Prior to 1990, a limited number of companies offered management services yet

held the majority of market share (e.g., Marriott, Hilton, Wyndham) (Hodari et al., 2018). Many smaller companies came into existence with increased competition and growing ease of electronic distribution through online channels. Newer companies offer purely management services, providing owners the option to manage their hotel as a franchised operation under a larger brand (Marriott, Hilton) or as an independent unflagged hotel. Several of these management companies have grown in the number of properties/number of rooms managed as well as geographically and now compete in scale with some of the more notable brands.

DeRoos (2010) described the legal separation of management contracts from brand contracts. DeRoos (2010) claimed that even when contracted with one company instead of a franchise and an independent hotel management company, contractual terms separate fees as they may be advantageous from a tax or a termination point of view. The combination of branding and management may be advantageous to the brand on many levels, including fees, termination, term, and more (DeRoos, 2010). Table 1 displays an excerpt from the April 2020 issue of *Hotel Business* magazine and provides the 2019 annual ranking of third-party management companies. In comparison, Table 2 shows the leading hotel brands by number of properties.

Table 1

Annual Ranking of Management Companies

Company	Gross annual revenue (in millions) 2019	2018	# of properties managed 2019	2018	# of rooms managed 2019	2018	# of third-party managed	Ownership stake
1. Aimbridge Hospitality	$8,200.0	$5,000.0	1,267	834	179,404	102,786	1,267	113
2. Highgate	$2,600.0	n/a	156	142	42,000	37,307	156	40
3. HEI Hotels & Resorts	$2,004.0	$1,807.3	82	80	24,852	24,518	77	5
4. Crescent Hotels & Resorts	$1,940.3	$1,612.9	97	103	29,572	28,137	97	0
5. Pyramid Hotel Group	$1,284.0	$1,443.0	90	99	21,732	25,053	88	4
6. White Lodging Services Corporation	$1,259.2	$1,198.4	98	94	19,946	19,259	60	36
7. Davidson Hotels & Resorts	$1,103.1	$810.0	47	38	14,084	10,852	47	0
8. Atrium Hospitality	$1,019.7	$1,008.5	84	81	20,899	20,285	0	85
9. Remington Hotels	$958.3	$932.4	88	86	17,271	16,918	88	0
10. Sage Hospitality Group	$928.6	$931.2	53	57	11,834	12,317	33	20
11. Concord Hospitality	$914.0	$670.0	124	105	18,740	15,423	124	0
12. Benchmark, a global hospitality company	$846.9	$659.1	50	57	9,805	8,137	50	3
13. Crestline Hotels & Resorts LLC	$819.0	$766.5	118	118	17,606	17,250	118	0
14. Dimension Development	$706.7	$685.7	63	69	12,677	11,197	69	0
15. TPG Hotels & Resorts, a Procaccianti Company	$580.0	$670.0	56	53	13,326	12,857	56	0
16. PM Hotel Group	$577.3	$493.0	60	53	10,400	9,300	60	0
17. OTO Development	$454.4	$486.9	55	64	7,969	8,744	32	23
18. GF Hotels & Resorts	$438.5	$385.9	71	77	12,460	11,729	71	20
19. MCR	$419.5	$385.5	91	86	12,458	11,672	2	89
20. CoralTree Hospitality	$379.4	$500.0	21	17	5,009	3,959	21	0
21. Noble House Hotels & Resorts	$371.4	$325.8	18	17	2,937	2,810	9	9
22. Chesapeake Hospitality	$362.7	$332.7	43	40	8,702	8,208	43	0
23. Marcus Hotels & Resorts	$333.7	$326.9	20	21	5,378	5,255	12	8
24. Urgo Hotels & Resorts	$325.0	$310.0	46	44	6,798	6,527	44	8
25. HVMG	$316.6	$291.8	42	44	7,141	7,480	42	8
26. HRI Lodging LLC	$279.0	$255.5	25	25	4,518	4,417	25	0
27. Marshall Hotels & Resorts	$276.2	$252.1	60	55	8,202	7,804	60	0
28. Prism Hotels & Resorts	$258.9	$256.6	28	27	5,261	5,051	28	0
29. Brighton Management	$257.4	$248.6	35	37	5,653	5,757	35	0
30. Pacifica Hotels	$243.0	$233.6	39	37	3,783	3,619	12	27
31. Chartwell Hospitality	$238.0	$218.5	41	39	5,721	5,391	24	17
32. Greenwood Hospitality Group	$231.0	$203.0	23	19	4,111	3,870	23	5
33. Kinseth Hospitality	$225.0	$195.0	87	66	9,860	7,143	76	11
34. Linchris Hotel Corp	$222.7	$193.2	30	33	4,649	4,716	30	24
35. Columbia Hospitality Inc.	$207.7	$163.7	20	17	1,967	1,605	20	5
Commonwealth Hotels	$207.7	$210.3	48	46	5,992	5,527	31	17
37. Trust Hospitality	$200.0	$190.0	34	32	4,000	3,700	35	4
38. Woodside Hotel Group	$190.0	$170.0	10	10	1,200	1,200	5	5
39. OLS Hotels & Resorts	$185.7	$173.5	31	21	3,675	3,110	31	0
40. Peachtree Hospitality Management	$184.0	$150.7	56	52	6,605	6,122	7	1
41. Innistree Hotels	$183.2	$175.5	23	24	3,287	3,309	2	21
42. Meyer Jabara Hotels	$172.9	$193.3	26	25	4,061	4,190	6	20
43. PCH Hotels & Resorts	$172.2	$152.8	9	8	2,248	2,077	9	0
44. Winegardner & Hammons Hotel Group LLC	$169.1	$174.1	19	21	4,040	4,377	19	0
45. Quorum Hotel Advisors	$166.4	$176.7	12	11	2,538	2,429	10	1
46. M&R Hotel Management	$163.9	$145.5	23	24	3,528	3,020	25	0
47. HP Hotels	$163.0	$191.3	36	47	4,442	6,472	34	2
48. Hostmark Hospitality Group	$156.9	$136.7	21	17	3,663	2,959	39	15
49. StepStone Hospitality	$155.0	$175.0	17	22	3,061	3,949	17	0
50. United Capital Corp	$148.7	$136.8	11	10	2,900	2,702	0	11
51. Charlestowne Hotels	$147.0	$136.0	48	42	3,884	3,609	48	5
52. North Central Group	$133.0	$133.0	24	30	3,089	3,936	10	14
53. Widewaters Hotels	$121.2	$89.9	19	20	2,781	2,960	19	19
54. Twenty Four Seven Hotels	$120.0	$110.0	23	23	3,200	3,142	23	0
55. Daly Seven Inc.	$116.6	$112.3	40	39	4,226	3,880	0	40
56. The Hotel Group	$116.0	$109.0	14	12	3,040	2,791	9	5
57. Legacy Ventures	$110.6	$101.7	8	8	1,819	1,819	4	4
58. Northwest x Southern Hospitality	$110.0	$103.0	22	21	2,565	2,389	0	0
Olympia Hotel Management	$110.0	$96.5	26	22	2,866	2,497	15	11
60. Gulph Creek Hotels	$109.0	$93.0	22	20	2,735	2,507	23	5
61. Midas Hospitality	$108.6	$99.1	38	38	3,934	3,756	11	27
62. Prestige Hospitality Group	$105.2	$101.2	31	28	2,812	2,581	31	6
63. Hospitality America	$100.4	$95.3	15	14	2,164	2,032	15	0
64. Boykin Mgt	$98.0	$96.0	6	6	996	996	3	3
Access Hotel & Resorts	$98.0	$68.0	16	14	1,331	1,053	16	1
66. True North Hotel Group	$95.0	$93.0	28	26	2,971	2,551	16	12
Moody National Hospitality Management	$95.0	$103.0	17	19	2,397	2,765	17	0
68. Packard Hospitality Management	$92.0	$94.0	18	21	3,200	3,550	18	0
69. McNeill Hotel Company	$91.0	$76.0	25	21	2,858	2,378	2	23
70. Coakley & Williams Hotel Management Company	$90.0	$87.0	33	31	3,738	3,500	31	0
71. Lodging Dynamics Hospitality Group	$85.0	$62.0	22	18	2,500	1,933	22	0
72. Safari Hospitality	$80.0	$80.0	26	26	2,560	2,560	0	26
Insignia Hospitality Group	$80.0	$85.0	23	22	2,225	2,118	1	21
74. Giri Hotel Management	$78.6	$71.0	34	30	3,259	3,003	0	34

Source: Hotel Business Magazine. https://togo.hotelbusiness.com/article/annual-ranked-list/

Table 2

Largest Hotel Brands in the World

Rank	Hotel Chain	Number of Properties
1	Wyndham Worldwide	8,092
2	Choice Hotels	6,429
3	Marriott International	5,974
4	InterContinental Hotels Group	5,070
5	Hilton Worldwide	4,727
6	AccorHotels	4,200
7	Best Western Hotels	4,196
8	Jin Jiang International	3,090
9	Home Inns	3,000
10	Motel 6	1,330
11	Carlson Rezidor Hotel Group	1,112
12	Vantage Hospitality	1,090
13	La Quinta Inns and Suites	889
14	Whitebread plc	700
15	Hyatt Hotels Corporation	667

***S**ource: Chepkemoi, Joyce. (2019, January 11). The Largest Hotel Chains in the World. https://www.worldatlas.com/articles/the-largest-hotel-chains-in-the-world.html*

Farquhar (1989) established brand equity as "added value endowed by the brand on the product" (p. 24). Aaker (2009) further developed the concept that brand value, brand awareness, and affiliated quality are basically a staple of the consumer's mind. Omar and Haywood (2014)

examined branding in corporate real estate and established that corporate real estate management brands attribute to customers' perceptions and expectations of a company.

O'Neill and Xiao (2006) looked at a sample of 1,100 hotel transactions and concluded there is a strong correlation between hotel branding and transaction price. They found that different brands have varying degrees of impact on transaction price. The authors' focus was to ascertain whether different brands within predefined hotel quality/service categories deliver different impacts to sales price while controlling for Average Daily Rate (ADR), occupancy, profitability, and location. They retrieved data over a 15-year timeframe then first deployed ANCOVA, followed by Tukey multiple comparison tests to match results of properties with similar locations/age/quality to determine variance impact. The findings revealed that certain brands had a higher variance between sales prices, especially in the midscale and upscale segment (i.e., a high spread in low/high pricing increases the measure of risk for such investor). The intent of such data would help investors in the decision-making of a brand for their assets based on the intended business plan for the property.

Value of Hotel Brands

Dick (2019) noted that O'Neill and Xiao (2006) did not separate out Branded versus Independent hotels in their research. Dick's (2019) review indicated significance in the correlation of Revenue per Available Room (RevPAR) and profitability to sales price for full service branded properties. In contrast, branding did not present a strong predictor of sales value.

Findings of related studies indicated a limited impact of branding on operating performance, as measured by ADR, occupancy, and other metrics (Carvell et al., 2016; Dev & Withiam, 2012). O'Neill and Matilla (2004) also noted large amounts of consumer data that provided brands with an operating advantage.

Carvell et al. (2016) used a similar method to ascertain the operating impact of a hotel with and without brand affiliation. Their twist was to use a matched pair approach to control for age and location and apply the Newey-West (1987) estimator to derive their perceived covariance impact. Their analysis revealed that brand affiliation did not deliver an effect on operation, with unbranded properties running a higher ADR and branded properties having a higher occupancy.

Pedrini and De Bernardi (2019) examined German owners' propensity to brand their property based on historical perception and grounded in a measure of transaction cost theory on pricing. Their findings revealed that in cases where owners had a higher concentration of experience with a brand, there was a higher likelihood of affiliation; however, they also found that uncertainty did not influence the owners to brand.

Hotel Value Calculation Methods

Corgel and DeRoss (1993) attempted to quantify the ADR rule to ascertain hotel sales value. Their analysis and sample testing resulted in illuminating that ADR can be used as a predictor of property market value when comparing a consolidated group of hotels of similar quality in aggregate, but individually when deploying a matched pair of attributes between selected small samples in which the pricing differ tremendously, providing for a large range within one sigma.

The current literature presents three methods applied as approaches for appraising the market value of a hotel: sales comparison, income capitalization, and cost (Deroos & Rushmore, 2003; Dick, 2019). The choice of valuation depends on the type of building and available data at the time of transaction.

The sales comparison approach looks at comparative assets that recently traded which had similar characteristics to ascertain a potential benchmark. Income capitalization takes EBITDA (earnings before interest, tax, depreciation and amortization) and multiplies it by the market benchmark for similar market transactions in the same product type. Lastly, the cost approach estimates the approximate cost of the land, building, equipment, and contents based on replacement and the amortized age.

Dick (2019) controlled for ADR and occupancy and utilized univariate regression and ANCOVA to control for value premium related to a brand impact. O'Neill and Xiao (2006) quoted DeRoos (2006) when establishing the concept of Business Enterprise Value (BEV), as used by the Appraisal Institute (Appraisal Institute, 1996): "…a value enhancement that results from items of intangible personal property, such as market and management skill, an assembled workforce, working capital, trade names, franchises, patents, trademarks, nonrealty-related contracts or leases, and some operating agreements" (p. 578). A review of the literature did not provide a more recent update to such a definition and, notably, items such as management skill, the workforce, and some operating agreements were part of the offered value of a management company instead of the brand/a franchise; hence, management should be considered in establishing value.

