

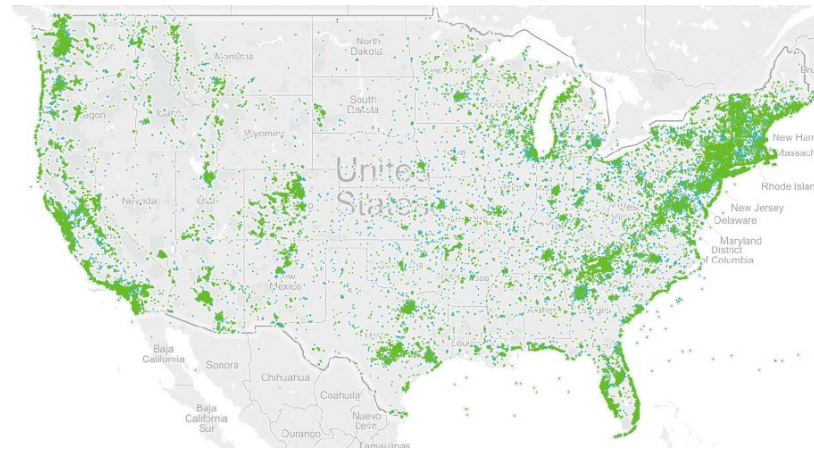
The Sharing Economy Checks In: An Analysis of Airbnb in the United States

Implications on Traditional Hotel Development and Market Performance Going Forward

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EXECUTIVE SUMMARY

The sharing economy has become a prominent though not well understood economic phenomenon over the past several years. Airbnb is the market leader as it relates to the temporary accommodations industry. CBRE Hotels' Americas Research compiled select information from STR, Inc. and Airdna, a company that provides data on Airbnb, for hundreds of U.S. markets to assess the relevancy of this sharing platform to the traditional hotel industry.



Airbnb's presence in key markets throughout the U.S. is growing at a rapid pace, with users spending \$2.4 billion on lodging in the U.S. over the past year, according to analysis from CBRE Hotels. Over the study period of October 2014 – September 2015, more than 55 percent of the \$2.4 billion generated was captured in only five U.S. cities (New York, Los Angeles, San Francisco, Miami and Boston), represents a significant portion of the lodging revenues in these markets.

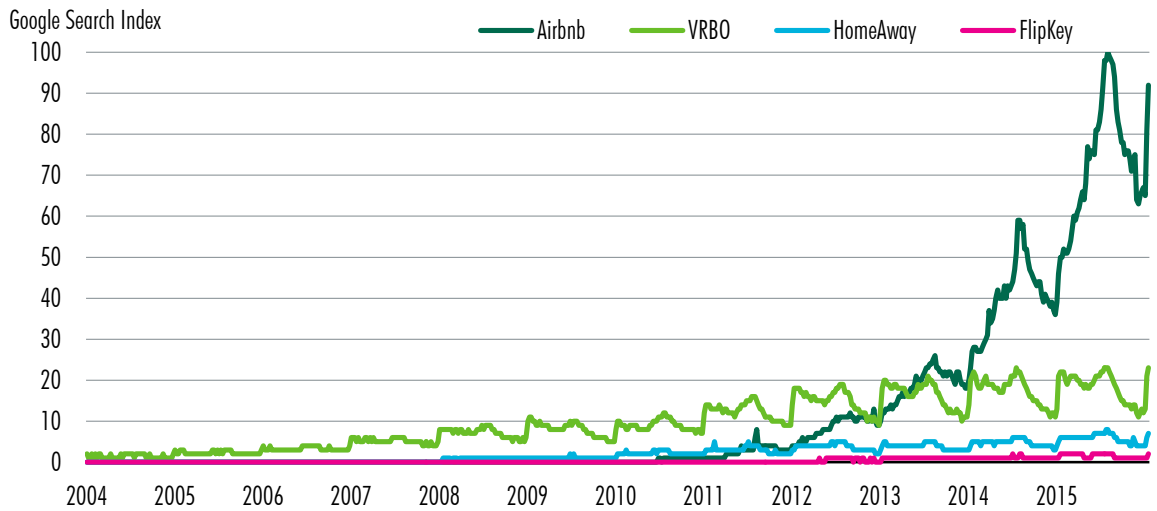
CBRE Hotels compiled select information for hundreds of U.S. markets to assess the relevancy of this sharing platform to the traditional hotel industry. From this data, the firm has developed an Airbnb Competition Index. This measure incorporates a comparison of Airbnb's Average Daily Room rates (ADR) to traditional hotel ADR's; the scale of the active Airbnb inventory in a market to the supply of traditional hotels, and the overall growth of active Airbnb supply in that market, into a measure of potential risk. New York was identified as the number one domestic market at risk from the growth of Airbnb, with an Airbnb Risk Index of 81.4, followed by San Francisco, Miami, Oakland and Oahu.

Reports detailing the estimated performance of Airbnb facilities covering 59 U.S. cities, encompassing 229 submarkets, may be found at <https://store.pkfc.com/airbnb-insights>.

BACKGROUND

The sharing economy has become a prominent though not well understood economic phenomenon over the past several years. The motivation for this study is to determine if and how short-term rentals booked through Airbnb are affecting hotel performance in the U.S. While Airbnb is not the only site for short-term rentals, it has become a leader in the industry. Exhibit 1 shows an indexed number of Google searches for each of the most popular short-term rental sites. The chart clearly shows how quickly Airbnb has taken the lead in terms of number of worldwide searches.

Exhibit 1: Google Trends Search Index of Searches for Major Short Term Rental Sites



Source: Google Trends, Q4 2015.

