TO BRAND OR NOT TO BRAND?

AN EMPIRICAL ANALYSIS OF THE ADVANTAGES AND DISADVANTAGES OF HOTEL BRANDING

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Joshua Stephen Sheinberg

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ABSTRACT

Using a dataset with over 40,000 property-year observations of hotels in the United States from 2000-2019, we answer the question of whether or not branding a hotel is worth the extra costs incurred. Using a multivariate regression framework to control for hotel characteristics and fixed effects, we find that branded hotels have significantly higher Occupancy and RevPAR as their independent counterparts. We also look at profit measures, and only slightly higher EBITDAPAR for branded hotels. Using standard deviations and a similar regression framework, we are also able to draw conclusions about the risk. We find that branded hotels have lower year-over-year variation in Occupancy, ADR, RevPAR, and GOPPAR than similar independent properties. Putting this together, we conclude that although branding doesn't have a significant impact on bottom-line profits, it does help even out both top-line and bottom-line performance measures.

BIOGRAPHICAL SKETCH

Josh grew up in Colorado, then moved to Laramie, Wyoming to pursue degrees in economics and statistics at the University of Wyoming. While there, he met his wife, who moved with him to Ithaca, NY in pursuit of a graduate degree in applied economics and management at Cornell University. After graduation, Josh and his wife are moving to Raleigh, NC for his new job as a technical training consultant at SAS Institute.

To my ever-supporting soon-to-be wife, Darci.

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LIST OF ABBREVIATIONS

ADR	Average Daily Rate
RevPAR	Revenue Per Available Room
GOPPAR	Gross Operating Profits Per Available Room
EBITDAPAR	Earnings Before Interest, Taxes, Depreciation, and Amortization Per Available Room

I. Introduction

When an investor decides to purchase or build a hotel, there is a crucial question they run into: to brand, or not to brand? This question isn't only for hotels, as brand equity as a whole is a relevant and important topic. Brands often advertise themselves as adding value through offsetting competition, price premiums, and customer loyalty (Aaker 1991). It is not disputed whether these brands accomplish this added value through higher revenue; but with this value comes a price which may have an ambiguous result for profit. When an owner decides to brand their hotel, they are also agreeing to extra fees including loyalty programs, marketing costs, and other franchise fees. The average of these fees is about 11% of rooms revenue Russell and Kim (2018). The obvious question to ask here is if these extra fees are worth it for the added value a brand brings.

This idea of brands adding value to a product has been studied under the concept of brand equity (Aaker 1991). In the past, there have been studies looking into how brand equity plays a role in the performance of the hotels. Kim and Kim (2005) show that there is a positive significant relationship between brand equity and sales when looking at the luxury segment. When investigating if the performance of these branded hotels follows this idea, the empirical literature is mixed (Carvell Et. Al 2016). In both academic literature as well as the industry, the debate between whether or not branding is superior has still not been settled. There are some clear advantages to being affiliated with a well-known name, but there are also certain situations where these advantages may not be worth the added costs. For example, there are some

characteristics such as location, architecture, property type, and uniqueness that may make a property a good candidate for independence (Rushmore 2004).

Past literature has focused on comparing top-line performance measures such as occupancy, ADR (Average Daily Rate), and RevPAR (Revenue Per Available Room) between branded and independent hotels. The results on which has the advantage has been mixed, as O'Neill and Carlback (2011) find branded hotels have significantly higher occupancy rates, yet independent properties have higher ADRs, resulting in no significant difference in RevPAR. Looking at these top-line measures is helpful, though it doesn't give us the full picture from an investor's perspective. This is the first study to go beyond top-line performance measures, and look into bottom-line profit measures. This allows us to go beyond the question of if branded hotels achieve higher revenue, and help to give insight on if branded hotels are a better investment from the owner's perspective.

We use a dataset of 45,035 property-year observations from 2000 to 2019 in the US to go about answering this question. Since our dataset is saturated with important property characteristics, we use a multivariate regression approach that controls for these observables in order to best match independent hotels with their branded counterparts. We find that branded hotels charge about the same for their rooms (ADR) while maintaining a higher occupancy rate. This translates to branded properties having higher RevPAR (revenue per available room) than independent hotels. These findings roughly match past literature. When looking at bottom-line profit measures, we see only slight evidence of branded hotels having the advantage.

Putting this together, being branded might increase revenue through higher occupancy, but after paying fees and operating expenses, this evens out.

When thinking about the valuation of an investment, it is also important to consider the risk that comes along with it rather than only the return. Because of that, we look at the standard deviation of each performance measure to see if branded hotels also have less variation in their cashflows than their independent counterparts. We find that branded properties see less year-over-year variation in both their occupancy and GOPPAR (Gross Operating Profit Per Available Room). This means that, while branded hotels receive higher revenue and about the same profit, they also see less fluctuation, which translates to lower risk for the owner.

The rest of the paper is as follows: section II gives the background of past literature and compares it with our approach and findings, section III creates hypothesis for what we expect to find, section IV takes a close look at our data, section V illustrates the methods we use, section VI goes over the results and findings, section VII presents the results for standard deviations, section VIII discusses the results in more detail, and section IX concludes.

II. Background

There are multiple empirical studies that investigate the differences between branded and independent hotels. Carvell Et Al. (2016) uses a matched pairs method with a dataset of 212 hotel pairs from 1998-2010. Their goal was to better understand the differences in top-line performance measures between branded and independent hotels. Looking at each chain scale separately using t-tests, they do not find consistent

results across all segments. Although these results are insightful, there are only 212 hotel pairs to look at. Also, only top-line performance measures were available to them. Our study looks at bottom-line performance measures, which allow us to look at what happens after the extra fees.

O'Neill and Carlback (2011) focus on the differences between branded and independent hotels during different parts of the economic cycle. They use t-tests to look at a large sample of 51,000 hotels from 2002 to 2008 and find that branded properties have higher occupancy during different phases of the economic cycle, but independent hotels have higher ADR and RevPAR for the same time periods. Also, even with franchise costs, NOI is similar during expansionary periods. During a recession, though, branded hotels having higher NOI.