Hodari et al. (2017) attempted to address the investment market myth that hotels that are unencumbered by management might sell at a premium to those bound to a management agreement. The perception behind this notion originated from a business perspective that an investor might experience increased flexibility to reposition an asset and extract more value when not limited by operating agreements. Similar to Dick (2019), Hodari et al. (2017) preferred the use of a Hedonic pricing model with semi-log variation by unit price impact and used sales

transactions in the U.K. over a 15-year timeframe while controlling for ADR, occupancy, location, and property age. Their findings revealed that hotels encumbered by a management agreement sell at for a higher price than unencumbered properties during times of economic growth and sell at a similar price per key during an economic slowdown. They highlighted additional benefits in the cost of debt, as there is a much larger pool of lenders willing to underwrite branded assets versus those that are run independently and are not supported by a larger sales pipeline provided by a name known to consumers. Lastly, the impact of encumbrance was reduced when focusing on the subset of London hotels. In addition, during times of financial distress, hotels encumbered by management contracts are sold at a discount to unencumbered hotels. The U.K. is a mature market for hotel lease structures which offers investors a risk mitigation premium on sales price. As it relates to management contracts, Hodari et al. (2017) assumed that such contracts probably had favorable terms that were viewed as value add by investors. Not surprisingly, the effect diminished in London hotels because of the limited supply of transactions in the market, which prompted more competitive bidding for encumbered and unencumbered hotels.

Valentin and O'Neill (2018) reviewed the location of a hotel as impact to sales price based on the Central Place Theory, often referred to as location, location, location, by accessing data from Real Capital Analytics. They conducted individual tests of the value of hotel real estate against the distance from city center, tourism points of interest, proximity to airports, proximity to railroad stations, distance to highway nodes, against the quality of the neighborhood, against local crime levels, and proximity to scenic environments. Regression analysis was applied to understand spatial variable effects on the log of locations and the noted attributes. The findings revealed a higher correlation between the sales price and location in the immediate vicinity to

city-center, with other location attributes less significant; however, as distance increased, the relationship decreased.

The income valuation approach applies a multiple to a hotel's income to determine its market value. Such a multiple, often coined capitalization rate or cap rate, changes according to market. It is dependent on several elements, such as the type of hotel and the market location. O'Neill and Matilda (2007) examined the relationship between revenue and net income with respect to the impact of a brand. They first applied linear regression then hierarchical regression, which is similar to the attribute analysis mentioned previously. Their findings revealed that higher revenue drives higher net income in net dollars but not in profitability margin. They also found that brands have an impact on the relationship of income and profit margin, highlighting that hotels that can run higher rooms revenue also show a higher profit percentage with an affiliated impact on hotel value.

Value of Management

Much of the literature uses the term brand to represent the operating impact of hotel properties. While the brand might push guest reservations through its sales funnel, it is ultimately the hotel management company that actually makes pricing decisions, employs the staff, and decides on most expense structures. Hodari et al. (2018) surveyed General Managers to ascertain the influence that owners have on a hotel's performance. Their findings revealed that owners have a higher impact on financial results than the management company, especially in independent properties. In those properties where a stricter management contract is in place and there is a higher level of distrust between owner and management due to a misalignment of incentives, the result was that often times asset managers are hired by ownership to push the management company's performance and drive the owner's agenda.

Affiliated research has been conducted on Total Quality Management (Chandler & McEvoy, 2000, Douglas & Judge, 2001; Reed et al., 2000), which is a form of systematic approach for management to improve business planning and deployment to reach competitive advantage. Opponents claim Total Quality Management (TQM) is hard to implement and cost-prohibitive, and there has not been empirical evidence to show a systematic advantage over the competition (Kunst & Lammink, 2000; Powell, 1995); nevertheless, there is a general consensus that TQM leads to many stakeholder advantages including customer satisfaction (Chandler & McEvoy, 2000; Wiele & Brown, 1998). Temtime (2003) found that there is not only a statistical significance between TQM and firm size but also an even stronger relationship between TQM and planning behavior that is explained by the detail of TQM implementation such as more complicated decision-making capabilities in larger firms.

My attempt to uncover similar studies of management impact on sales value in other real estate asset classes to apply the findings to hotels potentially had limited results. As noted earlier, Hodari et al. (2017) used a panel approach to measure the impact of having an HMA on sale value, revealing that encumbered hotels sold at a premium to unencumbered properties. Encumbrance was defined as the limitation placed by an extended management contract that lessens an owner's ability to achieve higher profitability for their hotel from another management while providing long-term stability from a professional management group.

Li and Monkkonen (2014) took a novel approach to examine the perception of industry experts on the potential impact of market value based on different management companies. The authors created phantom listings of residential properties in Hong Kong, branding the same listings as managed by various companies. The management companies used were of varying degrees; some more known in the market as award winning companies and some smaller, with

one company fabricated for the exercise. They presented experts similar listings while changing the management company on the listing. Findings revealed the significance of the value within a hedonic pricing model wherein value estimates by experts were higher for properties that were managed by more established and recognized management companies, with a significant impact on the relationship in older properties that needed more extensive maintenance.

Hospitality literature indicates management actions or inactions have a significant impact on valuation in the form of increase or decrease of revenues and expenses and subsequent income but does not concretely relate the market value to the characteristics of the incumbent management company (DeRoos & Rushmore, 2003; Monsen, 2007; Fu et al., 2013). In addition, management literature shows the association between TQM and firm size (Temtime, 2003; Chandler & McEvoy, 2000). However, there is no existing literature that combines these two strands to assess how the characteristic of a management company (size, in particular) is associated with asset valuation in the hotel sector.

In addition, the current body of literature revealed the interdependent relationship among four specialties: (a) Agency Theory; (b) Value of Branding; (c) Market Valuation Methods; and (d) Value of Management, with a growing emphasis on the input that management provides to asset sales price value. A gap was found in academic research for the value of management with even less research in hotels as a subject asset class.

Economies of Scale

Motivation for the current research was based on a reverse U-shaped economies of scale model effect on sales price to test if profits initially improve above the proportional increase in firm size. Chandler and Hikino (2009) described the benefits of scale in terms of marketability as a competitive advantage. The authors explained that the advantage of growth makes initial sense

to capture market share; however, there comes the point where the addition of new operating units only makes sense if it results in a reduction of managerial or distribution expense or improvement of product quality (p. 17). They distinguish between size defined by economies of scale and level of expertise defined by economies of scope to highlight firms that have various types of products and need a variety of distribution channels (pp. 19-20).

In industrial companies that are more capital intensive, Chandler and Hikino (2009) found that a certain volume of production is needed to be maintained to keep profitability; however, cost advantages of scale and scope only help as long as their suppliers can continue to handle volume increases equally or if specific tasks such as sales or technology are brought in house. Similar observations were gained in modern enterprise companies with the exception that, unlike industrial capitalism, rather than buying and integrating new companies to achieve scale, the modern enterprise preferred to contract out non-core activities "…to counter the bureaucratic inertia in hierarchical institutions" (p. 39).

Interestingly, Chandler and Hikino (2009) found that in labor-intensive industries such as food and drink, smaller unit firms succeeded more. They speculated this was since the level of task expertise was not high; hence, a larger pool of employees did not result in an applicable competitive advantage (p. 46). However, if such firms required access distribution chains, larger firms that had scale of size and scope had their own accessibility to markets and did not need to integrate with other firms, thus also did not help other firms grow at their expense (p. 61).

Wicker et al. (2014) referenced Chandler and Hikino (2009) when testing if size matters under the framework of club theory, which they explain as the ability to "…pool resources and mutual benefits from sharing production costs" (Wicker et al., p. 268). They highlighted that the relationship between membership size growth and benefit is not linear, since the benefit from

lower costs is counteracted by more congested clubs which may lead to a loss of membership. In other words, based on the assumption of cost elasticity, the rate of output due to efficiencies would initially exceed the increase in scale, then meet the increase in a proportional manner, and finally drop in excess of the proportional increase. Wicker et al. (2014) conducted a survey of 6,098 club members to solve for the log of cost/member and cost/sport to check on scale and scope. Although they could not pinpoint to an optimal club size between a decrease of costs and decrease in membership, they were able to support an optimal number of products (in their example, number of sports) which could lead to a loss of efficiency since the size of the club cannot be shrunk to accommodate the number of sports.

Jain and Robinson (2020) examined if owners of larger portfolios of real estate in a market can command higher rental rates. They explained this via brand recognition and building amenities but categorized the sample by the number of buildings under management. The authors showed that scale buyers and sellers have a positive and significant coefficient, and that rental premium exists for scale owners. They concluded that positive results might be because of local brand premiums, but they might also be because of more efficient management structures.

The concept of diseconomies of scale (Bolton & Dewatripont, 1994; Garicano, 2000; Stein, 2002; Williamson, 1975) acknowledges that larger firms enjoy efficiencies, yet highlights that when such firms grow too large there are operating issues such as communication delays. Williamson (1975) researched hierarchical systems of companies to understand efficiencies. Findings established that management of complex firms often sacrifices a company's culture to support standardized processes and simplify communication. Thus, the term ‘diseconomies’ (of scale) was created. Bolton and Dewatripoint (1994) examined the tradeoff between specialization and communication in larger firms with communication costs as a dependent variable, revealing

that a decrease in communication cost has a positive effect on productivity. Garicano (2000) built on Williamson (1975) by examining firms who aim to structure the acquisition of knowledge to reduce costs and again focuses on the quantity of specialization as a potentially negative effect. These pioneers of diseconomies of scale argued that, in certain circumstances, scale is somewhat of a reverse U-shape effect that is not exponential to growth, initially rising at a faster pace, then tapers and may drag a company's productivity downwards after a certain degree of complexity.

Stein (2002) further challenged the adage that bureaucracies may burden larger organizations, claiming they may suffer under lack of productivity. Stand-alone entities were modeled against a structure where the entities were subsidiaries of a company and needed to communicate soft and hard information (proprietary complex, or structured and standardized). In addition to productivity, Stein (2002) also looked at the benefits of financing capabilities from a lender. Results showed that when information is hard to document and communicate, hierarchical management may be disadvantaged by relying on potential human error in diligence processes. In other words, while various levels of management may need to be convinced, even when properly documented, a lot of paperwork may not be a productive use of time. Stein (2002) pointed to such problems in M&A transactions of banks that may not be able to provide the level of small business lending given the need for diligence and understanding on a local level.

Application of the aforementioned models on the private equity industry (Harris et al., 2014; Lopez-de-silanes et al., 2015) did not find a direct relationship between fund size and returns, but suggested that firms that handled multiple transactions simultaneously underperformed in a variety of returns including public market multiple and deal level internal rate of return (IRR). Harris et al. (2014) studied the performance of portfolios as controlled by

venture capital (VC) and then subsequently by larger buyout funds. Unlike previous academic research, their 25-year dataset came from Burgiss, a database that details financial performance and enables one to examine a research quality dataset that includes cashflows for each fund. They found there is no direct correlation between fund size and financial performance. They also established that VCs in the smaller size quartile underperform compared to larger VCs.

Harris et al. (2014) studied various relationships between performance indices such as IRR, investment multiples, and Public Market Equivalent (PME) against the fund performance, capital flows, and fund size. Their findings highlighted that while larger buyout firms do not show a significant correlation between fund size and performance, there is a diminished effect as fund size grows, which is in line with other research on diseconomies of scale.

Lopez de Silanes et al. (2015) examined the effect of Private Equity (PE) fund size against performance. They explained that because PE is often customized, automating such a process to achieve efficiency while growing would diminish their impact on investments. They compared firms that are different in size and divided them into deciles, hypothesizing that larger firms could be organized into smaller units to compete with their smaller counterparts. They showed a substantial decrease in IRR achieved between funds that handle multiple transactions at one time to those that manage smaller portfolios. They carved their sample into various subsections to exclude specific transaction years and exclude certain buyer groups and geographies. In all cases, the coefficient was significant and showed a negative effect on IRR based on size. Their research findings concluded that in addition to diseconomies of scale because of communication and hierarchies (as presented in previous academic literature), diversification of PE is the equivalent of diseconomies of scope evidenced by a regression against the number of industries that the sample PEs are pursuing actively.

Previous research linked the concept of economies of scale to various industries' performance metrics (Chandler & Takashi, 1990; Temtime, 2003; Wicker et al., 2014). The common thread in the literature is that scale and scope significantly impact various performance outcomes. In the hotel industry, such performance outcomes are those that would fall within management scope. Findings in the literature revealed that minimum significant size is required for the ability to compete (White, 1979); nevertheless, the optimal size is reached after which the incremental size impact diminishes. As a practical example, in the year 2020 and during the Coronavirus pandemic, Sonesta Hotels quickly scaled the number of properties under management. In a CoStar published article (McCracken, May 2021), their CEO was highlighted regarding how scale is helping the company reach significant expense savings with vendors such as online travel agencies and attract increased demand from customers.