As the leading company within this new and expanding system of sharing, Airbnb operates a platform that facilitates the use of residential real estate as transient lodging by enabling people to rent a bedroom, a couch, or an entire home to guests on a short-term basis. The company was founded in August 2008 in San Francisco as a community marketplace for people to list and book unique accommodations around the world, either online or via their mobile application. As of December 2015, Airbnb had sixty million users providing access to locations in 34,000 cities in over 190 countries, averaging half a million stays per night.

UNDERSTANDING THE RELEVANCY OF AIRBNB TO THE TRADITIONAL HOTEL INDUSTRY

To gain insight into the economics of Airbnb, CBRE Hotels' Americas Research compiled select information from STR, Inc. (STR) and Airdna for hundreds of U.S. markets to assess the relevancy of this sharing platform to the traditional hotel industry. Reports detailing the estimated performance of Airbnb facilities covering 59 U.S. cities, encompassing 229 submarkets, may be found at <https://store.pkfc.com>.

The degree to which a unit offered for rent through Airbnb is competitive with a traditional hotel is a function of many factors including location, availability, type of sleeping accommodation, number of guest rooms available within a particular unit, the character of the structure in which the unit is located (*i.e.* single family home vs. a Bed and Breakfast operation), minimum length of stay hurdles and price. While estimating the performance of Airbnb units largely takes the form of traditional hotel metrics (*i.e.* supply, demand, occupancy, average daily rate), there are several critical differences that must be addressed. As such, we introduce herein terms such as Active and Inactive Units, Supply Fluidity, and Revenue by Bed Type, among others.

Individuals or entities that choose to rent their unit on Airbnb for rent are referred to as Hosts. Our initial research on the profiles of Hosts reveals that many have only one unit listed on Airbnb. It may be that these types of Hosts employ a more opportunistic approach to using the services of this online platform. Conversely, and in some markets, many Hosts list multiple units on Airbnb, thus the estimated demand captured and revenue realized by these multi-unit Hosts is disproportionately large. It seems reasonable that these multi-unit Hosts take a more business-like approach to using the services of Airbnb and thus potentially may be considered to be more competitive with traditional hotels in that market. As such, we provide specific estimates and profile the performance of multi-unit Hosts at the market and submarket levels.

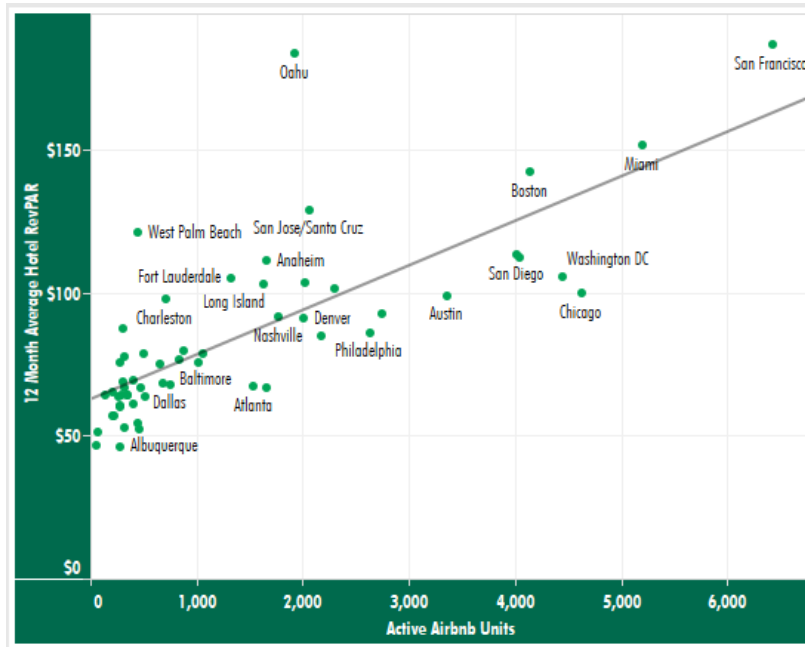
AIRBNB HOSTS RESPOND TO MARKET INCENTIVES

According to STR, the U.S. hotel industry realized its highest annual occupancy level ever in 2015 and average daily rates increased at 2.5 times their long run average. These data alone suggest that the expansion of the sharing economy into the realm of the traditional lodging space is not handicapping hotel performance at the macro level – at least not yet.

When examining the markets that have realized the largest growth in Airbnb unit supply, it is clear that a correlation exists with traditional hotel performance. Revenue per Available Room (RevPAR) is the hotel industry's standard metric for evaluating the health of a market. This measure incorporates the average occupancy level in the market as well as the average daily rate (ADR) paid for each hotel room. By comparing hotel RevPAR to the number of Active Airbnb units ¹(see Exhibit 2), it appears that Hosts respond to incentives, such as a higher rate and increased demand, causing more Airbnb units to appear in the market. This hold true at the macro level; where markets with higher ADRs and occupancy have the highest number of Active Airbnb units, and on the micro level; where we see a spike in the number of Active Airbnb units during major events such as the Super Bowl and New Year's Eve.

¹ Active vs. Inactive Unit – Units are considered Inactive if they have not been rented in the previous month, the schedule of days the unit is available for rent has not been updated in the previous two months, the host response rate to a potential booking is low, or all the days in the previous month are "blocked" (*i.e.* not available for rent for reasons other than paid occupancy). All other units are considered Active.

Exhibit 2: Hotel RevPAR and Airbnb Units in a Market.



Source: Airdna, STR, Inc., CBRE Hotels' Americas Research, Q4 2015.