Dev and Steiner (2020) look to see if dual-branded hotels operate more efficiently than single-branded properties, which would show up in their bottom-line results. Their results are mixed, with occupancy being about the same, and ADR and RevPAR being higher for dual branded. They also find that the expense ratios are similar, and GOP margins are slightly lower for dual-branded properties. Due to the novelty of dual-branded hotels, this study was only able to look at a small sample with a short timeline. We use similar methodologies in our study, as the data we have are very similar. In another recent paper, Blengini and Das (2020) attempt to predict brand affiliation change (rebranding) in hotels. Using hazard models, they are able to find the characteristics that best predict the likelihood of a property rebranding. The goal if this analysis was to help industry practitioners define rebranding risk, and to use it as a competitive advantage.

Most of the studies on hotel branding have been focused on the US. Pedrini and Bernardi (2019) instead look at one luxury hotel chain in Germany to better understand transaction costs and governance choices. Using their dataset of 122 hotels, they find that a frequent contract conclusion with the same hotel chain and a "hotel unrelated" background of the owner increases the likelihood of affiliation. In contrast to transaction cost theory, uncertainty does not influence the owner's decision.

A common question that comes up when looking at hotel performance has to do with which performance measures are the best. Lee Et Al. (2019) compare RevPAR and GOPPAR in their abilities to define hotel performance. They find that the results are mixed when looking at the property-level. Since our analysis is at the property-year level, we include both measures.

Yang and Mao (2017) take a different approach to hotel branding by asking if independent hotels benefit from the presence of nearby branded ones. Using a dataset of hotels in Texas, they find that younger and high-class independent properties benefit the most from having a branded hotel nearby. With that, high-class branded hotels generate the most spillovers. They separate branded hotels into two types – franchise and chain-operated. These franchise properties are what drive this phenomenon, while the chain-operated properties are negligible.

A different way to compare branded and independent hotels is by looking at sales prices. Dick (2019) looks at luxury and upper upscale hotels from 2007 to 2017. He finds that being branded or independent does not affect the sales price of a property, and RevPAR and GOPPAR are what best predict price. With that, RevPAR was

found to be the best predictor of price. This study only had 192 hotels to look at and used simple methodologies, there is more work to be done to draw a stronger conclusion.

III. Hypothesis Development

Hotel brands add value to properties through global distribution systems, loyalty programs, and name recognition, which should all result in relatively higher operating volume for hotels that are affiliated with a brand (O'Neill and Carlback 2011). With this, previous research has found, in general, branded products and services capture a larger market share than unbranded ones (Szymanski and Busch 1987). A measure that most studies examine when looking at hotel performance is occupancy, as it gives good insight on how well a property is doing to bring travelers in. Carvell Et Al. (2016) finds that branded properties, on average, have higher occupancies than independent hotels (when looking at midscale and above, as we do). Even when they break it down by chain scale and market, this trend stays true in most situations. O'Neill and Carlback (2011) also find that branded hotels have a higher occupancy for each part of the economic cycle. With all of this in mind, we make the following hypothesis:

Hypothesis 1a. Branded hotels have significantly higher occupancy levels than their independent counterparts.

Hotels with certain unique attributes, such as location or historic value, could potentially do well on their own without brand affiliation (Rushmore 2004). Specifically, they may be able to generate rate premiums from this uniqueness that branded properties cannot always compete with. Past research focusing on national versus store branded products find that consumers are willing to pay more for products they see as unique and having a distinct personality (Beldona and Wysong 2007). To investigate this idea of uniqueness adding a premium, we look at average daily rate (ADR). Previous research regarding ADR premiums between branded and independent hotels has mixed results. Carvell Et Al. (2016) find no consistent premium on either end, while O'Neill and Carlback (2011) conclude that independent hotels have a significant premium for all part of the economic cycle. This idea of uniqueness adding the ability to charge more might be partially washed away by independent properties charging less in order to maintain a high enough occupancy while competing with branded hotels. With this, we make the following hypothesis:

Hypothesis 1b. Branded properties have either lower or about the same ADR's as compared to independent hotels.

It is important to look at both occupancy as well as ADR while investigating hotel performance, as the two go hand in hand with revenue. RevPAR, or revenue per available room, takes both into account in its calculation. This allows us to see tell if one measure is offset by the other or not. Taking the last two hypotheses into account, we make the following hypothesis:

Hypothesis 1c. Branded properties have significantly higher RevPAR than independent hotels.

As mentioned, prior research on hotel branding has been mixed. Damonte, Rompf, Bahl, & Domke (1997) found that affiliated properties perform better than unaffiliated ones, and the size of the property influences the performance. On the other hand, research by Mieyal Higgins (2006) points to independent properties having the advantage during economic downturns and in the upper tiers. These contradictions raise the question on which is truly the better investment. Such studies may reach different conclusions based on the time period of their data (O'Neill and Carlback 2011). Much of the past literature on the subject of hotel branding has been limited to top-line performance measures, as seen in the last three hypotheses. In this study, we are able to extend on this by including bottom-line profit measures in our analysis through GOPPAR and EBITDAPAR (Earnings Before Interest, Taxes, Depreciation, and Amortization Per Available Room) . O'Neill and Carlback (2011) look at profits through NOI, and find that only during recessionary periods do branded hotels do better than independent properties, and in other years there is no significant difference. This was only looking at raw NOI, though, rather than controlling for the number of rooms each property has, or matching the properties at all. So, we come to the following hypothesis:

Hypothesis 2. Branded properties have either higher or about the same GOPPAR and EBITDAPAR as their independent counterparts.