CHAPTER 3: RESEARCH DESIGN AND METHODS

Overview

This research examined the relationship between the size of a management firm and the premium or discount an owner gets when selling the hotel to determine the impact of management company scale on a hotel sales premium. A hedonic approach was applied to create a model that will enable hotel owners to quantify the impact of a hotel management firm on sales value premium. The findings should enable future researchers to distinguish between brand and management in order to create additional variables within hedonic pricing approaches.

Smith (1971) initially recognized the application of Hedonic pricing methodologies in real estate, and then it was further developed and published by Rosen (1974). The Hedonic pricing model hypothesis states that goods are valued on the sum of their attributes with the ability to ascertain each component to manipulate the total sum. As such, $P=f(x)$, controlling for individual attributes such as location, age, size, type of hotel, etc.

Research Design and Approach

Unlike previous research that examined performance for publicly traded real estate companies, this study looks at the effect of management size leveraging detail property level financials, transaction data, and geospatial data. The approved IRB can be found in Appendix A. In addition, and distinct to other real estate asset types, the seasonality and temporality of the operating business of hotels far exceeds the marginal impact that management might have in other building types such as office, residential, industrial, retail, and office, where longer-term leases do not require quick reaction and where sufficient notice can be given to ramp up sales and marketing, plan labor, and reduce contractual obligations. The following hypotheses regarding management's impact on a hotel real estate sales value was investigated:

Hypothesis 1: *Literature suggests an inverse U-shaped effect of scale on sales price. The size of the management company has a positive impact on sales price until a certain management size. Management companies that exceed a certain size have a negative effect on sales value.*

Smaller hotel management groups may lag in technology and sophistication to their larger counterparts. As they add resources, they can quickly improve their exposure to more markets and more clients and have a more considerable purchasing power and labor pool. However, management companies that are too large may need to adhere to standardized training for staff, thereby removing local touches. Large management companies may also need to add resources that are only required for a specific subset of their hotels (e.g., ski resorts); however, all hotels under management may need to absorb such corporate expense. On the one hand, previous studies regarding economies of scale and firm size have shown a positive impact of size on the investment returns (Chandler & Hikino, 2009; Jain & Robinson, 2020; Wicker et al., 2014). On the other hand, the body of literature on diseconomies of scale highlights issues in areas such as communication and hierarchies in organizations that exceed a certain size (Bolton & Dewatripoint, 1994; Garicano, 2000; Harris et al.,2014; Lopez de Silanes et al., 2015; Stein, 2002; Williamson, 1973). Papers on economies of scale would support an increased efficiency of operation and greater access to customers and, according to the literature on diseconomies of scale, such positive impact of scale would taper off and may even turn into a negative effect after a particular size. In other words, based on the assumption of cost elasticity (Wicker et al., 2014), the rate of output due to efficiencies would initially exceed the increase in scale, then meet the increase in a proportional manner, and then drop in excess of the proportional increase.

Presenting this visually with sales price on the y axis and size on the x-axis would result in a reverse U-shaped presentation.

Hypothesis 2: *Larger hotels have more in house resources and are therefore less reliant on remote support. Thus, management size impact varies by hotel size.*

In addition to the literature presented that highlighted the importance of location (Hodari et al., 2017; Valentine & O'Neill, 2019), focus on a property level enables one to unveil operating efficiencies that a larger management group may have centrally, or regionally, which could reduce the need for on-site resources. As an obvious example, this may relate to supportive services such as accounting, sales and marketing, revenue management, and human resources that a smaller hotel may not be able to hire to have all those with expertise on payroll. In some instances, and in some locations, third-party consultants may also be available to outsource this, but most larger management groups offer centralized services that enable them to allocate such services back to smaller hotels based on the time spent or by the number of rooms.

On the one hand, partnering with a larger management group allows for smaller hotels to have access to a level of expertise that they may not have or may not have been able to afford if they were required to support it on their own. It also signifies that smaller hotels have access to 'out of the box' tools such as a hiring pool, human resources training templates, and pre-existing distribution technologies such as a booking engine and website templates, reducing startup costs and improving time to market. On the other hand, larger hotels may need larger on-site staff to provide needed services to satisfy internal volume, which would reduce the benefit and reliance on the larger management company. Because larger management groups are built to provide services and support to their hotels, such services often do not come à la carte, but rather standardized to all, which means that the allocation of such corporate expenses may exist even if

duplicated on a local level. Larger hotels may have more specific needs by location, which may conflict with larger management services, which could mean that the hotel is unnecessarily burdened with expenses related to adapting to the larger management group. An example may be management groups that are publicly traded and require their properties to go through lengthy audits with larger accounting firms. That may mean that smaller hotels would receive a proportional higher benefit than their larger hotel counterparts.

> ***Hypothesis 3:*** *Hotels located in Gateway locations (city centers) enjoy a location benefit that offers market-based customer demand and a larger pool of employees and vendors, diminishing the impact of management. Management size will be more impactful in Non-Gateway locations.*

Location–location–location has been the gold standard for real estate. It is, therefore, expected that hotels in high compression city markets would enjoy a destination premium that drives business to their location. Pivo and Fisher (2011) examined the value of real estate against the local walk score (a measure that quantifies the level of walking accessibility), the building characteristics such as the number of floors, and regional demographics such as crime statistics. They found an increase in property values and a decrease in cap rates (calculated as income/sales price) in all asset classes but industrial. Similarly, Barkham and Park (2011) examined the decision to lease versus buy real estate for corporations with various location variables including access to labor, clients, transportation, and marketability. Their results indicated that locations that are closer to customers, labor, and are in prominent locations have a greater probability of being purchased versus leased. In addition, Blengini and Das (2021) studied hotel asset characteristics to predict the likelihood of rebranding an asset. They uncovered that airport and interstate hotels are more likely to change brands than metro locations, contributing to the level

of perceived investment risk by location. It is, therefore, expected that superior locations will diminish the impact of management size given guests, vendors, and staff may choose a specific hotel simply as a matter of convenience to be close to the conference, work, or the reason for travel.

Gateway locations make available standardized services enjoyed by all participants, regardless of the size of management. For example, these services may include the laundry provider who charges similar rates to all hotels in the area, or collective bargaining agreements with labor unions that determine pay rates for employees by class, regardless of management group. Additionally, it is not uncommon that hotel sales in such markets are measured on a per-key (per room) basis instead of based on yield. However, large convention hotels located in urban markets require an increased level of sophistication to attract a mix business that supports the required rooms and other revenues and manages the large workforce. A management group must have that level of qualitative expertise to support such properties. Therefore, it is expected that hotels in U.S. Gateway markets will be less impacted by management capability, except larger hotels that may enjoy a premium if managed by larger management companies.

Determining the current market value of a hotel is both a science and an art. The dependent variable in this study is described as the transaction value, and the independent variable is management company size that is qualified by the number of properties under management. Trailing income statements might provide insights into historical performance; however, given a hotel's daily impact of market conditions, forecasts often have varying degrees of accuracy. For example, a snowstorm in Washington causes an immediate effect on that day's visitor volume. It increases cancellations in the day, for the day, and after staff have prepared the hotel for certain volume of arrivals and are standing by to offer such services. In contrast, if the

government plans to issue a particular bill or pass a law, it might prompt a sudden increase in lobbying activity that will promote travel into the city and drive unexpected additional demand to hotels. Data collected in hotels are highly segmented and, while anomalies such as impacts of force majeure happen randomly, real estate transactional data rely on consolidated statements of financials and comparative performance in the market. For this reason, and in line with valuation methodologies in the industry, it was perceived that a quantitative approach would best address this dissertation research objective. Given its popularity, a hedonic pricing approach (Blal & Graf, 2013; Corgel, 1997; MacPherson & Zietz, 2005; Monson, 2009; Rosen, 1974; Smith, 1971) was utilized to control for other independent variables that influence sales price, such as a hotel's location, its ADR, occupancy, income, age, and size.

Study Population and Sampling

The data set included 32,708 U.S. hotel sales transactions filtered to a target sample of 6,395 hotel transactions where the name of the management group could be found and operating metrics were available for the year of the transaction. Transactions occurred between the years 2001 and 2019, with a maximum transaction price of $1.1B and a minimum price of $165,000. U.S. geographies were not limited; hence, all states and Gateway/Non-Gateway locations were examined. The following variables were available and controlled:

- Operational metrics including occupancy, average daily rate, revenue, gross operating profit, and earnings before interest depreciation and amortization
- Property metrics including the age of the property, the type of property (as qualified by Chain Segment), and the number of rooms
- Transaction metrics including price, Buyer/Seller names

- Branding / Chain Segment, Number of properties under management for each year by each management firm in the sample
- Location-specific metrics including distance to the closest major city center, distance to the nearest commercial airport, Lat/Long, exact address, and area median income

Table 3 provides summary statistics for the full sample of 6,395 hotel transactions used in this study. The sample is subdivided into Gateway and Non-Gateway subsamples. Gateway markets are as defined by CBRE as Los Angeles, San Francisco, Chicago, Washington, New York, and Boston. Non-Gateway are all transactions excluding the Gateway subsample. Sales Price is the price paid by the hotel buyer, and Number of Rooms is the number of rooms for each property, both as reported at the time of the transaction to CB Richard Ellis (CBRE) and Real Capital Analytics (RCA). Number of Properties is the number of properties that a management group had under management in the year preceding the year of the transaction, as reported by Smith Travel Research (STR). Occupancy is a percentage and calculated as occupied rooms divided by total available rooms. ADR is reported in U.S. Dollars and calculated as annual room revenue divided by occupied rooms. Gross Operating Profit is represented in million ($m) U.S. Dollars, and is calculated as revenues minus operating expenses as per the Uniform System of Accounts for the Lodging Industry (USALI). Age is the hotel's age at the time of the transaction, calculated as the year of transaction minus the year the property was built. Occupancy, Average Daily Rate, Gross Operating Profit, and Age are as reported from STR from the year preceding the year of the transaction. The distance to the closest commercial airport (AirportDist) is as reported by the Federal Aviation Administration. The nearest major city center (majorCityCenterDist), as reported by Esri's Living Atlas, is calculated in Euclidean distance in degrees Latitude and Longitude and converted to miles. Area Median Income represents the

reported median income per earner for the zip code in which the hotel is located, as reported by the 2010 census.

Table 3

Summary of Variables

	Full Sample			
	Min	Max	Mean	Std Dev
Sales Price ($)	$ 165,000	$ 774m	$27,870,716	$49,644,509
Number of Rooms	58	950	183.047	130.578
Number of Properties	1	848	333.59	293.172
Occupancy	13%	98%	70%	10%
Average Daily Rate	$ 20.53	$ 915.17	$ 103.63	$ 58.63
GrossOperatingProfit ($m)	$ (2.40)	$ 53.18	$ 2.98	$ 4.50
AirportDist (mi)	0.2	40.3	6.8	4.1
majorCityCenterDist (mi)	0.1	318.5	35.8	48.1
Property Age	1.0	241.0	22.9	19.2
Area Median Income	$ 11,755	$ 213,688	$ 66,549	$ 26,379
	Gateway Sample			
	Min	Max	Mean	Std Dev
Sales Price ($)	$ 1,600,000	$675m	$59,760,239	$84,519,231
Number of Rooms	61	941	247.215	169.456
Number of Properties	1	848	350.506	305.908
Occupancy	31%	98%	74%	10%
Average Daily Rate	$ 32.20	$ 915.17	$ 144.06	$ 86.40
GrossOperatingProfit ($m)	$ (0.97)	$ 52.17	$ 5.70	$ 6.50
AirportDist (mi)	0.3	26.6	7.1	4.1
majorCityCenterDist (mi)	0.9	55.5	15.8	11.8
Property Age	2.0	140.0	31.6	27.8
Area Median Income	$ 25,143	$ 195,165	$ 88,814	$ 28,079
	Non-Gateway Sample			
	Min	Max	Mean	Std Dev
Sales Price ($)	$ 165,000	$774m	$22,484,878	$38,402,048
Number of Rooms	58	950	172.21	119.467
Number of Properties	1	848	330.733	290.898
Occupancy	13.0%	98.0%	69.1%	10.3%
Average Daily Rate	$ 20.53	$ 750.92	$ 96.80	$ 49.36
GrossOperatingProfit ($m)	$ (2.40)	$ 53.18	$ 2.52	$ 3.88
AirportDist (mi)	0.2	40.3	6.7	4.1
majorCityCenterDist (mi)	0.1	318.5	39.1	51.0
Property Age	1.0	241.0	21.4	16.9
Area Median Income	$ 11,755	$ 213,688	$ 62,789	$ 24,134

Data Collection Methods and Instruments

Data was collected from various sources that can be found in Appendix B.

Measures or Operationalization

Currency is generally displayed in single U.S. dollars ($), unless indicated in millions ($m). Distance is displayed in miles (mi).

CHAPTER 4: DATA ANALYSIS AND FINDINGS

Overview

This chapter discusses the impact of the size of the management company on transaction price. The data are focused on transaction value as a dependent variable with control of other known variables.