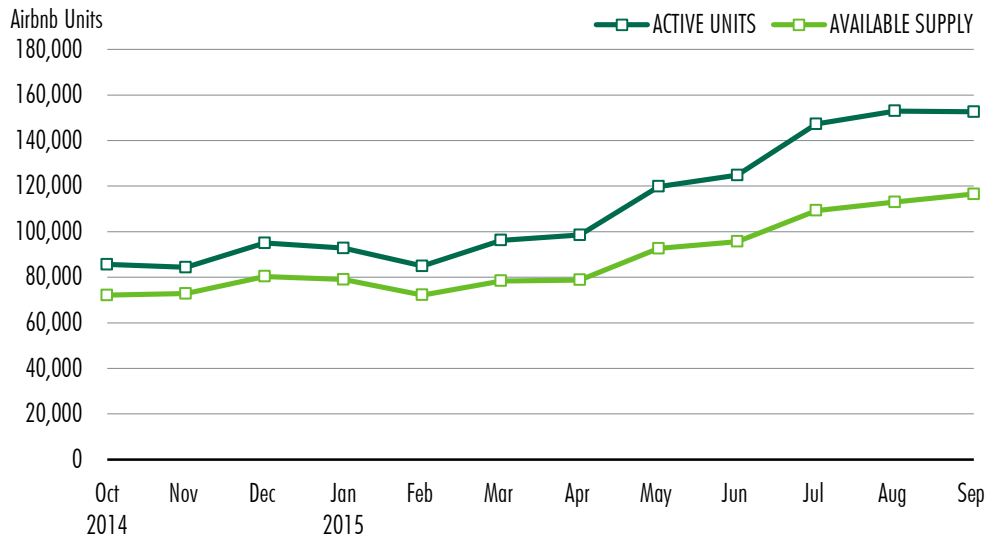
Note: New York and Los Angeles have been excluded as outliers because of the high number of active Airbnb units located therein.

THE LEVEL OF SUPPLY IS CONSTANTLY CHANGING

During the 12 month period ending September 2015, the number of Airbnb units that were posted on the Airbnb site for at least one day or more exceeded 420,000. We restricted our analysis of these units to those that we considered to be Active Units¹. This limitation was imposed to achieve a more realistic view of the Airbnb supply in the U.S that is most relevant to traditional hotels. With this restriction to Active Units only, approximately 100,000 Inactive Units are eliminated from consideration. Viewed differently, roughly 24% of the units listed on Airbnb at some point during the year never received a booking.

It is also important to recognize that the number of Active Units available from month-to-month and even day-to-day varies greatly. For example, there were approximately 152,000 Active Units on an average day in September 2015. In January of 2015, the number of Active Units available averaged 79,000. The availability of units generally varies because of the seasonality of leisure demand in the market which peaks during the summer and fall and hits a trough during the winter months. Exhibit 3 shows the estimated average daily Active Units available on Airbnb per month as well as the average daily supply of units. The difference between the number of Active Units and the available supply are blocked nights (defined as the number of nights an Active Unit is not available for rent). There are a variety of reasons why a Host would periodically not make their unit available for rent. Examples include owner occupancy, friends and family visits, etc. These blocked nights are not included when computing Airbnb unit occupancy.

Exhibit 3: U.S. Airbnb Average Daily Active Units and Average Daily Available Supply (Oct. 2014 – Sept. 2015)



Sources: Airdna, CBRE Hotels' Americas Research, Q4 2015.

Exhibit 4 shows the breakdown of the top 10 U.S. markets for Active Airbnb Units by city and compares it to the number of Airbnb bedrooms available and the number of traditional hotel rooms in that city. New York is the top market in terms of the number of Active Units with roughly 23,000, followed by Los Angeles and San Francisco. The top 10 markets average 9.9% of Airbnb Units per traditional hotel room compared with 3.4% for the entire U.S.

Exhibit 4: Top 10 Markets with Active Airbnb Units, September 2015

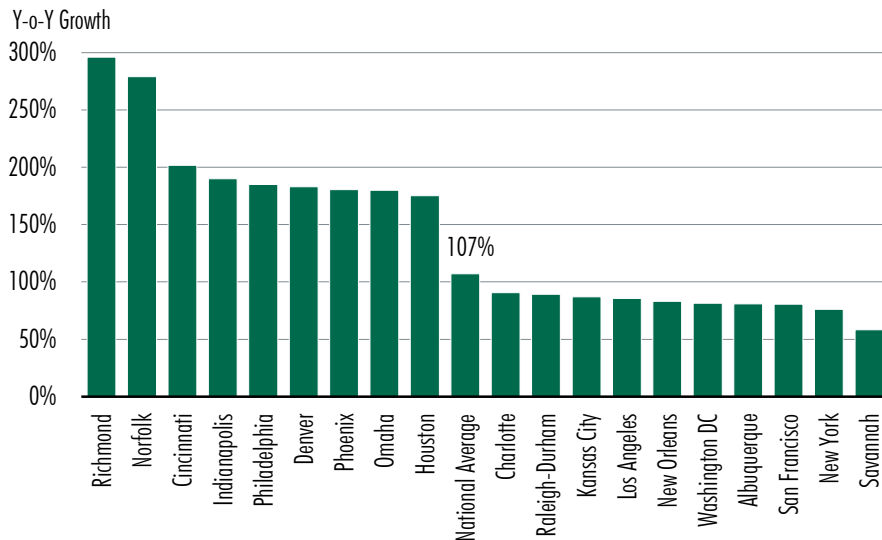
| MARKET | ACTIVE AIRBNB UNITS | ACTIVE AIRBNB BEDROOMS | BEDROOMS PER UNIT | HOTEL ROOMS | AIRBNB UNITS/HOTEL ROOMS |
|---------------|---------------------|------------------------|-------------------|-------------|--------------------------|
| New York | 22,876 | 27,965 | 1.2 | 117,367 | 19.5% |
| Los Angeles | 13,023 | 17,967 | 1.4 | 98,166 | 13.3% |
| San Francisco | 6,428 | 8,790 | 1.4 | 51,561 | 12.5% |
| Miami | 5,199 | 7,368 | 1.4 | 51,498 | 10.1% |
| Chicago | 4,626 | 6,153 | 1.3 | 111,408 | 4.2% |
| Washington DC | 4,443 | 5,784 | 1.3 | 107,776 | 4.1% |
| Boston | 4,147 | 5,566 | 1.3 | 52,119 | 8.0% |
| Seattle | 4,044 | 5,601 | 1.4 | 42,455 | 9.5% |
| San Diego | 4,016 | 6,290 | 1.6 | 60,754 | 6.6% |
| Austin | 3,357 | 6,024 | 1.8 | 33,877 | 9.9% |
| Top 10 U.S. | 72,159 | 97,508 | 1.4 | 726,981 | 9.9% |
| Overall U.S. | 173,057 | 277,256 | 1.6 | 5,031,645 | 3.4% |