The hypotheses made thus far have only been about the return metrics. It is also important to look at something that measures risk, such as the variance of the return metrics. In general, independent hotels are seen to be riskier business enterprises that should be expected to have greater variability in both their top-line and bottom-line performance measures (O'Neill and Carlback 2011). Carvell et al. (2016) find that, in general, branded hotels see lower variance in their top-line performance measures, though this does not hold true for all segments and market types. O'Neill and Carlback (2011) come to a similar conclusion with their top-line measures, concluding that independent hotels have significantly higher standard deviations for all years examined. Their profit measure, NOI, though, is inconsistent on who has the smaller standard deviation depending on what year it is. With this, we come to our last hypothesis:

Hypothesis 3. Independent hotels have significantly higher standard deviations of occupancy, ADR, RevPAR, GOPPAR, and EBITDAPAR.

IV. Data

Our dataset comes from the Hotel Trends database produced by CBRE hotels, formerly known as PKF Hospitality Research. Hotel Trends database is the oldest and most comprehensive source of hotel financial information in the United States. The

sample includes 5,312 properties from top 40 U.S markets from 2000 to 2019, with a total of 45,035 property-year observations. This number is lower since there is discontinuity in how when/if each property reports their data. Of these properties, 4,774 are branded, while the other 538 are independent. Except Economy segment, our sample represent all other hotel classes such as Luxury, Upper Upscale, Upscale, Upper Midscale, Midscale. The variables we will be using include 5 different performance measures as well as multiple property characteristics. The performance measures are: occupancy, average daily date (ADR), revenue per available room (RevPAR), gross operating profits (GOP) and earnings before interest, taxes, depreciation, and amortization (EBITDA). The property characteristics we use from the data are chain scale, property type, location type, number of rooms, year built, management type, submarket, and market.

The main variable of interest, "branded", is a dummy variable given by CBRE to indicate whether or not the hotel is branded. We changed this variable to include some of the "soft branded" hotels without parent brands as independent, rather than branded. Some examples include Preferred Hotels and Resorts and Leading Hotels of the World. Although these properties are technically branded, they are closer to an independent hotel.

We create the variable "age" by subtracting the year from the year built for each observation. This resulted in some negative numbers, which were fixed by either finding the correct year it was built or excluding. We also normalize GOP and EBITDA by the number of rooms the property has by dividing each one by the number of rooms, resulting in GOP per available room (GOPPAR) and EBITDA per

available room (EBITDAPAR). Finally, we take the log of each of the performance measures, other than occupancy, so we can interpret coefficients as percentages rather than raw numbers. Since GOPPAR and EBITDAPAR can be negative, we add the largest negative number for each measure before taking the log, so that we have no undefined observations.

For this study, we will be using 5 performance measures as the dependent variables: occupancy, log ADR, log RevPAR, log GOPPAR, and log EBITDAPAR. With that, we will be controlling for a set of property characteristics. Chain segment is an indicator variable for which segment a property is in, which is either luxury, upper upscale, upscale, upper midscale, or midscale. Property type is also an indictor variable for the type of hotel, such as resort or full service. Similarly, location type specifies the type of location the hotel is in, such as airport or small city. Management type is another indicator variable which gives us insight on how the hotel is run. It can be by the brand, self-managed, or by a third-party. The variable rooms is simply how many rooms a hotel has. To help match similar sized hotels and not assume linearity in our model, we bin this variable into 5 parts: < 75, 75-150, 150-300, 300-500, and > 500. We do the same thing with the aforementioned age variable, but into 4 parts: ≤ 15, 16-30, 31-45, and > 45. By using these bins, we allow for non-linear relationships with our performance variables as each bin has it's own coefficient.

V. Methods

Our main goal for this analysis is to match branded hotels with independent hotels which are as similar as possible. To do this, we use a multi-variate regression

model to control for the observables that we have. Property characteristics which could influence the performance of a hotel include the number of rooms, property type, chain scale, management type, location type, and age, as well as year and market location. We estimate a different model for each performance outcome, with the specification of:

$$Performance_{j,i,t} = \beta_0 + \beta_1 Branded_{i,t} + \beta_2 Rooms_{i,t} + \beta_3 ChainScale_{i,t} + \beta_4 PropertyType_{i,t} + \beta_5 Management_{i,t} + \beta_6 LocationType_i + \beta_7 age_{it} + \beta_8 Submarket_i + \beta_9 Market_i * Year_t + \varepsilon_{i,t} \quad (1)$$

In the above equation, $Performance_{j,i,t}$represents a logged performance outcome *j* (Occupancy, ADR, RevPAR, GOPPAR, and EBITDAPAR) for hotel *i* at time *t*. The only performance measure that is not logged is occupancy, as it is already in a percentage. By logging these variables, we are able to interpret the coefficients as percent changes. $Branded_{i,t}$ is an indicator variables that takes the value of 1 if the hotel is branded, and 0 if it is independent. This is our variable of interest. If the coefficient is positive, branded hotels have a certain percentage advantage in that performance measure compared to a similar independent property. If it is negative, that means independent hotels have the advantage. $Rooms_{i,t}$, $ChainScale_{i,t}$, and $PropertyType_{i,t}$, and $Management_{i,t}$ all have a *t* subscript since they can change year to year due to renovations or change in management structure. We include both $Submarket_i$ and $Market_i * Year_t$ to control for the smallest region available, as well as controlling for trends in wider markets. By adding in the interaction between

$Market_i$ and $Year_t$, we are able to control for market trends during our sample period. Standard errors are clustered at the submarket level.

To look further into the effects of branding, we add an interaction with $ChainScale_{i,t}$ to the above specification to get:

$$Performance_{j,i,t} = \beta_0 + \beta_1 Branded_{i,t} * ChainScale_{i,t} + \beta_2 Rooms_{i,t} + \beta_3 ChainScale_{i,t} + \beta_4 PropertyType_{i,t} + \beta_5 Management_{i,t} + \beta_6 LocationType_i + \beta_7 age_{it} + \beta_8 Submarket_i + \beta_9 Market_i * Year_t + \varepsilon_{i,t} \quad (2)$$

This allows us to see if the effects of branding is different depending on which segment the property is in. We choose to do an interaction rather than separate regressions to enrich the coefficients of the controls. By doing this, we assume these effects of these controls are independent of chain segment.

