TOURISM ECONOMICS
AN OXFORD ECONOMICS COMPANY

tourismeconomics.com

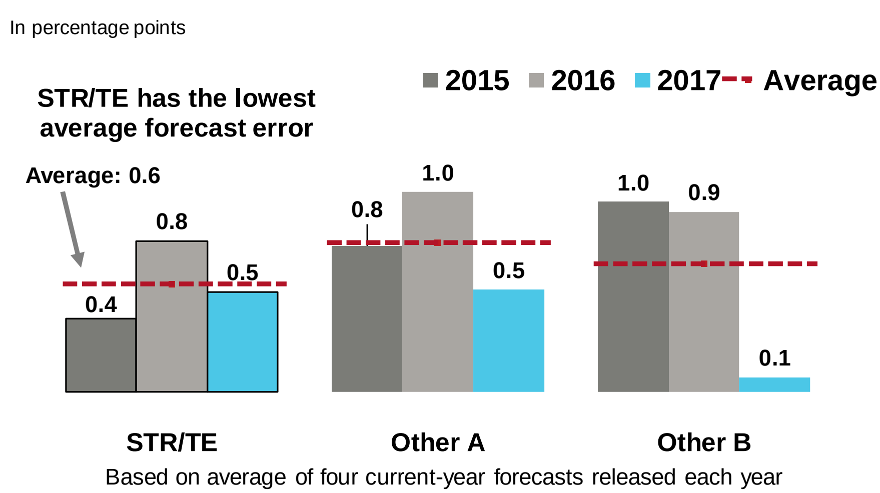
LODGING FORECAST ACCURACY

2017 ASSESSMENT

MAY 2018

Based on our annual assessment of forecast accuracy, we find that STR and Tourism Economics (STR/TE) continue to have a more accurate forecast record on average than the two forecast publications that we considered as benchmarks (referenced here as Other A and Other B). In terms of current-year RevPAR, the STR/TE forecasts published for 2015, 2016 and 2017 predicted growth within 0.6 percentage points of actual, on average, while the two benchmark publications had larger average errors (0.8 and 0.7 percentage points, respectively), as shown in Figure 1.

Fig. 1: Current-year RevPAR growth, absolute forecast error



Source: STR, Inc.; Tourism Economics

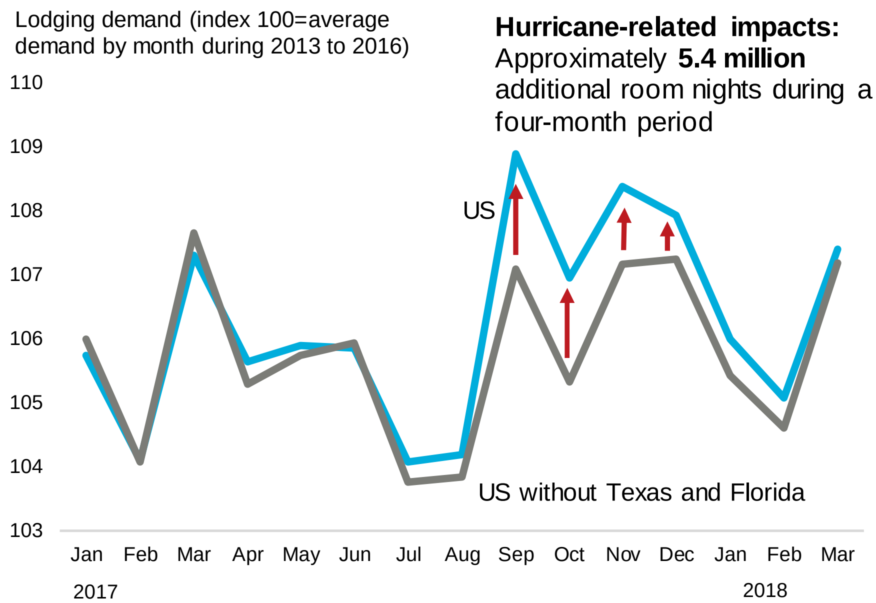
Excluding hurricane impacts, we estimate 2017 RevPAR growth would have been 2.4%. This is lower than the actual growth of 2.9%, yet quite close to the 2.5% growth predicted in the STR/TE forecast released at the start of the year. The remainder of this assessment article explains our estimates of hurricane impacts, the evolution of our US forecasts, and the accuracy of our Top 25 Market forecasts.