Sources: Airdna, STR, Inc., CBRE Hotels' Americas Research, Q4 2015

We consider the number of Airbnb units in the market as the most important factor when assessing the relevancy of Airbnb to the performance of the traditional lodging supply in that market.

Close behind in importance is the amount of growth that is taking place in the market for Active Units. Exhibit 5 shows the Q3 year-over-year growth rates for the top 10 and bottom 10 markets and how they compare with the national average. The markets with the highest levels of supply (*i.e.* New York, San Francisco, Los Angeles, etc.) generally have the lowest growth rates. The markets with the highest growth rates can be indicative of those that are becoming more popular on Airbnb; however, this can also be misleading if they are capturing the growth because of a special event. On average there was a 107% increase in the number of Active Airbnb units in Q3 2015.

Exhibit 5: Top 10 and Bottom 10 Markets for Active Unit Growth in Q3 2015

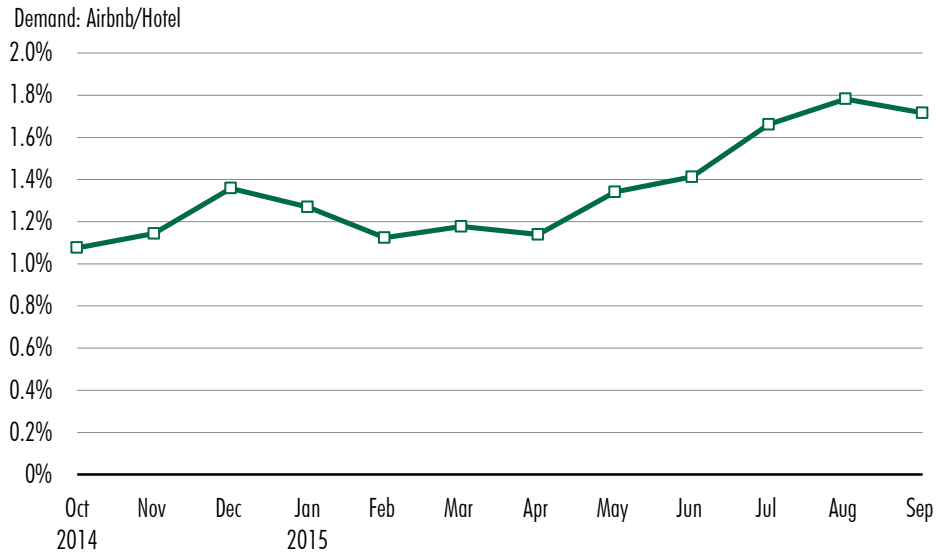


Sources: Airdna, CBRE Hotels' Americas Research, Q4 2015

THE SHARE OF DEMAND ACCOMMODATED ON AIRBNB GROWS

Using the data provided by Airdna, we estimate the number of bookings on Airbnb. In the year studied, there were roughly 16 million bookings on Airbnb. The volume of room-night demand generated by these bookings during this period, as compared to the number of traditional hotel rooms occupied during the same period as determined by STR, was 1.4%. This ratio increased from 1.0% at the beginning of the period to 1.7% by the end of the year. Thus, the volume of Airbnb demand is now approaching the STR, Inc. reported long run annual average growth of traditional hotel demand.

Exhibit 6: Airbnb Accommodated Demand as a Percent of Traditional Hotel Demand



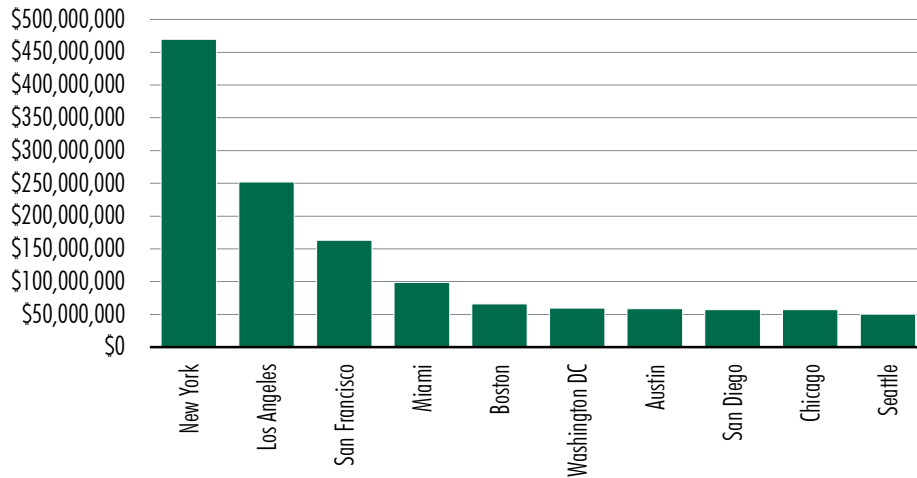
Sources: Airdna, STR, Inc., CBRE Hotels' Americas Research, Q4 2015

The data shown in Exhibit 6 clearly illustrates that Airbnb's share of accommodated demand has grown significantly and that this share becomes more or less relevant to hotels depending upon the time of the year. December looks to be a strong month for Airbnb while in many markets hotels struggle to fill rooms. As an aside, and based on data from STR, the long run average level of demand growth in the traditional lodging industry is approximately 2.05. Thus, the volume of Airbnb demand nationally is rapidly approaching the level of organic growth for hotels. The implications on the volume of traditional hotel new development going forward are clear.