The above specifications focus on return. While this is an important metric to investigate, we also must look at risk. To do this, we take two different approached: raw, property level standard deviations, and rolling window standard deviations.

For the first approach, we take the standard deviation for each property that reported more than one year of each performance measure. Once we have standard deviations for each property, we run a regression for each performance measure in a similar fashion to our original regression. The model is:

$$Performance\_STD_{j,i} = \beta_0 + \beta_1 Branded_i + \beta_2 Rooms_i + \beta_3 ChainScale_i + \beta_4 PropertyType_i + \beta_5 Management_i + \beta_6 LocationType_i + \beta_7 age_i + \beta_8 Submarket_i + \varepsilon_i \quad (3)$$

Here, $Performance\_STD_{j,i}$ is the standard deviation for each property, and the rest of the variables are the same as the original regressions. Since there are now no time fixed-effects available to us, $Rooms_i$, $ChainScale_i$, $Type_i$, $Management_i$, $LocationType_i$, and age_i are all taken from the first year that property reported. We are interested the coefficients of the variable - $Branded_i$. If it is negative, then branded hotels see less year-over-year variation in that performance measure than similar independent properties. And if it's positive, then independent hotels have less variation.

Although this measure is useful, it fails to control for discontinuities in reporting, as well as different amounts of observations used for each standard deviation calculation. For example, we are comparing hotels which reported for all 19 years compared to hotels that may have reported once in 2001 and again in 2017. To improve on this measure, we take a rolling window approach.

For the rolling window approach, we segment the data into multiple three-year windows spanning from 2000 to 2019. Once we have these windows, we exclude any hotel that did not report for each year in the window. For example, if a hotel in the window of 2001-2004 only reports for 2001 and 2002, it is excluded. Then, for each window, we take the standard deviation of the property's performance measure and use the middle year as the observation to attach it to. This approach controls for

inconsistencies in reporting, year fixed-effects, as well as the number of observations used to calculate each standard deviation.

Once we have these new standard deviation variables, we execute regressions in a similar fashion to the original regressions. The specification is:

$$Performance\_STD_{j,i,t} = \beta_0 + \beta_1 Branded_{i,t} * ChainScale_{i,t} + \beta_2 Rooms_{i,t} + \beta_3 ChainScale_{i,t} + \beta_4 PropertyType_{i,t} + \beta_5 Management_{i,t} + \beta_6 LocationType_i + \beta_7 age_{it} + \beta_8 Submarket_i + \beta_9 Market_i * Year_t + \varepsilon_{i,t} \quad (4)$$

We again include an interaction with $ChainScale_{i,t}$ to see how the effects of branding changes for different segment.

VI. Analyses and Results

In this section, we will discuss the summary statistics as well as the empirical results found from the different regressions estimating both the top-line performance (Occupancy, ADR, and RevPAR) measures as well as the bottom-line measures (GOPPAR and EBITDAPAR).

Table 1

Summary Statistics of Performance Measures by Affiliation

	(1) Branded Hotels						
	# of Obs: 41,695						
	Mean	S.D.	Min	25th	Median	75th	Max
Top-Line Performance							
Occupancy (%)	71.64	10.62	17.27	65.34	72.53	78.99	108.85
ADR	131.06	70.45	24.30	90.81	116.35	150.75	1413.79
RevPAR	96.23	57.71	7.89	61.19	83.70	113.79	919.27
Bottom-Line Performance							
GOPPAR	17809.00	12685.00	-15439.00	9553.96	14758.00	22383.00	170781.00
EBITDAPAR	12070.00	10622.00	-74191.00	5250.65	10033.00	16466.00	138701.00
	(2) Independent Hotels						
	# of Obs: 3,340						
	Mean	S.D.	Min	25th	Median	75th	Max
Top-Line Performance							
Occupancy (%)	71.16	12.52	18.37	64.30	72.93	80.14	100.00
ADR	186.79	88.75	29.25	129.99	170.63	217.89	1019.12
RevPAR	136.08	74.04	11.32	85.90	122.12	171.20	832.23
Bottom-Line Performance							
GOPPAR	25469.00	18942.00	-47413.00	13185.00	22150.00	33489.00	207922.00
EBITDAPAR	16483.00	17162.00	-78321.00	5871.52	13747.00	23676.00	159329.00

Note. This table presents the descriptive statistics for each of the performance measures of our sample of hotels from 2000-2019. Column (1) presents statistics for branded properties, and column (2) for independent. Occupancy is occupied rooms/available rooms; ADR is average daily rate; RevPAR is revenue per available room (Occupancy*ADR); GOPPAR is gross operating profit per available room; EBITDAPAR is earnings before interest, taxes, depreciation, and amortization per available room.

The top-line performance measures are occupancy, average daily rate (ADR), and revenue per available room (RevPAR). Occupancy is the average over a year of the daily rooms purchased divided by the total available rooms. As seen in Table 1, the average occupancy for branded hotels is 71.6%, which is almost identical to the average for independent hotels, which is 71.2%. Average daily rate, henceforth ADR, is the average rate charged by a property for one night. This ranges from under $25 to over $1,400, with an average for branded hotels being $131 and the average for independent $187. The last top-line performance measure, revenue per available

room, or RevPAR, is a combination of the last two measures. RevPAR is equal to ADR multiplied by the average occupancy. This is the most comprehensive measure when looking at before-expense performance. The average RevPAR for branded is $96, while the average for independent properties is $136. These raw comparisons are biased, though, as there are many observable characteristics between branded and independent hotels that need to be considered, such as chain segment. For example, with a higher proportion of independent hotels in the luxury segment compared to branded, we will see higher ADRs for independent properties due to this.