HURRICANE IMPACTS

Hurricanes Harvey and Irma were extraordinary events that generated unanticipated lodging demand during storm evacuations and following the storms as many displaced residents and recovery workers stayed at hotels. Also, some residents of Puerto Rico displaced by Hurricane Maria stayed for extended periods at hotels in Florida. To estimate hurricane-related impacts on US lodging performance, we applied two approaches.

In the first approach, we compared a demand index based on overall US performance to one based on US performance excluding Texas and Florida. In each case, we calculated the index based on actual demand during 2017 and 2018 relative to average demand by month during 2013 to 2016. As shown in Figure 2, we found the largest impacts during September to December. In these four months, the impact was equivalent to a boost of 5.4 million room nights, corresponding to a 0.4% increase in full-year demand relative to 2016.

Fig. 2: Hurricane-related demand impacts



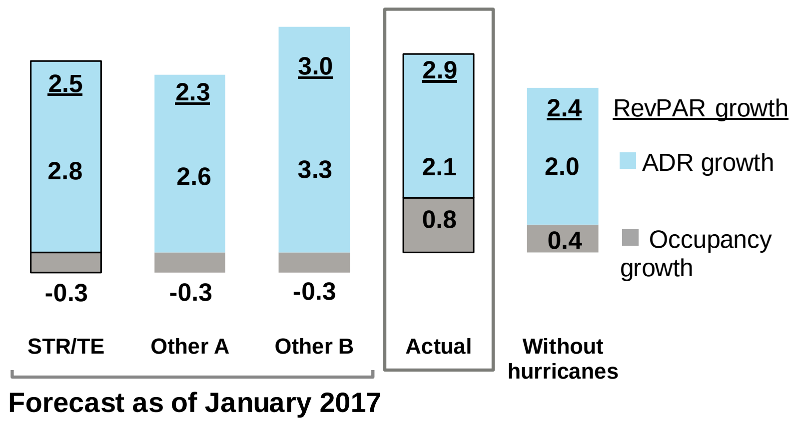
Source: STR, Inc.; Tourism Economics

In the second approach, we compared actual US performance in the final four months of the year to an alternative scenario in which demand and ADR grew at the year-over-year pace observed for the US without Texas and Florida. Based on this analysis, the hurricane impact is estimated as a 0.5% increase in 2017 demand (5.5 million room nights), and an overall estimate that without the hurricane impacts, RevPAR growth would have been 2.4%.

EVALUATION OF 2017 CURRENT-YEAR FORECAST PERFORMANCE

In January 2017, the STR/TE forecast anticipated RevPAR growth would slow to 2.5% in 2017.[1] This outlook was between the two benchmark forecasts, one predicted 2.3% growth, while the other predicted 3.0% growth. The STR/TE forecast proved to be close to the RevPAR growth without hurricane impacts of 2.4%, but below the actual RevPAR growth of 2.9%, as summarized in Figure 3.