REVENUE GENERATED IN THE U.S. ON AIRBNB IS CONCENTRATED IN A FEW MARKETS

The results shown below in Exhibit 7 represent only a small portion of the estimated data available. We limit our analysis to the largest 59 domestic lodging markets that comprise our current *Hotel Horizons*[®] forecast universe. Collectively, these markets contain in excess of 48% of the traditional hotel stock in the U.S. Over a period of twelve months, ending September 2015, we estimate that there were roughly \$2.4 billion in domestic Airbnb bookings and that more than 55% of the dollars generated were captured in only five U.S. cities.

Exhibit 7: Top 10 U.S. Markets for Airbnb Revenue from Oct. 2014 – Sept. 2015.

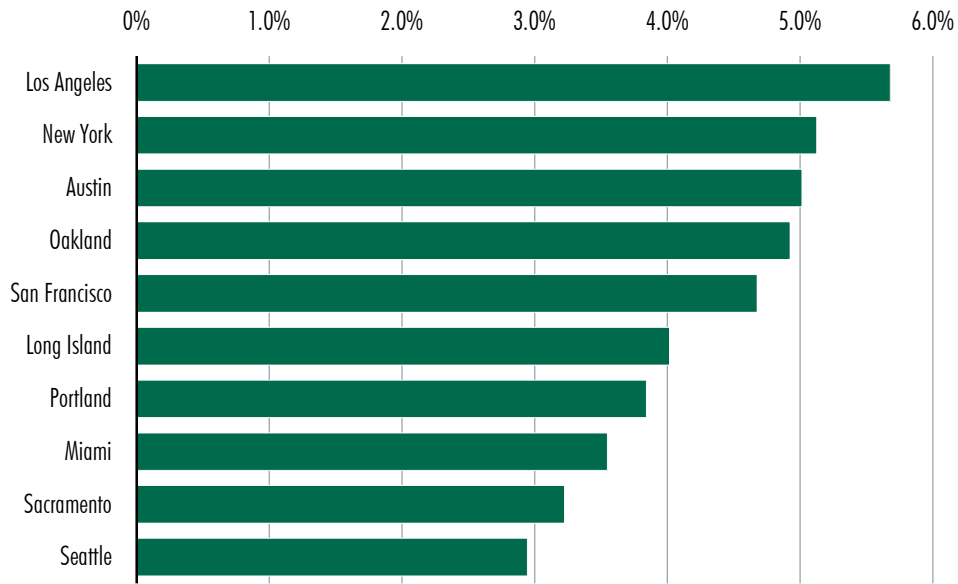


Source: Airdna, CBRE Hotels' Americas Research, Q4 2015.

New York is dominating the U.S. market in terms of supply of Airbnb units as well as the number of units booked and revenue generated. While New York leads in terms of revenue, the year-over-year change in revenue in this market from the Q3 2015 over Q3 2014 (a gain of 45%), was one of the lowest of all major U.S. cities. This suggests that either the market is maturing or the New York Attorney General's (NYAG) increased scrutiny over Airbnb is having an impact on Airbnb's ability to keep growing. The fact that other top markets also have growth rates lower than the national average of 76% suggests that the relatively lower levels of revenue increase may be a function of maturity: Los Angeles (65%), San Francisco (44%), Washington DC (47%), Austin (54%), and San Diego (64%). Of top 10 ten markets shown in Exhibit 7, Seattle had the highest growth rate in revenue of 118%.

While total revenue is important, it is also appropriate to look at Airbnb's revenue as compared to traditional hotel room revenue at the market level. As illustrated in Exhibit 8, Los Angeles is the top market with roughly \$250 million in revenue generated by Airbnb properties. This represents 5.7% of the \$4.4 billion in room revenue generated by traditional hotels in Los Angeles over the same period, according to STR.

Exhibit 8: Top 10 U.S. Markets for Airbnb Revenue as a percent of Hotel Rooms Revenue from Oct. 2014 – Sept. 2015.



Sources: Airdna, STR, Inc., CBRE Hotels' Americas Research, Q4 2015.

THE PRESENCE OF MULTI-UNIT HOSTS

A review of Airdna data reveals that the vast majority of Hosts using the Airbnb system have only one unit listed therein. It seems reasonable to expect that these Hosts generally take a more opportunistic approach in attempting to benefit from Airbnb. As such, the units controlled by these Hosts represent a diminished potential threat to traditional hotels. Conversely, multi-unit Hosts are more likely to take a proactive approach to the management of their units and, as a result, encroach on demand sources that historically have used traditional hotels. A review of Airbnb activity in New York yields insights to this issue.

In December 2015, Airbnb made data available on roughly 60,000 units in New York². In the summary accompanying these data, Airbnb noted that of the Hosts renting their entire home, 95% have one listing. Airbnb also stated that 75% percent of the Airbnb revenue in New York is earned by entire home Hosts who have one or two listings. We believe that these are important metrics as they provide insight as to how competitive Airbnb might be with traditional hotels in a particular market.