The bottom-line performance measures are gross operating profits (GOP) and NOI/EBITDA. Effective January 1, 2015, Uniform System of Accounts for the Lodging Industry (USALI) 11th edition changed the operating statement item "Net Operating Income (NOI) into Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)". Gross operating profits per available room, or GOPPAR, is a calculation of the total operating profits for each year divided by the number of available rooms. Again, we see independent hotels having an average higher than branded, $25,469 and $17,809 respectively. GOPPAR is best for measuring the owner's cashflow from the property. Another measure of profit, EBITDAPAR, relates directly to the property's valuation. This is measured by taking the earnings before interest, taxes, depreciation, and amortization, then dividing that by the number of available rooms. We see a similar pattern of independent having a higher average at $16,483 compared to the average for branded of $12,070. Again, these comparisons do not hold much meaning without controlling for property characteristics.

In an effort to normalize the data to better analyze it, each of these performance variables (other than occupancy) has been logged. This allows us to interpret the coefficients as percentages rather than raw numbers, which is important when comparing different chain segments. For example, a $15 difference in ADR for a midscale hotel is a much bigger impact than for a luxury hotel.

Table 2

Summary Statistics of Control Varaibles by Affiliation

	(1) Branded Hotels		(2) Independent Hotels	
		Obs: 41,695		Obs: 3,340
	Mean	Frequency	Mean	Frequency
Chain Scale (%)				
Luxury	5.56	2317	21.35	713
Upper Upscale	24.93	10393	33.68	1125
Upscale	38.80	16176	34.43	1151
Upper Midscale	17.90	7464	4.43	150
Midscale	12.82	5347	6.11	208
Property Type (%)				
Full-Service	46.30	19306	59.07	1975
Limited-Service	19.39	8088	14.13	474
Suite	3.11	3682	13.56	147
Resort	8.83	1296	4.40	454
Extended Stay	18.23	7602	0.78	26
Convention Hotel	3.59	1498	1.62	54
Conference Center	0.54	225	6.44	217
Location Type (%)				
Large Metropolitan Area - Airport	16.97	7075	1.74	58
Large Metropolitan Area - Suburbar	45.05	18785	24.07	808
Large Metropolitan Area - Urban	26.78	11166	52.22	1746
Mid-sized City - Urban	0.32	132	0.00	0
Resort / Destination	8.85	363	20.03	669
Rural Area / Interstate	0.37	155	0.33	11
Small City / Town	1.67	695	1.62	55
Management Type (%)				
Brand	54.57	0	7.13	0
Self-Managed	0.52	0	11.71	0
Third-Party	44.92	0	81.17	0
Rooms (%)				
< 75	1.66	693	14.16	474
75 - 150	43.19	18011	29.46	985
150 - 300	31.52	13141	36.83	1235
300 - 500	15.06	6278	12.37	413
> 500	8.57	3574	7.19	240
Age (%)				
≤ 15	42.23	17609	27.93	937
16 - 30	39.69	16547	20.96	701
31 - 45	13.08	5455	16.50	553
> 45	5.00	2086	34.61	1156

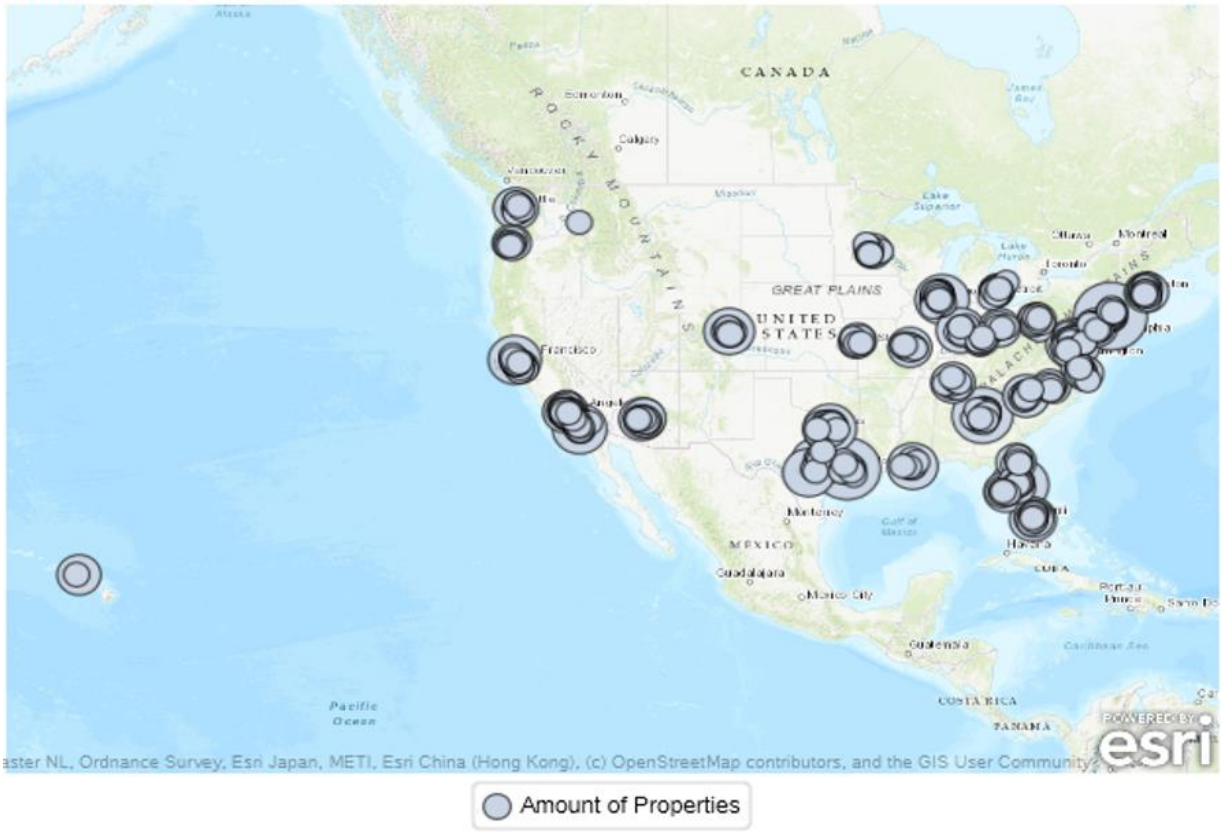
Note. This table presents the descriptive statistics for each of the control variables of our sample of hotels from 2000-2019. Column (1) presents statistics for branded properties, and column (2) for independent. All variables are indicators, which are always either 0 or 1.