Data Analysis Methods

The pathway described is a multi-year cross-sectional regression of sales transactions testing for management company size. The research is comprised of a quantitative study utilizing a hedonic pricing approach. The presentation includes sample size (*N*), Mean value (M), the Standard Deviation (std), and a minimum (min)/maximum (max) value for each of the coefficients: ADR, occupancy, age, number of rooms, brand, location. A breakdown is conducted by descriptive categories such as the hotel Chain Segment (economy, midscale, upscale, luxury), and by location as defined in primary Gateway market, secondary and tertiary, and management company. In compliance with the request of the data provider to conceal results from pointing to one management company over another, management groups are divided into quartiles of sample distribution that include the number of properties they manage. The size of each grouping ensures a fair distribution of sample sizes among the groupings.

To test Hypothesis 1, this study first subdivides the sample's management groups into quartile groups, which supports the data provider's request and satisfies the testing of the hypothesis. Next, an Ordinary Least Squares (OLS) of a semi-log regression (Rosen, 1974) is run on the full sample, with a log of sales price modeled as:

$$(1) \qquad Log(Price) = \alpha + \boldsymbol{MangementSize}\ \boldsymbol{\beta_1} + \boldsymbol{HotelSize}\ \boldsymbol{\beta_2} + \boldsymbol{C\theta} + \boldsymbol{S\gamma} + \boldsymbol{L\varphi} + \boldsymbol{T\tau} + \varepsilon.$$

Price is the hotel transaction price. ***MangementSize*** is a vector of management size quantile indicators (quantiles 2-4), and ***HotelSize*** is a vector of hotel size quantile indicators (quantiles 2-4). Control variable matrix ***C*** includes occupancy rate (*Occupancy*), average daily rate (*ADR*), gross operating profit (*GrossOperatingProfit*), distance from the major city center (*majorCityCenterDist*), property age (*Age*), and area median income (*MedianIncome*). In addition, also controlled for are hotel Chain Segment fixed effects, ***S***, state level locational fixed effects, ***L***, and selling time fixed effects, ***T***. Economies of scale research presented are expected to result in a positive effect in Q2 quartile group and a diminished effect in Q3 and Q4 that may or may not be higher than the baseline group.

To test Hypothesis 2, the interaction effect of ManagementSize*HotelSize was first added into the regression to examine the impact of varying sizes of hotels.

$$(2) \quad Log(Price) = \alpha + \boldsymbol{MangementSize}\,\boldsymbol{\beta_1} + \boldsymbol{HotelSize}\,\boldsymbol{\beta_2} + \boldsymbol{ManagementSize*HotelSize}\,\boldsymbol{\beta_3} + \boldsymbol{C\theta} + \boldsymbol{S\gamma} + \boldsymbol{L\varphi} + \boldsymbol{T\tau} + \varepsilon,$$

where ***ManagementSize*HotelSize*** indicates the interactions between ***MangementSize*** and ***HotelSize*** vectors. Then, the regression was divided into subsamples by hotel size quartile without interaction effects to run equation (1).

To test Hypothesis 3, the sample was split into Gateway markets and Non-Gateway markets. Regression is run for equation (2) with the interaction effect of ManagementSize*HotelSize to examine the impact of management on hotels in various locations by quartile.

Preliminary Analysis

Given a reliance on the theory of economies of scale, size is quantified in a quarterly approach in order to observe the categorical interaction effects of various groupings of sizes, in

addition to the continuous effect as a main variable. In addition, the size of a subject hotel is measured as a categorical variable, divided into quarterly intervals.

Table 4 separates the maximum values for each quartile as calculated as equal distribution of values into four groups for each of the two noted variables. A quartile approach enables one to take two-group discriminant analysis and simultaneously compare multiple combinations instead of focusing on one group and one variable at a time (Mattila et al., 2009). Regression values were examined by main effect and interaction effects, and fixed effects were added to categorical variables such as the year of transaction and state in which the transaction occurred.

Table 4

Quartile Maximum Values for Management Size and Hotel Size

	Q1 Max	Q2 Max	Q3 Max	Q4 Max
Management Size	51	220	677	848
Hotel Size	104	134	218	950

Results

Management Size Regression

Table 5 shows the linear log regression results of sales price effect of the noted variables. The results include the estimated coefficient (Coef) and the corresponding *t*-statistic (*t*-stat) in parentheses. In addition, the dependent variable is logged.

Table 5

Regression Results of Management Size

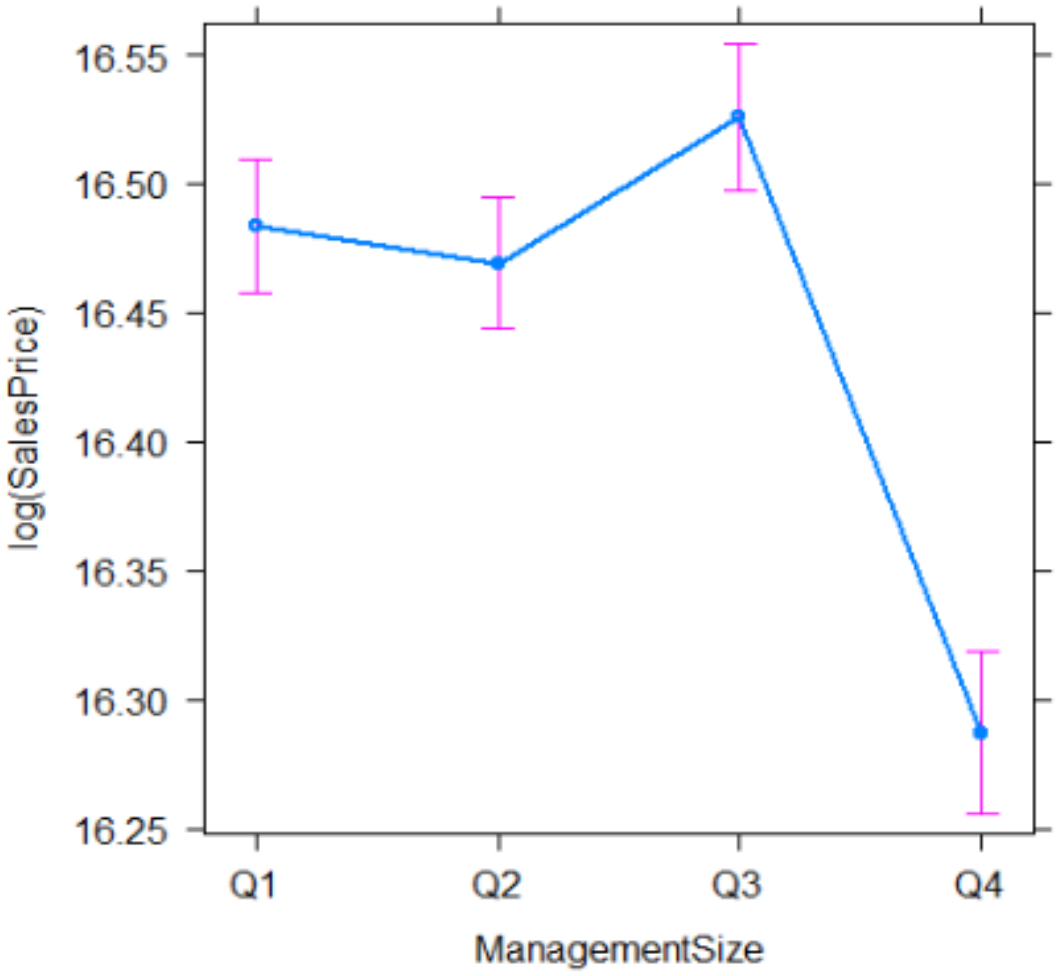
	All Groups	
	Coef	(*t* -Stat)
(Intercept)	13.6600 ***	76.82
ManagementSizeQ2	-0.0145	-0.80
ManagementSizeQ3	0.0423 *	2.08
ManagementSizeQ4	-0.1967 ***	-9.10
HotelSize	0.0036 ***	39.42
Occupancy	1.5450 ***	21.85
ADR	0.0071 ***	2.50
GrossOperatingProfit	0.0075 *	2.50
majorCityCenterDist	-0.0011 ***	-7.84
AirportDist	-0.0016	-1.03
Age	-0.0011 **	-3.09
MedianIncome	0.0000 ***	5.53
Chain Segment FE	YES	
State FE	YES	
Year of Sales FE	YES	
Observations	6,395	
Adjusted R2	0.802	
Residual Std. Error	0.487 (df = 6307)	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1		

Note: For presentation simplicity, Chain Segment, Year, and State have been controlled for as fixed effects (FE). To reverse logged results, the exponential is calculated. The resulting value signifies the multiplier effect on the mean of the variable. For example, an exponential of 0.0423 in managementSizeQ2 results in 1.043207, representing an effect of 4.032% times the mean of ManagementSizeQ2 subsample. All following regression results will be interpreted in such a manner and presented in brackets after the coefficient effects.

A visual presentation of the results is provided in Figure 2.

Figure 2

Plot of Regression Results on Management Size



ManagementSize	Q1	Q2	Q3	Q4
Log (Salesprice)	16.483	16.469	16.525	16.287

Note: The fitted values for ManagementSize Q1-Q4 can be calculated as the composite of the Intercept plus the sum of each regression coefficient multiplied by the mean value for each corresponding independent variable.

When compared to the baseline group, management size Q2 did not show an effect on sale price; however, I observe a statistically significant positive effect on log(price) of 0.0423, or a 4.23% price increase for management size Q3, and a significant negative effect on log(price) of

-0.1967, or a 17.86% decrease of for management size Q4. Overall, Management Size shows reverse U-shape impacts on sales price, confirming Hypothesis 1. This warranted a continuous review of the additional hypotheses.

Hotel Size and Management Size Interaction

Table 6 provides the empirical results when the log of sales price is used as the dependent variable, including interaction effects between the size of the management company (ManagementSize) and the size of the hotel (HotelSize). Similar to the trends of the simple regression in Table 5, the main effects of management size Q3 has a statistically significant positive interaction effect on log(price) of 0.14 (15%) and a statistically negative effect on log(price) of -0.17 (-15.6%). The addition of interaction also causes the main effect of management size Q2 to have a new significant negative effect of -0.13 (-12.2%). As it relates to the interaction effects the results are reversed with management size Q2 interacting with all hotel sizes showing a positive significant effect, management size Q3 showing a negative effect, and management size Q4 delivering a positive effect.

Table 6

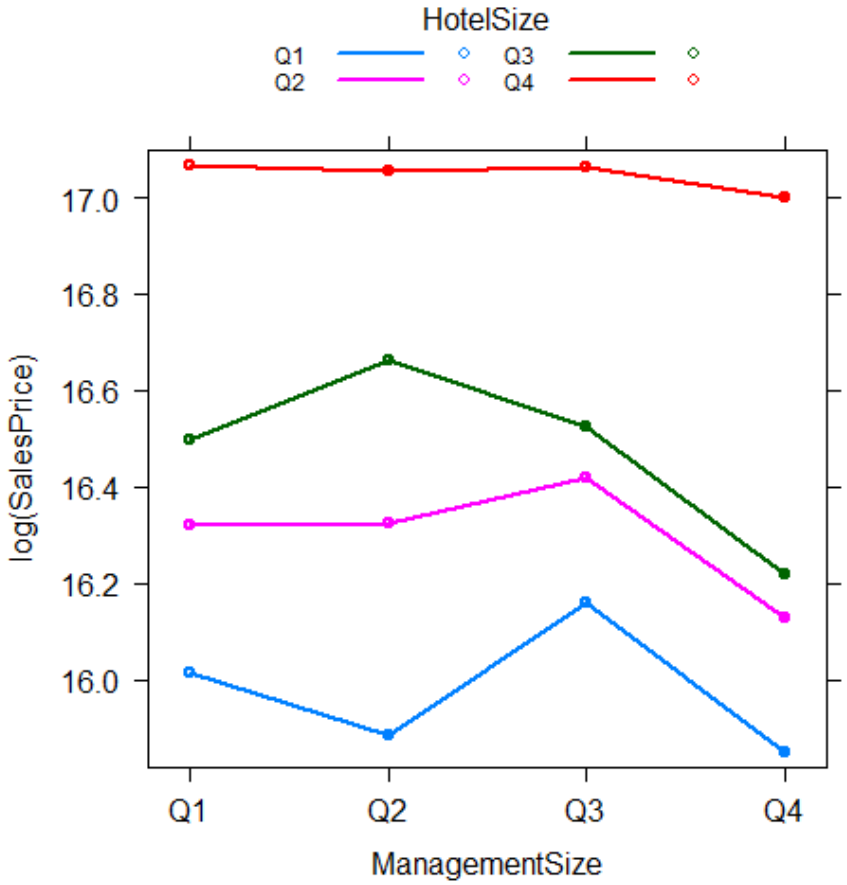
Management Size x Hotel Size Interaction

	Coef	(*t* -Stat)
(Intercept)	14.15 ***	(80.639)
ManagementSizeQ2	-0.13 ***	(-3.477)
ManagementSizeQ3	0.14 ***	(3.485)
ManagementSizeQ4	-0.17 ***	(-3.674)
HotelSizeQ2	0.30 ***	(7.862)
HotelSizeQ3	0.48 ***	(12.814)
HotelSizeQ4	1.05 ***	(26.299)
Occupancy	1.39 ***	(20.061)
ADR	0.00 ***	(22.712)
GrossOperatingProfit	0.06 ***	(27.333)
majorCityCenterDist	0.00 ***	(-5.836)
AirportDist	0.00	(0.955)
Age	0.00 *	(-2.448)
MedianIncome	0.00 ***	(5.197)
Chain Segment FE	YES	
State FE	YES	
Year of Sales FE	YES	
ManagementSizeQ2:HotelSizeQ2	0.14 **	(2.586)
ManagementSizeQ3:HotelSizeQ2	-0.05	(-0.909)
ManagementSizeQ4:HotelSizeQ2	-0.03	(-0.515)
ManagementSizeQ2:HotelSizeQ3	0.30 ***	(5.861)
ManagementSizeQ3:HotelSizeQ3	-0.12 *	(-2.226)
ManagementSizeQ4:HotelSizeQ3	-0.11 *	(-2.097)
ManagementSizeQ2:HotelSizeQ4	0.12 *	(2.382)
ManagementSizeQ3:HotelSizeQ4	-0.15 **	(-2.712)
ManagementSizeQ4:HotelSizeQ4	0.10 .	(1.727)
Observations	6,395	
Adjusted R2	0.806	
Residual Std. Error	0.481 (df= 6298)	
F Statistic	276.902*** (df= 96; 6298)	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1		

Figure 3 is a visual presentation of the results. Logically, hotels with the largest size are associated with higher log sales price; Management Size Q3 is associated with a higher log sales price for smaller hotels, but the effect decreases for larger hotels. The largest management groups are associated with lower log sales price.