Fig. 3: January forecast of 2017 performance

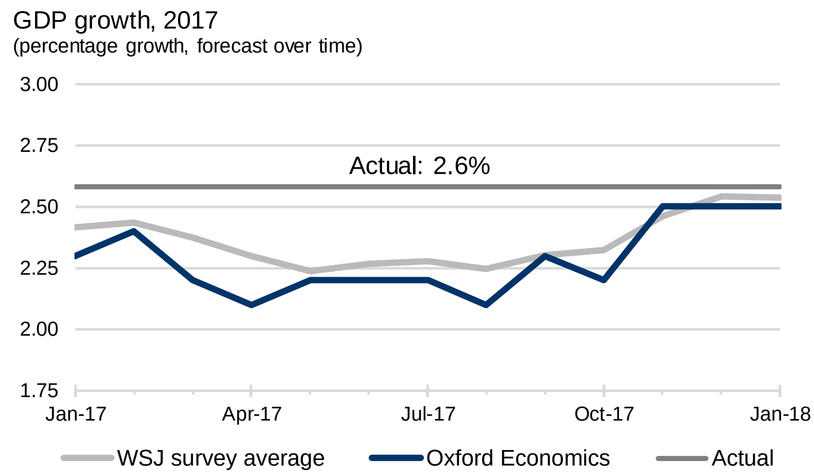


Source: STR, Inc.; Tourism Economics

Forecast accuracy depends not only on the initial outlook for the year, but also on updates during the year to incorporate actual lodging results and the evolving macroeconomic outlook. In the case of 2017, economic conditions at first appeared weaker, and then turned out to be stronger than anticipated, contributing to forecast revisions. At the start of the year, Oxford Economics, the parent company of Tourism Economics, anticipated 2.3% GDP growth in 2017 on an annual average basis (as well as a fourth-quarter-over-fourth-quarter basis), which was slightly below the Wall Street Journal (WSJ) consensus outlook (2.4%), as shown in Figure 4. This outlook initially weakened as the year progressed, reaching the 2.1% to 2.2% range during the middle of the year, before improving to close to the most current estimates of actual growth (2.6%).

[1] The February 2017 forecast was initially released in January 2017 at the Americas Lodging Investment Summit and is referred to as the January forecast in the text of this document.

Fig. 4: Evolution of GDP assumptions



Note: Graph shows monthly releases of estimated 2017 Q4/Q4 GDP growth. Actual corresponds to the April 27, 2018 estimates released by the BEA.
Source: Wall Street Journal; Bureau of Economic Analysis; Tourism Economics

Due to softening estimates of economic conditions, as well as weaker than anticipated ADR growth, the STR/TE RevPAR outlook initially decreased as the year progressed. By the August forecast release, before the hurricanes, the STR/TE RevPAR outlook stood at 2.3%, ultimately close to the estimated 2.4% growth without hurricane impacts, as shown in Figure 5.

Fig. 5: Forecast of 2017 growth

	2017 Forecast by release month				**Actual 2017 results**	**Without hurricane impacts**
	February	May	August	November		
US						
Supply	2.0%	2.0%	2.0%	1.9%	**1.8%**	1.8%
Demand	1.7%	1.7%	2.0%	2.4%	**2.7%**	2.2%
Occupancy	-0.3%	-0.3%	0.0%	0.5%	**0.8%**	0.4%
ADR	2.8%	2.5%	2.3%	2.1%	**2.1%**	2.0%
RevPAR	2.5%	2.2%	2.3%	2.5%	**2.9%**	2.4%