Our analysis of New York employs a slightly different geographic definition and a different study period³. We also expanded the Host type considered to include private and shared rooms. Relative to the report issued by Airbnb, this decreases the percentage of Hosts with only one unit from 95% to approximately 80%. It is important to note that the number of Hosts with 3 or more units is only 7%. In addition, the revenue generated by Hosts with multiple units increased from the 25% as reported by Airbnb, to 29%.

² <https://www.airbnbaction.com/blog/data-on-the-airbnb-community-in-nyc>
³ New York geography & Study Period

Hosts with multi-private and shared rooms do not appear to be generating much revenue when compared to Hosts with entire home units. While 29% is a large share, it is lower than the national average of 34% and pales in comparison to the percentages we see in many other U.S. cities. In Miami, 19% of Hosts have 3 or more units and they generate 62% of revenue in the market. Other markets that have a high revenues generated by hosts with 3 or more units include Savannah (60%), Las Vegas (59%), Orlando (58%) and Oahu (52%).

It should be noted that Airbnb appears to be actively limiting the number of multi-unit Hosts using their system. Should they be successful at this effort, the number of multi-unit Hosts may diminish.

AIRBNB RATES ARE HIGHER THAN YOU MIGHT EXPECT

Contrary to popular belief, Airbnb is not always the lower priced option for those seeking temporary accommodation. The average rate paid for an Airbnb unit over the 12 months ended in September 2015 was \$148.42. This is 25% higher than the average hotel rate of \$119.11 paid over the same period as reported by STR. This disparity holds true for most Airbnb Unit types as illustrated in Exhibit 9.

Exhibit 9: U.S. Airbnb and Hotel ADR by Unit and Property Type - Trailing 12 Month Average (Oct. 2014 – Sept. 2015)

| UNIT TYPE | ROOMS | HOME | APT, CONDO, LOFT | OTHER | BED & BREAKFAST | AIRBNB AVERAGE ADR | HOTEL AVERAGE ADR | ADR PREMIUM (DISC) |
|-----------------|-------|----------|------------------|----------|-----------------|--------------------|-------------------|--------------------|
| Entire home/apt | 1 | \$130.29 | \$148.94 | \$119.03 | \$129.78 | \$144.51 | \$119.11 | 21% |
| | 2 | \$188.71 | \$214.78 | \$179.19 | \$157.68 | \$204.03 | \$119.11 | 71% |
| | 3 | \$280.50 | \$302.05 | \$255.43 | \$194.07 | \$285.03 | \$119.11 | 139% |
| | 4+ | \$448.27 | \$476.65 | \$349.83 | \$400.71 | \$450.02 | \$119.11 | 278% |
| Private room | | \$74.95 | \$86.54 | \$77.10 | \$95.25 | \$80.67 | \$119.11 | (32%) |
| Shared room | | \$44.20 | \$56.42 | \$45.45 | \$47.48 | \$51.10 | \$119.11 | (57%) |
| Average | | \$153.64 | \$147.21 | \$113.49 | \$103.25 | \$148.42 | \$119.11 | 25% |

Sources: Airdna, STR, Inc., CBRE Hotels' Americas Research, Q4 2015.

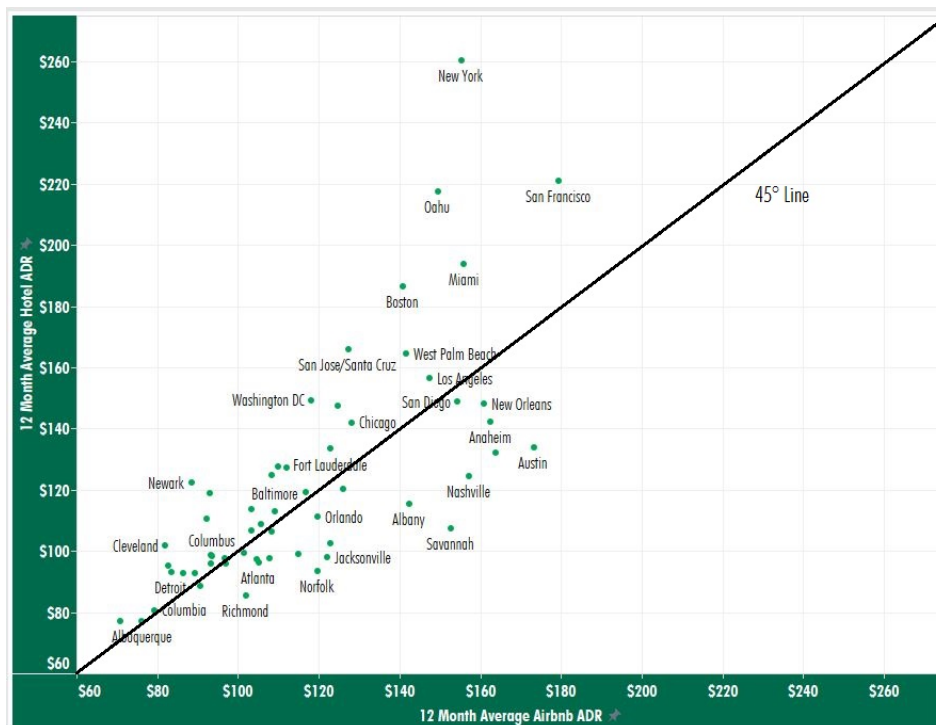
Part of the reason for higher rates can be attributed to the amenities found at some Airbnb units: 90% offer access to a kitchen, 68% offer access to a washing machine, 67% have free parking, and 12% offer breakfast. Data provided by the American Hotel & Lodging Association reveals that the availability of amenities offered by hotels varies by chain and property type. On average, only 60% of hotels even offer a microwave while 82% provide complimentary breakfast. Seventy two percent of hotels offer free parking which is slightly more than the 67% of Airbnb properties. In addition, 34% of the Airbnb units have 2 or more bedrooms and the rates for units with 2 or more rooms are offered at a considerable premium to single room units.