As previously mentioned, an important aspect of our data use to compare branded and independent hotels are the property characteristics. These variables consist of chain scale, property type, location type, rooms, age, management type, submarket, and market. Table 2 shows the distribution of chain scales in our sample, as well as the proportion that are branded compared to independent. Upscale is the most common in our dataset for both branded and independent. Branded hotels come least from the luxury sector, while independent properties are least common in the midscale and upper midscale segments. Chain scale is decided by ADR cutoffs from STR, with luxury being the highest and midscale being the lowest.

Property type helps give us information on what the hotel offers to its occupants. As seen in Table 2, full-service properties are the most common in our dataset. Also interesting is the relatively large proportion of independent hotels that are suites. This, combined with the large proportion of independent hotels that are luxury, help to explain the raw averages presented in Table 1. Location type is also an important characteristic that tells us about the property. There is a higher proportion of branded that are airport hotels, and a higher proportion of independent that are in large urban areas or resort destinations. Management type gives insight to how the hotel is run. It's about half and half between brand and third-party for branded hotels, and mostly third-party for independent.

Figure 1

Map of Property Locations



This figure presents a map showing the locations of the hotels in our sample. Each bubble represents the number of hotels in a given city.

Also in Table 2 is the distribution of the number of rooms and age for branded and independent properties. Most of the hotels are in the middle range of 75-300 rooms, with independent hotels having more properties in the smallest bracket than branded. Most of these hotels are also on the younger side, but independent properties are more likely to be older than branded hotels. Figure 1 is a map illustrating where our data is located in the US. Each bubble is a city, and the size of each bubble represents how many properties we have data for in that city. We see representation in most major areas, with less frequency in the less populated areas. Our dataset also includes 40 markets, as well as 245 submarkets that we are able to control for.

i. Top-Line Performance Measures

Table 3

Regression Results

Parameter	Occupancy		Log ADR		Log RevPAR		Log GOPPAR		Log EBITDAPAR	
	1	2	3	4	5	6	7	8	9	10
Branded	2.827***		0.014		0.06***		0.014		0.014*	
	(0.475)		(0.017)		(0.017)		(0.009)		(0.008)	
Branded*Luxury		0.011		0.05		0.053*		-0.023		0.015
		(0.810)		(0.033)		(0.032)		(0.019)		(0.035)
Branded*Upper Upscale		2.33***		-0.025		0.01		-0.005		-0.002
		(0.600)		(0.024)		(0.026)		(0.012)		(0.010)
Branded*Upscale		4.113***		0.045***		0.109***		0.047***		0.026***
		(0.616)		(0.017)		(0.020)		(0.012)		(0.010)
Branded*Upper Midscale		2.636*		-0.071**		-0.028		-0.016		-0.005
		(1.450)		(0.034)		(0.037)		(0.025)		(0.015)
Branded*Midscale		6.395***		-0.002		0.113***		0.057***		0.032***
		(1.239)		(0.034)		(0.041)		(0.012)		(0.009)
Intercept	71.719***	68.494***	4.832***	4.841***	4.474***	4.42***	11.12***	11.08***	11.401***	11.382***
	(2.739)	(2.938)	(0.038)	(0.050)	(0.049)	(0.061)	(0.020)	(0.022)	(0.018)	(0.018)
Chain Segment Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rooms Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Property Type Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Type Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management Type Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Market*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Submarket FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean of Variable	71.605	71.605	4.804	4.804	4.458	4.458	11.13	11.13	11.408	11.408
Number of Observations	45,035	45,035	45,035	45,035	45,035	45,035	45,035	45,035	45,035	45,035
R-Square	0.527	0.528	0.857	0.858	0.839	0.84	0.676	0.678	0.234	0.235
Root MSE	7.498	7.486	0.166	0.166	0.21	0.21	0.098	0.098	0.147	0.147

Note. This table presents the regression coefficients for the multivariate regression specified in equations (1) and (2) to our sample of hotels between 2000 and 2019. Numbers in parentheses represent the standard errors of the coefficients, which are clustered at the submarket level. The "Branded" variable is a dummy variable indicating is a hotel is independent (0) or branded (1). Occupancy is occupied rooms/available rooms; ADR is average daily rate; RevPAR is revenue per available room (Occupancy*ADR); GOPPAR is gross operating profit per available room (thousands); EBITDAPAR is earnings before interest, taxes, depreciation, and amortization per available room (thousands). ***, **, and * signify statistical significance at 1%, 5%, and 10% levels, respectively.

Table 3 shows the regression results for each of the different performance measures. The specifications for these models are from equations (1) and (2). Columns (1) - (6) present the estimates for each of the top-line performance measures. In the sample, branded properties outperformed their independent counterparts with about 2.8% higher occupancy. This shows how branding can help a hotel draw in more costumers through the services they offer, such as advertising and loyalty

programs. This result supports **Hypothesis 1a**, and consistent with the findings in Carvell Et Al. (2016) and in O'Neill and Carlback (2011). Looking by segment, we see consistent results with the exception of no occupancy premium for luxury properties. On the other end, midscale hotels see the highest premium of about 6.4% higher occupancy.