Source: STR, Inc.; Tourism Economics

TOP 25 MARKETS

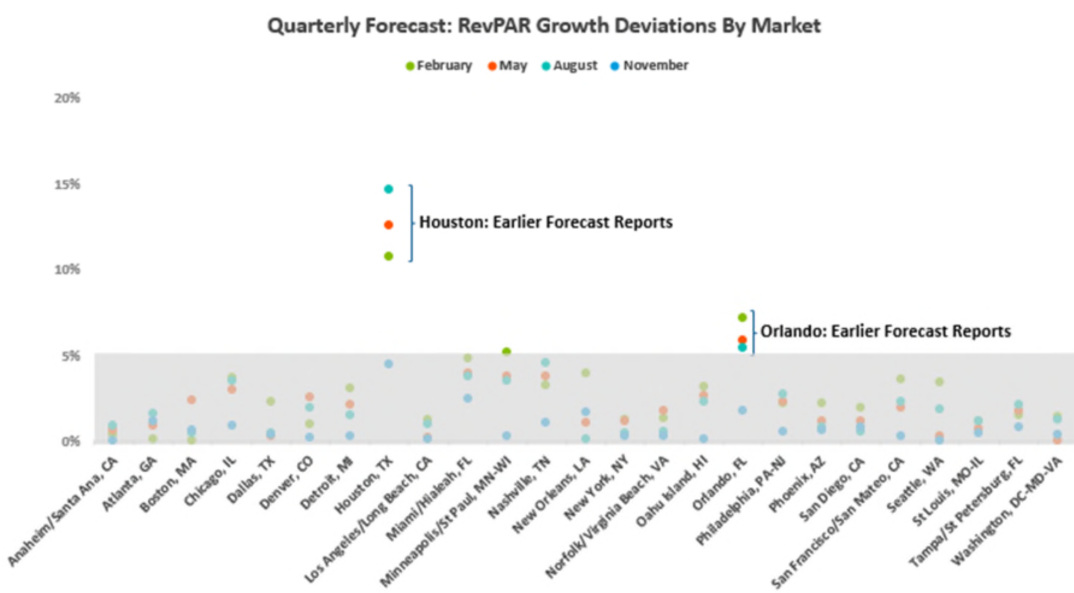
STR and Tourism Economics produce quarterly forecasts for each of STR's Top 25 Markets.[2] We evaluated the accuracy of these forecasts by calculating the absolute, percentage-point difference between forecast RevPAR growth and actual growth (RevPAR forecast error, also referred to as RevPAR growth deviations). The average absolute 2017 RevPAR forecast error for the four quarterly forecasts across the 25 markets was 2.1 percentage points. Taking

[2] Anaheim-Santa Ana, Atlanta, Boston, Chicago, Dallas, Denver, Detroit, Houston, Los Angeles, Miami, Minneapolis, Nashville, New Orleans, New York, Norfolk, Oahu, Orlando, Philadelphia, Phoenix, San Diego, San Francisco, Seattle, St Louis, Tampa and Washington DC.

into consideration the impact of the hurricanes on year-end performance and by removing markets that were most impacted (Miami, Orlando and Houston), the average error drops to 1.5 percentage points.

Further analysis into each of the quarterly forecasts per market indicates that 93% of the current-year forecasts had RevPAR estimates within 5.0 percentage points of actual RevPAR growth. This is shown as the shaded region in Figure 6.

Fig. 6: RevPAR growth deviations by market



Source: STR, Inc.; Tourism Economics

The five most accurately forecasted markets were Anaheim/Santa Ana, CA (0.5 percentage point RevPAR forecast error); Los Angeles/Long Beach, CA (0.6%); Washington, DC-MD-VA (0.7%); New York, NY (0.8%); and Dallas, TX (0.8%).

BACKGROUND

Tourism Economics has worked with STR to develop a suite of models to accurately track and forecast hotel performance across selected markets worldwide. Robust equations have been econometrically estimated that closely follow past movements in hotel performance as measured by STR data. These equations are used to forecast hotel performance using economic forecasts from Oxford Economics' global macroeconomic database, and Oxford Economics' and Tourism Economics' global city and region forecasts.

The forecast results presented in this assessment are published as a quarterly subscription product by STR, Inc. Additional information is available online through STR (US and markets) or Tourism Economics.

May 21, 2018

All data shown in tables and charts are STR, Inc. and Tourism Economics' own data, except where otherwise stated and cited in footnotes.

The modelling and results presented here are based on information provided by third parties, upon which Tourism Economics has relied in producing its report and forecasts in good faith. Any subsequent revision or update of those data will affect the assessments and projections shown.

To discuss the report further please contact:

Adam Sacks adam@tourismeconomics.com
Aran Ryan aran.ryan@tourismeconomics.com

Tourism Economics an Oxford Economics company
303 W. Lancaster Ave, Suite 2E, Wayne, PA 19087
Tel: +1 610-995-9600
www.tourismeconomics.com