Figure 3

Management Size x Hotel Size Interaction



Numerical Results:

	Management Size			
	Q1	Q2	Q3	Q4
HotelSize Q4	17.0666	17.05356	17.06318	17.00213
HotelSize Q3	16.49634	16.66168	16.52508	16.21818
HotelSize Q2	16.31868	16.3247	16.41708	16.12649
HotelSize Q1	16.01408	15.8838	16.15778	15.84886

Table 7 provides the results when the log of sales price is used as the qualifying measure, focusing on the main effects and as broken out by quartile of hotel size for the consolidated sample. Management size Q2 and Q4 have a statistically significant negative effect on log(price) of -0.08 (-7.7%) and -0.15 (-14%), respectively than the main effects to the intercept alone, related to the effects of hotel size Q1. On the contrary, Management size Q2 has a statistically significant positive log(price) of 0.13 (14%) than the main effects to the intercept alone, related to the effects of hotel size Q1.

Table 7

Regression by Hotel Size Quartile

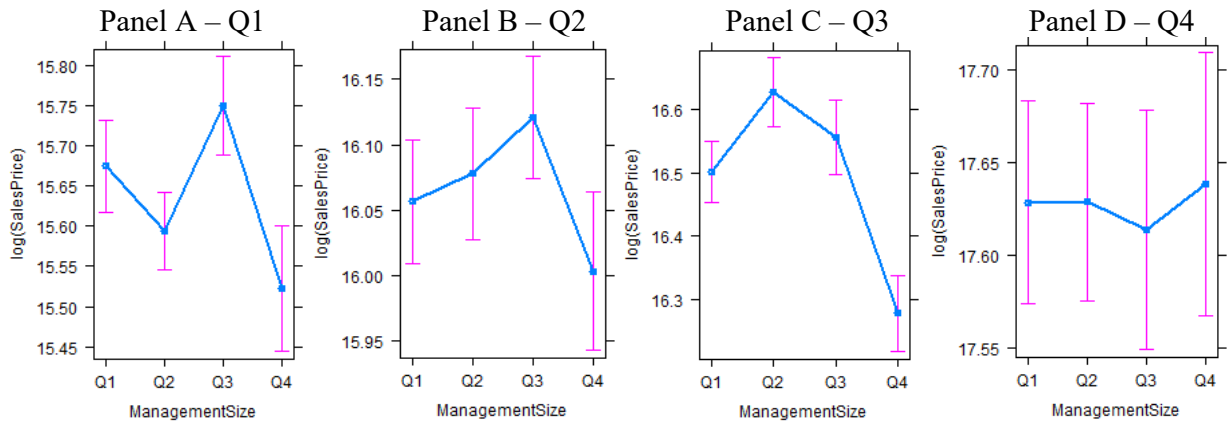
	Hotel Size Q1		Hotel Size Q2		Hotel Size Q3		Hotel Size Q4	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
(Intercept)	14.30 ***	59.02	13.95 ***	83.61	14.38 ***	35.22	15.49 ***	29.41
MgmtSize Q2	-0.08 *	-2.24	0.02	0.65	0.13 ***	3.42	0.00	0.01
MgmtSize Q3	0.07 .	1.67	0.06 .	1.78	0.05	1.34	-0.01	-0.34
MgmtSize Q4	-0.15 **	-2.82	-0.05	-1.26	-0.22 ***	-5.33	0.01	0.21
Occupancy	1.33 ***	10.93	1.23 ***	8.84	1.32 ***	8.95	1.37 ***	7.78
ADR	0.01 ***	10.65	0.01 ***	6.87	0.01 ***	8.68	0.00 ***	6.12
GrossOperatingP	0.06 ***	6.02	0.08 *	2.41	0.07 ***	5.22	0.07 ***	22.40
majorCityCenterD	0.00 *	-2.32	0.00	-0.25	0.00 ***	-3.65	0.00 ***	-4.52
AirportDist	0.00	-0.32	0.00	-0.44	0.00	-0.02	0.01 **	2.61
Age	0.00 **	-3.04	0.00 ***	-3.34	0.00	-1.08	0.00	0.28
MedianIncome	0.00 ***	3.43	0.00 **	2.92	0.00 *	2.21	0.00 *	2.40
ChainSegment FE	YES		YES		YES		YES	
State FE	YES		YES		YES		YES	
Year FE	YES		YES		YES		YES	
Observations	1628		1629		1553		1585	
Adj. R^2	0.61		0.68		0.70		0.66	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1								

With exception to HotelSize Q4, HotelSize Q1, Q2 and Q3 show a higher quartile value for mid-sized management companies than ManagementSize Q1. All four Management Sizes have a lower log(SalesPrice) value for ManagementSize Q4, than ManagementSize Q1. The results show a more significant reverse U-shape effect of Management Size for HotelSize Q2 and Q3, than for HotelSize Q1 and Q4; therefore, reconfirming Hypothesis 2 that hotel size has a

price impact, further examined in the findings section. Figure 4 presents the linear log regression results of management size on log(SalesPrice) by hotel size quartile.

Figure 4

Management Size regression By Hotel Size Quartile



Market Effects on Management Size Effects

Table 8 enhances the results of Table 7 by examining the Gateway versus Non-Gateway subsample interaction effects. While significance in the main effects of management size are primarily correlated to the larger, Non-Gateway sample, significance in negative interaction effects for management size Q3 relates mainly to the Gateway subsample.

Table 8

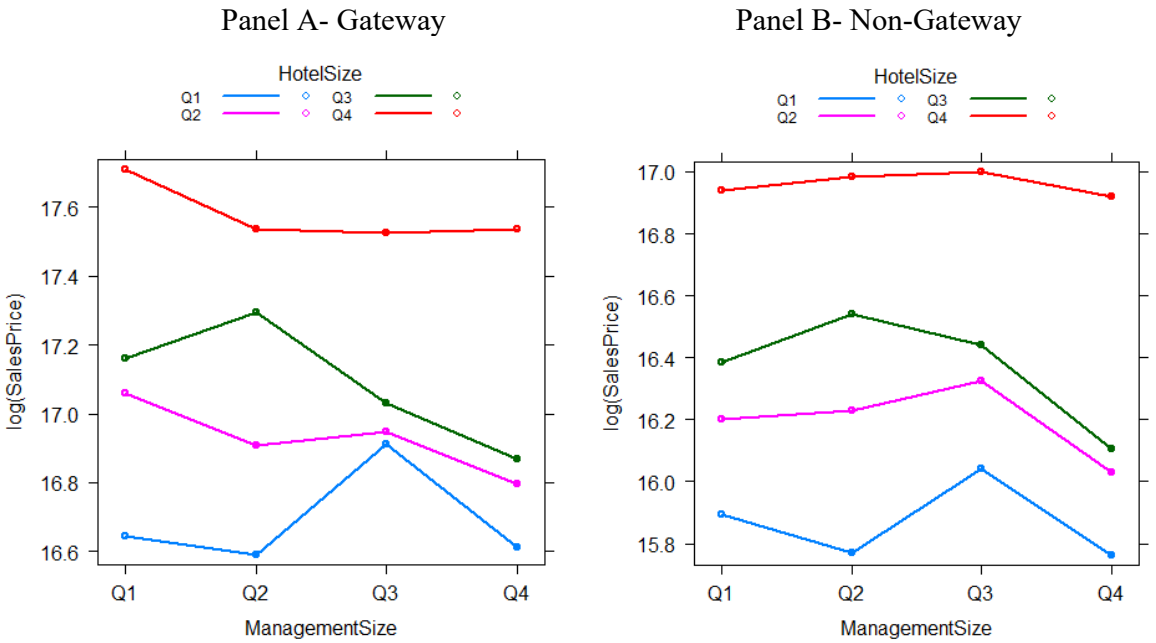
Regression with Hotel Size Interaction for Gateway and Non-Gateway Subsamples

	All Groups		Gateway		Non Gateway	
	Coef	(*t* -Stat)	Coef	(*t* -Stat)	Coef	(*t* -Stat)
(Intercept)	14.15 ***	(80.639)	14.68 ***	(49.474)	14.18 ***	(79.52)
ManagementSizeQ2	-0.13 ***	(-3.477)	-0.05	(-0.352)	-0.13 **	(-3.276)
ManagementSizeQ3	0.14 ***	(3.485)	0.27 .	(1.654)	0.15 ***	(3.458)
ManagementSizeQ4	-0.17 ***	(-3.674)	-0.03	(-0.181)	-0.13 **	(-2.878)
HotelSizeQ2	0.30 ***	(7.862)	0.42 **	(2.789)	0.31 ***	(7.72)
HotelSizeQ3	0.48 ***	(12.814)	0.52 ***	(3.813)	0.49 ***	(12.499)
HotelSizeQ4	1.05 ***	(26.299)	1.07 ***	(7.969)	1.04 ***	(24.581)
Occupancy	1.39 ***	(20.061)	1.03 ***	(4.523)	1.26 ***	(17.099)
ADR	0.00 ***	(22.712)	0.00 ***	(5.05)	0.01 ***	(22.642)
GrossOperatingProfit	0.06 ***	(27.333)	0.06 ***	(15.212)	0.06 ***	(21.994)
majorCityCenterDist	0.00 ***	(-5.836)	-0.02 ***	(-7.372)	0.00 ***	(-5.057)
AirportDist	0.00	(0.955)	0.00	(0.305)	0.00	(-0.028)
Age	0.00 *	(-2.448)	0.00	(-0.676)	0.00 ***	(-4.481)
MedianIncome	0.00 ***	(5.197)	0.00 *	(2.143)	0.00 ***	(3.294)
Chain Segment FE	YES		YES		YES	
State FE	YES		YES		YES	
Year of Sales FE	YES		YES		YES	
ManagementSizeQ2:HotelSizeQ2	0.14 **	(2.586)	-0.10	(-0.528)	0.15 **	(2.83)
ManagementSizeQ3:HotelSizeQ2	-0.05	(-0.909)	-0.38 *	(-2.069)	-0.02	(-0.419)
ManagementSizeQ4:HotelSizeQ2	-0.03	(-0.515)	-0.23	(-1.255)	-0.04	(-0.691)
ManagementSizeQ2:HotelSizeQ3	0.30 ***	(5.861)	0.19	(1.105)	0.28 ***	(5.284)
ManagementSizeQ3:HotelSizeQ3	-0.12 *	(-2.226)	-0.40 *	(-2.232)	-0.09	(-1.632)
ManagementSizeQ4:HotelSizeQ3	-0.11 *	(-2.097)	-0.26	(-1.493)	-0.14 *	(-2.523)
ManagementSizeQ2:HotelSizeQ4	0.12 *	(2.382)	-0.12	(-0.736)	0.17 **	(3.236)
ManagementSizeQ3:HotelSizeQ4	-0.15 **	(-2.712)	-0.45 *	(-2.525)	-0.09	(-1.493)
ManagementSizeQ4:HotelSizeQ4	0.10 .	(1.727)	-0.14	(-0.788)	0.11 .	(1.799)
Observations	6,395		924		5,471	
Adjusted R2	0.806		0.842		0.784	
Residual Std. Error	0.481 (df = 6298)		0.477 (df = 871)		0.472 (df = 5375)	
F Statistic	276.902*** (df = 96; 6298)		95.831*** (df = 52; 871)		209.590*** (df = 95; 5375)	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1						

Figure 5 is a visual presentation of Table 8. Given the subsample sizes, the Non-Gateway results appear consistent with the consolidated presentation observed negative effects of Q3 management size depicted in Figure 3. Both the quartile analysis and the interaction analysis show a location variation in the impact of hotel management size on sales price. This confirms Hypothesis 3.