As seen in column (3), branded hotels are able to charge about the same per room compared to a similar independent property. ADR is usually set by the market, which is why, when controlling for all observables, there shouldn't be a difference between branded and independent hotels. Thus, this supports **Hypothesis 1b**, and also follows past research. Combining these two measures, branded hotels see about 6% higher RevPAR than independent hotels. This follows **Hypothesis 1c**, concluding that branded properties see higher top-line performance than independent hotels. Looking by segment again, the only two that do not have different RevPAR are Upper Upscale and Upper Midscale. Next, we take expenses and added fees into account by looking at bottom-line measures.

ii. Bottom-Line Performance Measures

Table 3 columns (7) – (10) present the results of the bottom-line performance measures. Branded hotels see about the same GOPPAR as independent properties, but have an average of 1.4% higher EBITDAPAR than their independent counterparts. This points to branded hotels having about the same profit, if not a little higher. Although their top-line measures are higher, paying the extra fees that come along with branding seems to balance their bottom-line profit out. This supports **Hypothesis**

2, and adds to past research by having a concrete conclusion on profits. By segment, we see upscale and midscale hotels outperforming independent hotels by both GOPPAR and EBITDAPAR by about 5%. This shows how branding has more advantages for lower-scale properties, as they have more to gain from reservation systems, loyalty programs, and management.

VII. Standard Deviations

Above, we have outlined the differences between branded and independent hotels by looking at yearly averages of performance measures. When looking at an investment, this would be the return side. But what hasn't been looked at yet are the risks of that investment. To measure this, we want to know how their performance measures vary from year to year. There are two ways we will look into this: a raw measure, and a rolling window approach. For both, we again log all performance measures other than

i. Raw Measure

The first way to go about this is to take the raw, property level standard deviations of the logged performance measures for each hotel that reported for more than one year. This is not a perfect measure, as it does not control for discontinuities in the data, nor does it account for the heterogeneity in the number of years reported that are used in the calculation of standard deviation.

Table 4

Raw Standard Deviation Regression Results

Parameter	Occupancy	Log ADR	Log RevPAR	Log GOPPAR	Log EBITDAPAR
	1	2	3	4	5
Branded	-0.836***	-0.008	-0.022**	-0.011**	0.016
	(0.276)	(0.006)	(0.009)	(0.004)	(0.023)
Intercept	6.025***	0.084	0.121***	0.022*	-0.013
	(0.740)	(0.020)	(0.027)	(0.011)	(0.030)
Chain Segment Control	Yes	Yes	Yes	Yes	Yes
Rooms Control	Yes	Yes	Yes	Yes	Yes
Age Control	Yes	Yes	Yes	Yes	Yes
Property Type Control	Yes	Yes	Yes	Yes	Yes
Location Type Control	Yes	Yes	Yes	Yes	Yes
Management Type Control	Yes	Yes	Yes	Yes	Yes
Submarket FE	Yes	Yes	Yes	Yes	Yes
Mean of Variable	5.824	0.109	0.161	0.058	0.052
Number of Observations	4806	4806	4806	4806	4806
R-Square	0.170	0.257	0.251	0.369	0.154
Root MSE	3.087	0.067	0.092	0.038	0.145

Note. This table presents the regression coefficients for the multivariate regression specified in equation (3) to our sample of hotels between 2000 and 2019. Numbers in parentheses represent the standard errors of the coefficients, which are clustered at the submarket level. The "branded" variable is a dummy variable indicating is a hotel is independent (0) or branded (1). Each of the outcome variables are calculated as standard deviations at the property level. Occupancy is occupied rooms/available rooms; ADR is average daily rate; RevPAR is revenue per available room (Occupancy*ADR); GOPPAR is gross operating profit per available room; EBITDAPAR is earnings before interest, taxes, depreciation, and amortization per available room. ***, **, and * signify statistical significance at 1%, 5%, and 10% levels, respectively.

Table 4 presents the results of the raw standard deviations for each of the performance measures. All coefficients are negative, indicating the variance of measures is lower for branded hotels than independent, and everything except for ADR and EBITDAPAR is significant. In other words, branded hotels see less year-to-year variability in almost all performance measures when compared to independent hotels. For example, branded properties see about 1.1% less standard deviation in GOPPAR than independent hotels. To put that in perspective, the average standard deviation of GOPPAR is 5.8%.

As mentioned before, this raw measure is not ideal due to discontinuity in reporting, as well as different numbers of observations for each standard deviation calculated. For example, a hotel that reported for a couple years in the 2000's, then again in the late 2010's, their variance might be artificially higher than that of a hotel which reported for all years. To get around these issues, we use a rolling window technique.

ii. Rolling Window Approach

The rolling window approach takes multiple overlapping 3-year windows from 2000 to 2019 where properties report for each year in the window. We then take the standard deviations of each of the measures for each window, and attach the middle year onto that observation. This helps us circumvent the issues of taking the property-level standard deviations.

Table 5

Windowed Standard Deviation Regression Results

Parameter	Occupancy		Log ADR		Log RevPAR		Log GOPPAR		Log EBITDAPAR	
	1	2	3	4	5	6	7	8	9	10
Branded	-0.275**		-0.005***		-0.009***		-0.008***		0.000	
	(0.133)		(0.001)		(0.003)		(0.002)		(0.003)	
Branded*Luxury		-0.079		-0.002		-0.004		0.000		0.000
		(0.252)		(0.002)		(0.004)		(0.004)		(0.006)
Branded*Upper Upscale		-0.278*		-0.004**		-0.008**		-0.01**		-0.001
		(0.156)		(0.002)		(0.003)		(0.005)		(0.003)
Branded*Upscale		-0.419**		-0.008***		-0.013***		-0.01***		0.001
		(0.209)		(0.002)		(0.004)		(0.002)		-0.003
Branded*Upper Midscale		-0.160		-0.004		-0.006		-0.018*		-0.006
		(0.490)		(0.004)		(0.008)		(0.009)		(0.008)
Branded*Midscale		-0.287		-0.008		-0.019		-0.008***		0.004
		(0.388)		(0.007)		(0.012)		(0.003)		(0.004)
Intercept	3.785***	3.781***	0.04***	0.043***	0.073***	0.082***	0.04***	0.039***	0.055***	0.05***
	(0.370)	(0.498)	(0.006)	(0.010)	(0.009)	(0.015)	(0.009)	(0.008)	(0.013)	(0.012)
Chain Segment Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rooms Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Property Type Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Type Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management Type Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Market*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Submarket FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean of Variable	3.649	3.649	0.053	0.053	0.082	0.082	0.032	0.032	0.028	0.028
Number of Observations	28,986	28,986	28,986	28,986	28,986	28,986	28,986	28,986	28,986	28,986
R-Square	0.204	0.204	0.468	0.468	0.382	0.382	0.304	0.305	0.179	0.179
Root MSE	2.481	2.481	0.027	0.027	0.047	0.047	0.026	0.026	0.035	0.035