Exhibit 10 contains a comparison of the ADRs achieved by traditional hotels and Airbnb Hosts at the local market level. Markets that fall along the 45 degree line are those in which hotel ADR's are equal to those

being achieved by the Airbnb Hosts in that market. The cities above the line are those in which the hotel ADR is greater than the Airbnb ADR. Conversely, the markets below the line have an Airbnb ADR that is greater than that of the Hotel ADR. There is a clear linear relationship between the hotel and Airbnb ADR achieved. It also should be noted that the markets with a high hotel ADR premium are the U.S. gateway cities and are markets that generally have high land costs. The markets below the line, like Austin, Nashville, Charleston and Savannah, are strong leisure markets with relatively low land costs.

Markets where Airbnb offers a significant discount to the rate charged by the average hotel gives an indication as to how competitive Airbnb Hosts can be on price. Traditional hotels located in markets with the higher Airbnb discounts, such as New York (40%) and Oahu (31%), may be more vulnerable to encroachment from the sharing economy.

Exhibit 10: Scatter Plot of the Average Hotel ADR and Airbnb ADR by Market Twelve Months Ending Sept. 2015



Source: Airdna, STR, Inc., CBRE Hotels' Americas Research, Q4 2015.

THE RELEVANCY OF THE "AIRBNB" OCCUPANCY STATISTIC

Analyses of traditional hotel performance are often centered on the occupancy statistic i.e. the relationship of rooms sold to the number of rooms available for sale. Since traditional hotels are generally considered a special-purpose asset with a fixed inventory of saleable rooms, the occupancy calculation is straight forward: number of rooms in the hotel times 365 days per year yields the total volume of capacity available for sale on an annual basis. As discussed previously, most Airbnb units are not special-purpose

lodging facilities and, for a variety of potential reasons, are not made available for rent by their Host. As such, the concept of “Airbnb Unit Occupancy” is of limited utility.

COMPETITION FROM AIRBNB

The relevancy of Airbnb to the performance of a local hotel market is a function of a variety of factors, many of which are discussed herein. Three factors that seem closely connected are the size of the Active Unit Airbnb inventory, the price at which the Airbnb units are rented and the velocity of Active Unit growth. Exhibit 11 contains a summary of these factors for the 15 largest (in term of number of rooms) U.S. hotel markets.

Exhibit 11: Market Competition from Airbnb as of Q4 2015

| AIRBNB INDEX RANK | MARKET | ACTIVE UNIT/HOTEL SUPPLY (%) | ACTIVE UNIT/HOTEL SUPPLY INDEX | ADR PREMIUM (DISC) % | ADR PREMIUM INDEX | ACTIVE UNIT GROWTH % | ACTIVE UNIT GROWTH INDEX | AIRBNB INDEX |
|-------------------|---------------------|------------------------------|--------------------------------|----------------------|-------------------|----------------------|--------------------------|--------------|
| 1 | New York | 19.5% | 100 | (40.3%) | 100 | 76.1% | 26 | 81.4 |
| 2 | San Francisco | 12.5% | 64 | (18.8%) | 47 | 80.5% | 27 | 50.4 |
| 3 | Miami | 10.1% | 52 | (19.5%) | 48 | 123.9% | 42 | 48.4 |
| 4 | Oakland | 12.0% | 62 | (14.0%) | 35 | 101.9% | 34 | 48.0 |
| 5 | Oahu | 6.8% | 35 | (31.3%) | 78 | 109.2% | 37 | 46.1 |
| 6 | Los Angeles | 13.3% | 68 | (5.7%) | 14 | 85.6% | 29 | 44.8 |
| 7 | Seattle | 9.5% | 49 | (15.4%) | 38 | 124.5% | 42 | 44.5 |
| 8 | Boston | 8.0% | 41 | (24.5%) | 61 | 94.4% | 32 | 43.6 |
| 9 | Portland | 10.3% | 53 | (13.2%) | 33 | 92.3% | 31 | 42.4 |
| 10 | San Jose/Santa Cruz | 5.9% | 30 | (23.3%) | 58 | 110.1% | 37 | 38.8 |
| 11 | Philadelphia | 5.8% | 30 | (11.9%) | 29 | 184.9% | 62 | 37.8 |
| 12 | Long Island | 10.4% | 54 | 149.6% | 0 | 99.5% | 34 | 35.2 |
| 13 | Austin | 9.9% | 51 | 29.4% | 0 | 95.6% | 32 | 33.5 |
| 14 | Newark | 1.7% | 9 | (27.6%) | 68 | 124.7% | 42 | 32.0 |
| 15 | Richmond | 2.1% | 11 | 19.4% | 0 | 296.0% | 100 | 30.5 |

Source: Airdna, STR, Inc, CBRE Hotels' Americas Research, Q4 2015.

Using the data presented for each market, we rank the metrics that we suspect have an out-sized impact on the hotel industry. The ranking relied on the following variables and [weightings]: 1) Active Unit /Hotel Supply (%)[50%] – this is how many Airbnb units in that city are available as a percentage of the total hotel room supply; 2) ADR Premium (Disc)[25%] – The premium or discount of Airbnb ADR relative to the hotel market ADR, and 3) Active Unit Growth [25%] – The year-over-year growth in the average number of Active Units available on Airbnb. After creating the rankings we then indexed the values against each other to better compare the differences between the markets. The individual indexes were then averaged together using their respective weightings to get the final “Airbnb Competition Index.”