Figure 5

Management Size regression By Hotel Size Quartile, Location Effects



Numerical Results:

	Gateway				Non-Gateway			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
HotelSize Q4	17.70914	17.53453	17.52583	17.53793	16.9401	16.9835	16.9992	16.9204
HotelSize Q3	17.1602	17.2949	17.03126	16.86665	16.384	16.5389	16.4419	16.1076
HotelSize Q2	17.06092	16.90737	16.94686	16.79804	16.2016	16.2299	16.3257	16.0305
HotelSize Q1	16.64304	16.59023	16.91165	16.61343	15.896	15.7706	16.0415	15.7622

Management Size and Chain Segment Interaction

Given that hotels as an asset class differ by level of amenities and service, further analysis was done on the impact of management with interaction on the various Chain Segments. Following the methodology presented to test the hypothesis, Table 9 breaks out the results when the log of sales price is used as the qualifying measure, including interaction effects between the size of the management company (ManagementSize), and the type of hotel (ChainSegment) for Gateway and Non-Gateway locations. With respect to interactions, when compared to the baseline group, hotels with ManagementSize in Q3 have a statistically significant negative

interaction effect. The only exception to this is in the Luxury ChainSegment, where no statistical significance is observed.

Table 9

Regression with Management Size x Chain Segment Interaction

	All Groups		Gateway		Non Gateway	
	Coef	(*t*-Stat)	Coef	(*t*-Stat)	Coef	(*t*-Stat)
(Intercept)	14.02 ***	(76.682)	14.48 ***	(39.98)	14.05 ***	(75.647)
ManagementSizeQ2	0.02	(0.19)	-0.25	(-0.4)	0.04	(0.349)
ManagementSizeQ3	0.33 ***	(4.846)	0.27	(1.044)	0.33 ***	(4.811)
ManagementSizeQ4	-0.17 *	(-2.091)	0.03	(0.117)	-0.18 *	(-2.113)
HotelSizeQ2	0.33 ***	(18.338)	0.22 ***	(3.615)	0.34 ***	(18.069)
HotelSizeQ3	0.51 ***	(25.816)	0.41 ***	(6.581)	0.51 ***	(24.605)
HotelSizeQ4	1.05 ***	(39.873)	0.87 ***	(12.107)	1.06 ***	(37.288)
ChainSegmentMidscale	0.04	(0.567)	0.53 .	(1.849)	-0.03	(-0.376)
ChainSegmentUpper Midscale	0.11 .	(1.664)	0.25	(0.946)	0.06	(0.865)
ChainSegmentUpscale	0.42 ***	(6.326)	0.67 **	(2.587)	0.34 ***	(5.002)
ChainSegmentUpper Upscale	0.40 ***	(5.553)	0.71 **	(2.711)	0.29 ***	(3.84)
ChainSegmentLuxury	0.48 ***	(5.442)	1.01 ***	(3.783)	0.22 *	(2.113)
Occupancy	1.43 ***	(20.419)	1.14 ***	(4.947)	1.30 ***	(17.466)
ADR	0.00 ***	(22.207)	0.00 ***	(4.842)	0.01 ***	(22.186)
GrossOperatingProfit	0.06 ***	(26.696)	0.06 ***	(14.513)	0.06 ***	(21.556)
majorCityCenterDist	0.00 ***	(-5.629)	-0.02 ***	(-7.311)	0.00 ***	(-4.806)
AirportDist	0.00	(1.064)	0.00	(0.682)	0.00	(0.047)
Age	0.00 .	(-1.712)	0.00	(-0.394)	0.00 ***	(-3.779)
MedianIncome	0.00 ***	(5.211)	0.00 .	(1.922)	0.00 ***	(3.577)
State FE	YES		YES		YES	
Year of Sales FE	YES		YES		YES	
ManagementSizeQ2:ChainSegmentMidscale	0.30 *	(2.153)	0.15	(0.232)	0.32 *	(2.14)
ManagementSizeQ3:ChainSegmentMidscale	-0.19 *	(-2.22)	-0.32	(-0.942)	-0.17 .	(-1.907)
ManagementSizeQ4:ChainSegmentMidscale	0.14	(0.467)	NA	(NA)	0.22	(0.754)
ManagementSizeQ2:ChainSegmentUpper Midscale	-0.01	(-0.048)	0.35	(0.565)	-0.03	(-0.276)
ManagementSizeQ3:ChainSegmentUpper Midscale	-0.23 **	(-2.777)	-0.08	(-0.247)	-0.23 **	(-2.74)
ManagementSizeQ4:ChainSegmentUpper Midscale	0.05	(0.5)	-0.31	(-0.845)	0.10	(0.914)
ManagementSizeQ2:ChainSegmentUpscale	-0.11	(-0.999)	0.15	(0.234)	-0.11	(-1.022)
ManagementSizeQ3:ChainSegmentUpscale	-0.39 ***	(-5.149)	-0.45 .	(-1.68)	-0.35 ***	(-4.541)
ManagementSizeQ4:ChainSegmentUpscale	-0.11	(-1.322)	-0.33	(-1.146)	-0.09	(-0.961)
ManagementSizeQ2:ChainSegmentUpper Upscale	0.05	(0.459)	0.22	(0.359)	0.06	(0.52)
ManagementSizeQ3:ChainSegmentUpper Upscale	-0.32 ***	(-3.996)	-0.34	(-1.234)	-0.30 ***	(-3.554)
ManagementSizeQ4:ChainSegmentUpper Upscale	0.19 *	(2.125)	-0.02	(-0.077)	0.20 *	(2.013)
ManagementSizeQ2:ChainSegmentLuxury	-0.01	(-0.093)	-0.04	(-0.059)	0.19	(1.285)
ManagementSizeQ3:ChainSegmentLuxury	-0.24 .	(-1.902)	-0.65 *	(-2.067)	-0.05	(-0.34)
ManagementSizeQ4:ChainSegmentLuxury	-0.15	(-1.348)	-0.51 .	(-1.735)	0.08	(0.556)
Observations	6,395		924		5,471	
Adjusted R2	0.805		0.841		0.783	
Residual Std. Error	0.481 (df = 6292)		0.480 (df = 866)		0.473 (df = 5369)	
F Statistic	259.685*** (df = 102; 6292)		86.454*** (df = 57; 866)		196.345*** (df = 101; 5369)	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1						

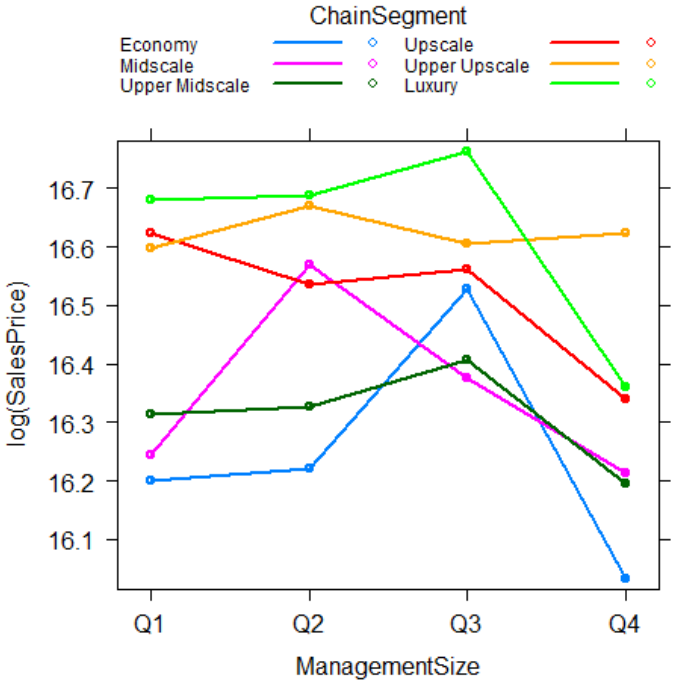
Figure 6 presents a visual presentation of the results for the consolidated sample, the Gateway sample, and the Non-Gateway sample. Management companies with the largest size are

associated with lower log(SalesPrice) with higher prevalence in the Non-Gateway subsample. Economy hotels show a positive effect on log(SalesPrice) from management size Q2 into Q3.

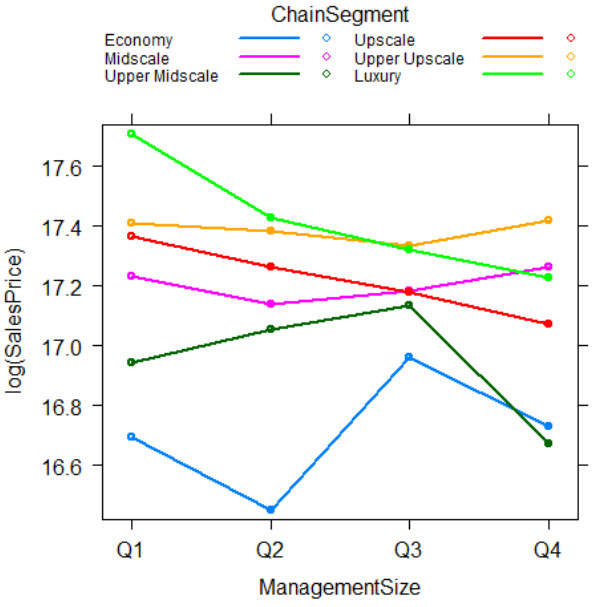
Figure 6

Management Size x Chain Segment Interaction Regression

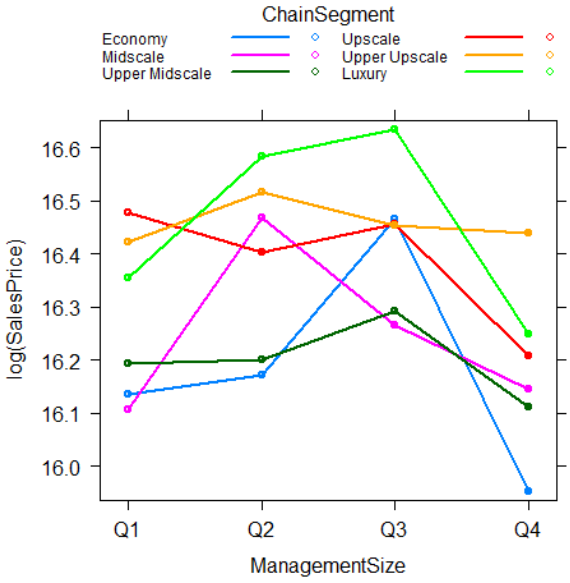
Panel A – Consolidated Sample



Panel B – Gateway Sample



Panel C – Non-Gateway Sample



Numerical Results:

	Consolidated				Gateway				Non-Gateway			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Luxury	16.68106	16.68868	16.76288	16.36094	17.7078	17.4257	17.3199	17.2279	16.354	16.5843	16.634	16.2474
Upper Upscale	16.59869	16.66924	16.60428	16.6243	17.4082	17.3852	17.3351	17.418	16.4212	16.5168	16.4545	16.4385
Upscale	16.62271	16.53559	16.56176	16.34097	17.365	17.2647	17.1773	17.0717	16.4769	16.4026	16.4555	16.2069
Upper Midscale	16.31302	16.32742	16.40711	16.19637	16.9442	17.0533	17.1341	16.6705	16.1938	16.1998	16.2909	16.1111
Midscale	16.24391	16.56828	16.37458	16.21318	17.2314	17.1399	17.1824	17.2632	16.1057	16.4673	16.2648	16.1438
Economy	16.20143	16.22113	16.52691	16.03327	16.6965	16.4512	16.9627	16.7282	16.1345	16.1711	16.4656	15.9527

Table 10 provides the regression results focusing on the main effects and as broken out by Chain Segment. Management size Q3 has a statistically significant negative log(price) of -0.26 (-22.9%) related to midscale hotels and positive effect of 0.11 (11.6%) in the Upper Midscale Chain Segment. On the other hand, management size Q4 has significant negative effects in Economy, Upscale, and Luxury, with the most significant negative effect of -0.28 (-24.4%) for Upscale hotels.