Note. This table presents the regression coefficients for the multivariate regression specified in equation (4) to our sample of hotels between 2000 and 2019. Numbers in parentheses represent the standard errors of the coefficients, which are clustered at the submarket level. The "branded" variable is a dummy variable indicating is a hotel is independent (0) or branded (1). Each of the outcome variables is calculated by taking the standard deviation of rolling windows of 3 years each. The "year" variable for each observation is the middle year of each window. Occupancy is occupied rooms/available rooms; ADR is average daily rate; RevPAR is revenue per available room (Occupancy*ADR); GOPPAR is gross operating profit per available room (thousands); EBITDAPAR is earnings before interest, taxes, depreciation, and amortization per available room (thousands). ***, **, and * signify statistical significance at 1%, 5%, and 10% levels, respectively.

The results shown in Table 5 follow closely to the raw measure results in Table 4. The main difference is the magnitude of coefficients, which is always lower for the windowing approach. This is because the average standard deviation with this approach is always smaller, due to the previously mentioned improvements when calculating the statistics. Another difference is ADR is now significantly negative, indicating branded hotels see less fluctuation in what they charge per room. These results mostly support **Hypothesis 3**, as EBITDAPAR is the only measure without a significant difference in standard deviations.

Taking a closer look by interacting with chain segment, we see significance mostly in only upscale and upper upscale properties for occupancy, ADR, and RevPAR. This shows that now all segments see that same difference in standard deviation premiums between branded and independent hotels. For GOPPAR, though, every segment sees significantly lower standard deviations for branded, with the exception of luxury properties. This follows our past results of luxury hotels not benefiting as much from branding as lower segments. This also shows that branded properties see less variation in their profit for almost all segments compared to independent hotels.

VIII. Discussion

To go about exploring the advantages and disadvantages of a hotel being branded, we used two different approaches; one to measure return, and the other to measure risk. For both approaches, we looked at top-line as well as bottom-line performance measures. When looking at return, we found that branded hotels have higher occupancy while charging about as much compared to independent hotels. Combining these two ideas, branded hotels were found to have higher revenue per room than their independent counterparts.

These conclusions match past literature, and although they are important and relevant, it does not tell us the whole story of branding a hotel, as this leads to increases costs. To know if it's better for an owner to be branded or not, we have to look at the bottom-line profit measures. We found that branded properties about the same GOPPAR and slightly higher EBITDAPAR than independent hotels. So

branded hotels might see more revenue, but most if not all of that added income is washed away after paying franchising fees.

When thinking about an investment, it is a moot point to look only at returns and not the underlying risk. To do this, we measure standard deviation in two different ways to see how these performance measures change year to year between branded and independent properties. The first was a raw measure that didn't control for discontinuity in reporting, or the number of observations used to calculate standard deviation. All coefficients of interest were negative, with only ADR and EBITDAPAR not significant at the 10% level. In this context, negative coefficients mean that branded hotels see less variation in their performance measures than their independent counterparts.

To improve our estimates, we used a rolling window approach that allows us to use year fixed-effects, as well as get around the issue of reporting discontinuity and the number of observations for each calculation. The method also gets us all negative coefficients, with ADR and EBITDAPAR being the only one that isn't significant at the 10% level. So, branded hotels have less variation in their year-to-year top-line as well as bottom-line performance measures than independent properties. As an investment, this means there is less risk for a hotel if it is branded rather than independent.

Putting this all together, branded hotels see more revenue and about the same profit as similar independent hotels, while having less year-to-year variation in those measures. This is important information for a hotel owner to know, as being branded has some advantages for return and clear advantages for risk.

IX. Conclusion

In this study, we aimed at answering the question many hotel owners run into: to brand, or not to brand? Using a panel dataset of US hotel performance from 2000 to 2019, we run multi-variate regressions to control for observables to match hotels to their closest counterparts. We found that branded properties charge about the same as independent hotels while maintaining a higher average occupancy, leading to higher revenue per available room (RevPAR) for branded properties. This is a similar conclusion found in past literature. Building off that, we add to the literature by also examining bottom-line performance measures of profit. We find that branded properties have about the same gross operating profit per available room (GOPPAR) and slightly higher EBITDA per available room. So, although branded hotels receive more revenue, this mostly evens out after expenses and extra fees.

To fully answer the research question, we also examine the standard deviations of the performance measures to better understand the risks owners choose to take when deciding to brand or not. We use a rolling window approach with a similar regression specification as the original model, and find that branded hotels see less year over year variation in Occupancy, ADR, RevPAR, and GOPPAR. This translates to less risk for both the top-line and bottom-line performance measures. From an investor's perspective, branded hotels are about as profitable and less risky.

Future research in this area that could be done is to examine the difference in expenses between branded and independent hotels. This can help decipher if it is the franchise fees or the expenses that cause the RevPAR premium to vanish when

moving to bottom-line measures. Also, research could be done on why some brands do better than others, and find what characteristics make a successful brand.

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