The information presented in Exhibit 11 is as of Q4 2015. Several factors could, and likely will, change the competitive relationship of Airbnb to the traditional hotelier, including greater levels of regulatory mandates placed on Airbnb Hosts (the need for tax collection, life safety and ADA compliance, etc.), the change in traditional hotel supply and the growth of Active Airbnb Units. The regulatory issues are significant as more and more jurisdictions focus on the presence of Airbnb and, for some, the economic appeal of increased levels of tax revenue. These are difficult to quantify, but in aggregate clearly represent a headwind that will logically impede the pace of Airbnb growth.

The increase in traditional lodging supply is readily quantified through the use of STR development pipeline data. More hotel rooms in a given market, absent an adequate level of incremental demand to absorb these new units, create downward pressure on pricing power. The change in supply of Airbnb units in a particular market is a function of many factors, many of which are discussed herein. Another factor is the performance of the apartment market in a given area, starting with the level of vacancy and the growth in the number of available units. The data provided in Exhibit 12 provides insights to these measures for five select U.S. markets.

Exhibit 12: External Market Risk for High Airbnb Competition Markets⁴

| MARKET | 2015 HOTEL OCCUPANCY (%) | 2016 SUPPLY CHANGE (%) | CURRENT APARTMENT UNIT SUPPLY | 2015 APARTMENT VACANCY RATE (%) | 2016 APARTMENT COMPLETION RATE |
|---------------|--------------------------|------------------------|-------------------------------|---------------------------------|--------------------------------|
| New York | 84.7 | 6.7 | 1,871,475 | 3.0 | 2.6 |
| San Francisco | 84.5 | 1.4 | 216,337 | 3.5 | 1.6 |
| Miami | 78.1 | 5.7 | 264,828 | 3.2 | 2.2 |
| Oakland | 79.7 | 0.3 | 198,661 | 3.7 | 0.9 |
| Oahu | 83.7 | 3.0 | 81,979 | 6.0 | 2.2 |

Sources: CBRE Hotels' Americas Research, CBRE-EA, Q4 2015.

CONCLUSION

It seems reasonable that Airbnb will impact hotels in two ways. For existing hotels, the growth of ADRs will most likely be curtailed. The fluid nature of Airbnb supply suggests that historic price premiums realized during peak demand periods will be mitigated. We know by studying past hotel cycles that increased competition resulting from new supply can hurt a hotel's ability to raise rates and can even cause management to lower their rates to stay competitive. The other impact may be on new hotel construction. Airbnb may be an impediment to traditional hotel construction and may reduce traditional hotel supply growth in many markets. This also may have the positive benefit of reducing the likelihood of overbuilding.

⁴ Q4 2015 Forecast from PKF Hospitality Research | CBRE Hotels and CBRE Econometric Advisor (CBRE-EA)

Airbnb is here to stay. It is more relevant in some markets than in others and is facing headwinds from a regulatory perspective. Unit supply growth will be a function of the value of alternative use, Host fatigue, etc. and will pose an increasing threat to the U.S. hotel industry. Outside of the top markets, it appears that Airbnb is having a minimal impact. Out of the 59 markets for which we have hotel revenue data, there are only 15 markets where Airbnb generates 2% or more of hotel revenue. Even in the markets where Airbnb earned more than 2% of revenue, the vast percentage of that revenue was usually only generated in the downtown submarkets.

Based on our analysis, Airbnb has and will continue to encroach on the business of the traditional lodging industry.

SHORTCOMINGS AND AREAS FOR ADDITIONAL RESEARCH

Several limitations exist that inhibit the development of a more thorough understanding of the degree to which Airbnb (and the other sharing economy participants) have, or will, encroach on the domain historically occupied by the traditional hotel industry. The greatest impediment today is the need to rely on performance estimates from Airdna. While we have high confidence in the accuracy of their data it is based on what information can be gleaned from the Airbnb.com and is not supplied directly from Airbnb. When possible we have compared information published by Airbnb to that supplied by Airdna. The results of these comparisons support the veracity of the Airdna data.

Two other key limitations exist: The Airdna information only addresses the estimated performance of Airbnb. Other market participants including HomeAway, VRBO, FlipKey, One Fine Stay, Couchsurfing, etc. are not a part of the analyses contained herein. The second limitation is the limited availability of relevant data covering a protracted period of time. Specifically, the estimates from Airdna cover only a 14 month period. The data series from STR begins in 1987 and represents the reported performance of virtually all of the chain affiliated hotels and a vast majority of independent properties. Because of this, industry behavior covering multiple lodging cycles can be analyzed. No such benefit exists at this point given the relative newness of the sharing economy.

A number of extremely relevant issues were identified during the preparation of this paper. Topics identified include: 1) what are the economic and social drivers that cause the volume of Active Hosts to increase or decrease? 2) How will real estate markets adapt (and capitalize) on the value proposition offered by Airbnb and their sharing economy competitors? For example, how are apartment property values being impacted? 3) Can the behaviors and preferences of Airbnb guests (i.e. type of unit occupied, location selected, and price paid) be used as a development tool by traditional hotel market participants?

We also suspect (and hope) that we will continue to receive feedback from our clients and friends relating to their observations, understandings and questions relating to this newest entrant to the accommodations industry. We welcome and look forward to these conversations.

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CBRE Hotels' Americas Research is a CBRE company that prepares a variety of forecast and benchmarking reports, as well as maintains an extensive database of hotel income statements. These reports and data provide the foundation for strategic planning by all who have an interest in hotel property financial performance. Additional information can be found at cbrehotels.com.

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ABOUT AIRDNA

Airdna provides data and analytics to vacation rental entrepreneurs and investors. By tracking the daily performance of over 400,000 listings across 5,000 cities worldwide, Airdna presents intelligence reports that feature occupancy rates, seasonal demand, and revenue generated by short-term rentals. This information - once only available to corporate hotel chains - is now accessible to the everyday homeowner and real estate investor.

Additional information about Airdna can be found at airdna.co.

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