Table 10

Regression by Chain Segment

	CS Economy		CS Midscale		CS Upper Midscale		CS Upscale		CS Upper Upscale		CS Luxury	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
(Intercept)	14.76 ***	60.71	13.64 ***	30.42	14.13 ***	31.81	14.17 ***	62.86	15.46 ***	28.51	16.16 ***	24.33
MgmtSizeQ2	0.01	0.11	0.11	0.99	0.01	0.31	-0.09 **	-3.29	0.09 .	1.92	-0.05	-0.54
MgmtSizeQ3	0.07	0.60	-0.26 **	-2.89	0.11 *	2.51	-0.06 .	-1.78	0.03	0.61	-0.21 .	-1.86
MgmtSizeQ4	-0.40 *	-2.41	-0.16	-0.57	-0.07	-1.09	-0.28 ***	-8.62	0.06	1.02	-0.19 *	-2.14
HotelSizeQ2	0.20 ***	8.32	0.35 ***	4.84	0.44 ***	12.13	0.33 ***	9.90	0.29	1.28	0.65 **	3.20
HotelSizeQ3	0.27 ***	7.69	0.34 ***	4.25	0.67 ***	14.93	0.52 ***	15.10	0.34 .	1.83	0.63 ***	3.65
HotelSizeQ4	0.80 ***	3.77	0.62 ***	4.38	0.96 ***	14.39	0.99 ***	19.50	0.75 ***	4.00	1.23 ***	6.81
Occupancy	0.33 *	2.30	0.84 **	3.16	1.56 ***	9.92	1.00 ***	7.65	0.61 **	2.64	1.54 ***	3.66
ADR	0.00 *	2.01	0.01 ***	3.90	0.01 ***	7.16	0.01 ***	12.52	0.01 ***	8.77	0.00 **	3.26
GrossOperatingP	0.26 ***	5.74	0.22 ***	5.86	0.12 ***	6.64	0.10 ***	13.01	0.06 ***	15.09	0.04 ***	8.73
majorCityCenterI	0.00	-0.56	0.00	-0.67	0.00 .	-1.88	0.00 *	-2.07	0.00 ***	-3.66	0.00	-1.07
AirportDist	0.00	1.07	-0.01	-0.79	0.00	-1.26	0.00	1.04	0.00	0.51	-0.01	-1.14
Age	-0.01 ***	-4.57	0.00 .	1.87	-0.01 ***	-5.69	0.00	-0.54	0.00	-1.12	0.00	-0.85
MedianIncome	0.00	1.20	0.00 *	2.45	0.00 ***	3.88	0.00	0.79	0.00	1.27	0.00 *	2.04
State FE	YES		YES		YES		YES		YES		YES	
Year FE	YES		YES		YES		YES		YES		YES	
Observations	1500		385		1102		2033		1118		256	
Adj. R2	0.73		0.74		0.70		0.70		0.60		0.75	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1												

Next, Table 11 provides the regression results focusing on the main effects and as broken out by Chain Segment in Gateway markets. Management size Q3 has a statistically significant positive log(price) of 0.38 (46.2%) related to Upper Midscale hotels, and positive effect of 0.23

(25.8%) in the Upscale Chain Segment. Management size Q4 has significant positive effect in Economy of 1.11 (303%), and a negative effect of -0.3 (-26%) in the upscale Chain Segment.

Table 11

Regression by Chain Segment for Gateway Markets Only

	CS Economy		CS Midscale		CS Upper Midscale		CS Upscale		CS Upper Upscale		CS Luxury	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
(Intercept)	15.13 ***	17.10	14.20	0.31	13.61 ***	22.30	14.91 ***	26.71	16.69 ***	26.18	16.27 ***	9.41
MgmtSizeQ2	0.74	1.48	-0.23	-0.46	0.14	1.32	-0.18 .	-1.81	-0.07	-0.80	-0.10	-0.63
MgmtSizeQ3	0.19	0.53	0.60	0.12	0.38 *	2.46	-0.23 *	-2.18	-0.18 .	-1.71	-0.34	-1.49
MgmtSizeQ4	1.11 *	2.36	NA		0.10	0.43	-0.30 **	-3.00	-0.16 .	-1.69	-0.19	-1.29
HotelSizeQ2	0.06	0.91	0.82	0.16	0.54 ***	3.96	0.37 *	2.26	-0.51	-1.33	0.85 *	2.31
HotelSizeQ3	0.15	1.48	-0.51	-0.24	0.79 ***	5.28	0.50 ***	3.37	-0.12	-0.36	0.92 **	2.83
HotelSizeQ4	NA		0.32	0.03	0.99 ***	5.29	0.95 ***	5.57	0.36	1.10	1.39 ***	3.93
Occupancy	-0.18	-0.31	1.95	0.02	1.35 .	1.99	1.19 **	2.69	-0.32	-0.64	-0.39	-0.39
ADR	0.00	-0.50	0.00	-0.01	0.01 **	2.76	0.00 **	3.18	0.01 ***	4.68	0.00	-0.42
GrossOperatingP	0.21	1.39	0.31	0.10	0.05 *	2.06	0.07 ***	4.67	0.06 ***	9.14	0.04 ***	5.23
majorCityCenterI	-0.01 *	-2.42	-0.04	-0.44	0.00	-0.66	-0.01 **	-2.93	-0.01 *	-2.54	0.03	0.64
AirportDist	0.01	1.61	-0.02	-0.04	-0.01	-1.25	-0.01	-0.66	0.00	0.01	0.04	0.57
Age	-0.01	-1.32	0.01	0.16	0.00	-0.28	0.00	0.92	0.00	-1.02	0.00	-0.73
MedianIncome	0.00	0.72	0.00	0.20	0.00 *	2.03	0.00	0.12	0.00	0.94	0.00	1.08
State FE	YES		YES		YES		YES		YES		YES	
Year FE	YES		YES		YES		YES		YES		YES	
Observations	171		30		91		280		235		117	
Adj. R_2	0.70		0.90		0.90		0.72		0.72		0.63	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Findings

This research focused on establishing if there was an impact of management size on hotel value with an anticipation of a reverse U-shape effect between growth in number of units under management and the corresponding price effect. Hypothesis 1 utilized a regression of the overall sample and revealed a statistically significant correlation between management size and transaction price. This analysis showed limited change between Management Size Q1 and Q2 and a jump in value into Q3, then dropping below all other groups in Q4, presenting a reverse U-shape behavior. This warranted further research into Hypothesis 2 and 3. These findings reconfirm and extend the findings of Hodari et al. (2017). While this dataset did not differentiate on the basis of encumbrance pre and post transaction, an assumption can be made the hotel management companies in Q1 and Q2 might have offered contractual terms that are more flexible, allowing for

a termination on sale that can be viewed as an unencumbered transaction, hence a positive effect with larger companies that require more encumbrance.

Hypothesis 2 tested the influence of hotel size on management size impact. Using a quartile approach, smaller to midsized hotels showed more significant impact of management size than larger hotels. As previously noted, this may be explained by the availability of local staff and knowledge to operate the hotel that is more readily accessible in larger hotels, than in smaller buildings, where staffing is limited. The plots for Q2 and Q3 size hotels presented a good match to a reverse U-shape effect of management size, confirming this hypothesis.

Hypothesis 3 built on the findings of Hypotheses 1 and 2, and layered in the effect of the Gateway versus Non-Gateway location to test the geospatial effect. The largest hotels showed only a statistically significant correlation between sales price and management size in Gateway markets. In Gateway markets, the main variable of management size revealed significance only for the subsample of the largest hotels with a negative main effect, and when interacting with hotel size Q3 and with Upscale and Luxury there is a negative effect as well. In Non-Gateway markets, there is significance to the main effect of the management size variables in all quartile groups and a positive effect on management size Q2 when interacting with hotels of all sizes compared to the baseline group. Both Gateway and Non-Gateway coefficient effects can be qualified to represent reverse U-shaped effects, but there is the effect is stronger (with higher significance) of management size in the Non-Gateway subsample. Similarly, a diminished effect is seen in Hodari et al. (2017) in London hotels versus non-London hotels. Hodari et al. (2017) explained that the buyer profile and limited urban sales inventory may drive the urban market sales premium, reducing the statistical significance of the results.

Operationally, the framework of economies of scale makes sense when applying a geospatial approach. In Non-Gateway cities, smaller management groups need to have access to a network of employees, smart systems, and purchasing powers that companies in Q1 (with less than 51 hotels) may struggle to have. It is often that manual processes, not understanding local competitors, and simply being stretched for resources causes hotel companies in Q1 not to be as productive as companies that exceed that size. This reconfirms the findings of Temtime (2003) that SMEs often struggle to implement TQM and train their employees due to lack of resources or simply the narrow vision of the company founder. Temtime (2003) also noted that planning behavior is more closely linked to TQM practices than firm size.

In this analysis, an improvement in sales price is observed in management size Q2, potentially driven by increased profitability through better productivity with an effect on sales price via income capitalization, and in accordance with the increased flexibility of resources per Temtime (2003). Examples of operating levers for hotel groups in Q2 and Q3 may be central resources such as reservations, accounting, sales, and risk management, that are located in the head office or in regional offices, and are allocated back to the hotels at a discount to what in-house staffing would have cost. In addition, because such centralized staff has cross exposure between hotels, the level of experience and qualification may exceed that of companies with less hotels under management. Additional benefits exist by negotiating better vendor agreements, most notably with more prominent vendors such as online travel agencies and insurance carriers. Lastly, because the hotel business is highly dependent on personnel, Non-Gateway markets present a higher barrier to finding good talent than in Gateway markets. Such mid-sized management companies have a stronger bench of succession planning, allowing relocation of talent and task force personnel at short notice, when needed.

In Gateway markets, management size main effect shows a negative effect on hotels in Q4 size with the strongest effect in decrease for Q3 sized management companies. In addition, negative effects exist for Q3 sized management companies when interacting with all hotel sizes. The rationale may be that hotels of Q4 size are hard to operate and often include many amenities such as conference facilities, food and beverage outlets, spa, etc. Such affiliated amenities are required to support the large number of rooms and attract groups and convention business; however, those affiliated services often barely operate at profitability after all expenses are accounted for. Smaller management companies may be able to operate in a more fluid manner with less stringent guidelines on operating standards throughout the year, if not encumbered by a franchise, hence they are able to flex staffing and expenses. In addition, large hotels in the noted Gateway markets are mostly unionized when operated by larger management groups, which adds another layer of expense and buyer perception of a potential decrease in staff productivity.

From a perception point of view, hotel investors may view hotel management companies in Q2 as strong, nimble, yet aggressive as they were able to grow from Q1 size and have room to scale. On the flipside, there is often an impression that management companies may offer reduced attention to their hotels once a larger size is reached, executing via an automated approach with limited ability for customization. Lastly, given that Q1 sized management companies are not as efficient, buyers may assign a premium on sales price for hotels for a perception of additional upside. The overall positive effect for Q1, Q2, and Q3 sized hotels managed by Q2 companies indicates a somewhat balanced scale of size and expense and is a key takeaway.

Both the charts and the tables reveal a negative effect when transitioning from Q3 to Q4 sized management companies in the Non-Gateway subsample. While economies of scale obviously help in management size Q2 and Q3, there may be a reversal of such effects when

crossing to Q4 size. This may be explained by various reasons related to issues of communication flow and complicated processes for management companies that become publicly traded and therefore require additional accounting and asset compliance, a mandated cost that is passed on to the properties. This is just one example, yet because of size, Q4 management companies often take a more templated approach to property maintenance, revenue management, sales qualifications, and other procedures, leading to overspending and increased allocation of expenses to hotels. Large management companies also require more extensive capital improvements and ongoing building maintenance, which have impact on operating costs or via required property improvement plans, or both. Lastly, larger management companies in Q4 often require a longer management contract that may be more restrictive, similar to Hodari et al. (2017) which may result in the perception of decreased property value because a new owner has restricted flexibility to change management of branding to create additional upside in profitability. Smaller management companies often allow more flexible termination options in their management agreements, accounting for an upside during transactions.

As it relates to the effects of Chain Segments, the effects do not present a clear linear or non-linear relationship between the level of hotel and management size, although transactions with management size Q3 in the Non-Gateway subsample show a statistically significant log(price) decrease than what is expected from merely adding the main effects, with exception in the luxury segment, where no statistical significance is observed. Most such effects might stem from Q3/midscale and Q4/upscale (Table 10). The rationale for these observations may be sourced from a potential view on the segmentation of clients that visit hotels in such locations. Luxury hotels and economy hotels are unique in their offering; however, midscale and upscale hotels often struggle to differentiate in Non-Gateway markets with the type of product and level of service

interchangeable between Chain Segments. Such hotels then require hands-on customization to derive successful differentiation, which companies with more than 221 hotels under management may find hard to offer.

Another observation related to the Chain Segment regression is the strong positive effect of Management Size Q4 of 1.11 (303%) on Economy hotels in Gateway markets. The explanation may be that such hotels operate with limited resources and offer limited services to their guests. They compete in the dense Gateway locations for clients and require robust revenue management techniques and solid sales pipelines, hence enjoying a premium competitive advantage to Economy hotels that smaller management firms support.

CHAPTER 5: DISCUSSION

Overview

The motivation behind this dissertation is market practice that hotels often sell on a multiple of their income, and that income levels are impacted by the proficiency of the hotel's management to generate revenues and control expenses. Proficiency may be driven by the hotel management company's experience, which may be quantified by the company's reach, measured by the number of hotels under management at the time of the transaction. In most cases, inefficient management and lack of expertise result in lower revenues and higher expenses, causing a loss in profitability and decreased property value.

This research began with a review of the literature focused on the impact of management on hotel real estate market value and determined that what was missing was a correlation to the framework of economies and diseconomies of scale to determine if size leads to economic or market advantage, resulting in a reverse U-shape effect. A 19-year sample of U.S. hotel transactions was used to first examine the impact of the size of the management group on sales price. The additional hypotheses tested the effect of the size of the hotel and its urban/non-urban location on management size impact.

Logically, hotels are a unique and complicated commercial real estate asset class that show varying sales price results based on various variables, including management and location. All three hypotheses were confirmed with corresponding reverse U-shape results in select subcategories. Mid-sized management groups that manage more than 51 hotels and less than 220 hotels had the highest positive impact on sales price in Non-Gateway locations. With certain exceptions, larger management groups showed a negative effect correlation to sales price.

Implications for Advancing Theory

This dissertation adds new knowledge to a growing area of literature on the impact of management on hotel performance. Unlike past research that examined organizational structure to measure the effects of scale and scope, this research used financial output data to correlate back to size, quantitatively benchmarking financial results. In addition, this is the first known research that uses property level operating data to research the performance of hotels at the time of a transaction, whereas the majority of studies have used publicly available data. The current analysis revealed important insights, including a correlation between management size and sales price. The analysis also revealed that management size has a positive impact on sales price in smaller to mid-sized hotels, and that larger management companies have a negative effect on transaction price in many cases. In addition, locations in Gateway markets showed a decrease in management size impact, reconfirming the general theory of Location–Location–Location.

The findings of this research could have implications on the four bodies of literature presented. The results suggest the need to include management attributes when using hedonic pricing models for hotel sales value. In certain circumstances, this research positions the management company as having varying degrees of effect on the different variables of a hedonic pricing model. In other words, if a management company can create new revenue compression even in subpar locations, find local outsourcing to improve expense ratios, influence the quality of maintenance of a hotel, and provide jobs for the immediate residents to increase local wealth, that management company may create varying degrees of effects on hedonic pricing variables of a larger model. Epistemologically and mathematically, this could challenge the underlying theory on existing use of OLS for hedonic pricing models. In addition, the impact of management on examined variables may change by location and time.

This research further bridges existing literature to current day practices for hotel management. Such changes include recent evolutions of day-to-day tasks such as the ability of hotels to compete via simple marketing on Google, Expedia, and on mobile platforms and a hotel's ability to outsource non-critical functions such as accounting and IT. Given the change in the way hotels are managed, an increased focus on the capabilities of its management company may be deemed necessary.

Implications for Business Practice

A caution is extended to practitioners who seek to apply the results to a specific scenario by extracting conclusions as absolute results. This dissertation did not present cause and effect; rather, it examined the impact of management size under the assumption that all other causes remain equal and controlled for. The model presented in this study focused only on sales price and ignored other value metrics such as annual cash flow, lender leverage level and loan terms, customer satisfaction, and owner vanity with owning trophy hotels.

The implications of this research cover many stakeholders and may have many use cases. However, there are four main hotel stakeholders that may find use for this research: (1) the owner, (2) the management company, (3) the franchisor, and (4) the Hotel Asset Manager.

Ownership would benefit by pairing each of their assets with management groups that may return the highest results in sales price value. In addition, smaller ownership groups should consider the implications of self-management in Non-Gateway locations given the potential improvement with scale. However, this is not always the case practically. Investors often rely on relationships with their vendors and may prefer to maintain less contractual relationships with various management groups in order to decrease the amount of oversight required, and to demand better financial terms when showing ongoing loyalty and giving one company multiple

properties. Regardless, investors often limit their exposure to certain markets and Chain Segments (or even brands), which would allow an investor to solve by asking basic questions such as, “In markets I intend to invest, which are management companies that have the most representation in the type of hotels I want to buy?” and “When looking at historical transactions in those markets, what is the price per key/cap rate for property sales for those management companies?” Understanding the drivers of such historical transactions by the management company is not a common practice but would logically yield an in-depth conversation of qualitative reasoning behind other effects of price premium or loss.

Management companies may find great advantage in this research. Rather than prompting companies to grow or enter into M&A, the results shed light on considerations that management companies may weigh to gain the most competitive advantage based on their current size, specialization, and portfolio locations. Questions to be answered that may help grow their business might include, “Based on the markets I am in, what are other hotels that may enjoy my size and my capabilities and are those hotels managed by management companies that may be inferior in the subject property?” and “What investor groups are growing in the markets I am focused on and want to invest in the Chain Segment/hotel size I would like to manage?”

Franchisors and brands can leverage the concepts and findings of this research to help ownership with the selection of management and the process of brand approval of a new management company. Given the common nature of responsibilities and fee structure between brands and management groups, it is in the brand’s interest to maintain happy owners that sell hotels at a premium.

Lastly, the asset manager’s role is to maximize the value of the investment directly correlated to the body of knowledge covered in this research. The benefits and disadvantages of

management companies are often discussed between asset managers, and this research puts a framework of size and location that may help such discussion by proactively recognizing a potential mismatch between management size, hotel size, geographic area, and Chain Segment to either prompt a contractual change or work to mitigate the effects of such potential price impact risk. Highlighting the comparative local disadvantages of such management company (e.g., sales, central reservations, purchasing) and addressing them operationally and commercially is in the DNA of a successful hotel asset manager.

Limitations

During the time of this research, the COVID-19 pandemic affected nations worldwide, which caused great societal, health, and economic damage. As a result, new trends in hotels have emerged and attributes such as 'drive to destinations' quickly grew in importance. In addition, hotel locations near highways, logistics centers, and medical buildings presented sustained resiliency via the type of clientele they could gain, even in a major recession. This may cause location effects on management to differ once this data is available for future studies. It should also be noted that location and demographic census metrics represented 2019, and might have shifted slightly over the 19-year timeframe of the analysis.

Unfortunately, the data set did not provide sufficient variety to conduct a panel data analysis, which would have allowed for one to exclude inflation trending in the pricing.

Hedonic pricing models utilize regressed variables as indicators; however, each deal needs to be analyzed in detail. Research by Das et al. (2018) established that using traditional models ignores extreme attributes of a property. Property attributes have a significant impact on transaction prices in premium hotels, whereas they have a diminishing effect in discount hotels (Das et al., 2017). Future research could consider the impact of management by pricing tranche

to separate price classifications/quartiles and measure those by market to understand the increase/decrease of management impact against the index (a local average) of similar properties with similar attributes in a market.

Recommendations for Future Research

The separation of terminology between management and branding will allow for further examination of a myriad of other effects that are tied to the management company that operates the building. While this research focused on hotels as a real estate asset class, the underlying hypotheses behind this study should be examined for other asset classes, predominantly residential and office buildings where rent structures may include services provided by building management.

The findings of this research indicated there is a correlation between management size and hotel sales price. While the framework of economies of scale was used to make assumptions of underlying causes, qualitative research to enhance the understanding of such effects may be useful. Feedback from all stakeholders in the agency effects section of this dissertation research should be considered to examine the causes of management size impact, including the effects of technology, human capital, buyers' perception, and more. An alternate and potentially appealing methodology could be to single out hotels that have switched management groups and traded several times to compare management size impact in a matched pair approach.

The literature also highlighted the impact of economies of scope, which in this research would relate to management companies that manage hotels in many Chain Segments versus those that operate only specific types of hotels. Examination of management impact on sales price by number of Chain Segments under management may provide interesting insights that management companies could use to optimize their operation.

In addition, examination of the seller, buyer, and lender profiles could shed additional insight into the sales price performance of hotels. For example, many institutional investors and Real Estate Investment Trusts (REITs) prefer buying hotels that require limited value-add to ensure long-term, lease level stabilized income, hence may pay a premium and often partner with larger management companies. This is also the case for many lenders who may require a franchise agreement and a qualified larger management company. On the flip side, opportunistic investors often need a discount in the basis to 'make the deal pencil' and partner with a smaller management company that can execute based on their unique business plan. Additionally, examination of owner-managed hotels versus third party managed hotels might result in findings that may strengthen or weaken the argument of the agency effect.

Lastly, this study did not distinguish between brand-managed hotels, where the franchise owner also provides management services, and independent third-party management companies that may or may not adhere to a franchise agreement. Building on Dick (2018), analysis of brand-managed sales outcomes versus non-brand-managed hotels may shed insight into hotel sizes and locations that may perform better under either management structure.

Conclusion

On February 27th 2007, Four Seasons Hotels, Inc. issued materials to its shareholders and to the Securities and Exchange Commission (SEC, 2007) of its intent to allow Prince Abdulaziz' Kingdon Hotels and Bill Gates' Cascade Investments to purchase a majority stake in the company and stop trading on the public stock exchange, also known as going private. The collaborators explained their move as:

> Kingdom and Cascade believe that Four Seasons' future business prospects can be improved through their participation in the strategic direction of Four Seasons and their

> access to capital sources. In particular, they believe that the public equity markets do not adequately reward investments by hotel management companies in the real estate that they manage. (p. 23)

It is an obvious and logical statement that hotel management companies, just like managers of other real estate asset classes have a direct operational effect, but rarely do investors recognize the influence of on-site management on real estate asset value in their financial models. The central premise behind this dissertation was that management companies have an impact on a hotel sales price at the time of a transaction. Specifically, this study was built on the existing body of knowledge in economies and diseconomies of scale to determine if a change in the size of a management company initially has a positive relationship to the corresponding real estate price premium, and then a decrease after reaching substantial scale, visually presenting a reverse U-shape effect. Three main hypotheses were tested in order to answer the research question: (1) if there is an economies of scale effect between management size and sale price; (2) if the size of the hotel influences the impact of management; and (3) if such effect differs by location.

First, the overall effect of management size on sales price was investigated. A positive impact of 5% was found on price for hotels managed by groups that have between 220-677 hotels under management, whereas a negative impact of 16.5% on sales price was found for hotels managed by larger management groups. The resulting plot is a deformed reverse U-shape, but confirmed my initial assumptions.

Second, the data were dissected next to review the management impact by hotel size. The results indicated that smaller hotels realized a more significant impact on their sales price than hotels with more than 218 rooms. This finding builds on available academic literature in economies of scope, as larger hotels may have more diverse capabilities ‘in house’, hence would

extract less value from external services offered by a management group. Therefore, this hypothesis tested positive for mid-sized hotels.

Finally, the location of a hotel in Gateway and Non-Gateway subsample markets was examined to determine whether it would amend the initial findings. While the effects did not show notable changes, The Non-Gateway subsample effects resembled stronger reverse U-shape results with higher statistical significance, thereby reconfirming the third hypothesis.

The effect of management company size on hotel class (Chain Segment) was also examined by location, and during the great financial crisis, but did not point to notable findings.

The results suggest that hotel management has varying degrees of effect on the real asset value of a hotel, and that hotel investors should carefully consider the selection of a management company. This dissertation contributes to contemporary knowledge in hedonic pricing models for hotels by adding the previously unresearched variable of management company size. The findings also suggest that similar research may be useful in other real estate asset classes where management companies provide support to property owners.

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APPENDIX A: IRB APPROVAL LETTER

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

June 9, 2020

Protocol #: **060920**

Project Title: **The Impact of Operator Scale on Hotel Market Value**

Dear Gil:

Thank you for submitting a "GPS IRB Non-Human Subjects Notification Form" for ***The Impact of Operator Scale on Hotel Market Value*** project to Pepperdine University's Institutional Review Board (IRB) for review. The IRB has reviewed your submitted form and all ancillary materials. Upon review, the IRB has determined that the above titled project meets the requirements for *non-human subject research* under the federal regulations 45 CFR 46.101 that govern the protection of human subjects.

Your research must be conducted according to the form that was submitted to the IRB. If changes to the approved project occur, you will be required to submit *either* a new "GPS IRB Non-Human Subjects Notification Form" or an IRB application via the eProtocol system (httpw://irb.pepperdine.edu) to the Institutional Review Board.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at https://community.pepperdine.edu/irb/policies/.

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval.

On behalf of the IRB, we wish you success in this scholarly pursuit.

Sincerely,

Institutional Review Board (IRB)
Pepperdine University

cc: Mrs. Katy Carr, Assistant Provost for Research
Dr. Judy Ho, Graduate School of Education and Psychology IRB Chair

24255 Pacific Coast Highway, Malibu, California 90263 ▪ 310-506-4000

APPENDIX B: RESEARCH INSTRUMENTS

Data for this research were extracted from the following sources:

CBRE: Coldwell Banker Richard Ellis (CBRE) is a commercial real estate services and investment firm. They maintain a large database of hotel transactions and offer a variety of products covering market trends, sales transactions and room inventory pipelines, link: https://www.cbrehotels.com/en/research

RCA: Real Capital Analytics (RCA) manages a database that is one of the largest listing of investors, deals and trends in the real estate investment market, link: https://www.rcanalytics.com/rca-insights/

STR: Smith Travel Research (STR) was founded in 1985 and now operates in 16 countries. Its products include global hotel data benchmarking, marketplace insights and benchmarking analysis, link: https://str.com/data-insights/resources

FAA: Federal Aviation Administration manages the database of commercial and private airports, link: https://ais-faa.opendata.arcgis.com/datasets/e747ab91a11045e8b3f8a3efd093d3b5_0?selectedAttribute=TYPE_CODE

Census: 2010 Census Data as reported by the Census Bureau which includes area median incomes by zip code, link: https://github.com/Ro-Data/Ro-Census-Summaries-By-Zipcode

Living Atlas: Lat/long locations for city centers, link: https://hub.arcgis.com/datasets/6996f03a1b364dbab4008d99380370ed_0