

TOURISM OCCUPANCY TRENDS AND IMPACT

by Abdul Haleem

Government revenue, general income levels and inflation rates are highly correlated to tourism performance. Tourism is a seasonal business with varying occupancy levels based on month of the year. Occupancy levels play an important role in the overall profitability of the industry. One of the most commonly used performance measures in the industry is RevPAR (Revenue Per Available Room) which is a function of ADR (Average Daily Rate) and the occupancy levels. Declining occupancy has to be offset by an increase in ADR and other incomes to maintain profitability and avoid losses.

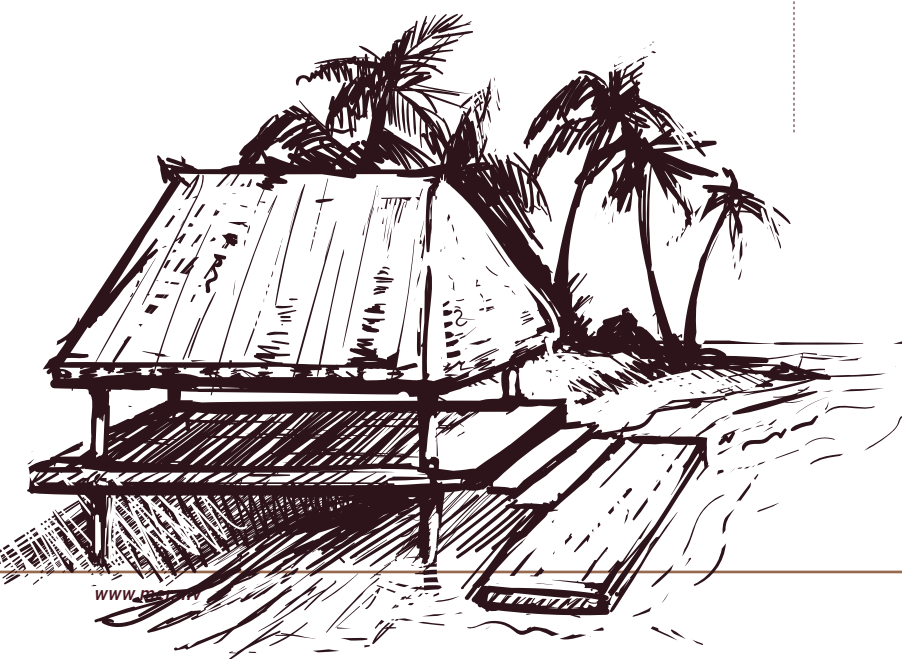
Tourism businesses are subject to high operating leverage because of heavy staff head count and other property Operations, Maintenance and Energy Costs (POMEC). The industry is expected to be operating

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at a very high financial leverage as well because of significant debt financing component involved.

It's imperative that the industry remain profitable and attractive to investors. The scale and size of resort investments is beyond the appetite of the local financial system and thus Maldives depends on FDI for investment.

Started in 1972 with a very humble beginning, the industry has entered into a different phase of its development, which involved purchase and sale transitions. The industry has attracted several high value deals over the years from overseas investors. According to Jones Lang LaSalle (JLL), an active broker in the Maldives tourism deals market, over US\$450 million



worth of resort transactions were either completed or under negotiation during 2019.

It was also reported that during April 2019, German-based Seaside Hotels & Resorts acquired Finolhu Maldives, a resort in Baa Atoll, at an estimated US\$90 million. In February 2019, Conrad Maldives Rangali Island resort, part of Hilton Worldwide Holdings, was sold to American private equity giant Blackstone Group for an undisclosed sum.

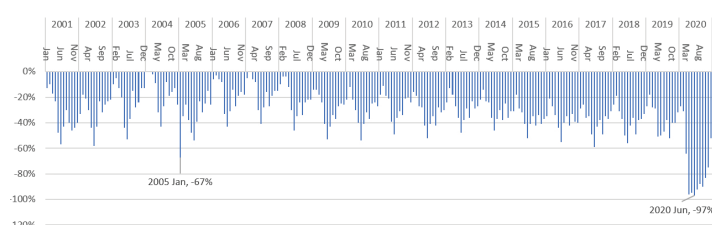
Because of the significance of occupancy levels for the tourism industry to remain profitable and also to attract FDI, I have analysed the historical data on occupancy levels from a risk perspective. It is expected that further research will be carried out by aspiring researchers interested in this important industry to the Maldives.

In this article, I have analysed time-series data on occupancy from the period 2001 to 2020.

Forecasting Occupancy

The graph below shows tourism occupancy data, with zero representing 100% occupancy. The magnitude of the line with respect to the zero point is fall in occupancy for a given month. Over the last 19 years, the Maldives has not seen significant drops in occupancy levels, except in two cases: 2014 Tsunami and the Covid-19 pandemic.

Not occupied %, 2001 - 2020



Following 2014 Tsunami, occupancy rates fell by 67% during January 2005. This has been the largest drop in occupancy levels in the Maldives. The data also points to the fact that low occupancy incidences

are becoming more frequent. The Covid-19 resulted in occupancy levels reaching to almost zero. Such a huge fall in occupancy rates would not have been anticipated in case of Maldives based on historical observations for the last 18 years.

Another important point to note also is that political turmoil in Maldives has no significant impact on the tourism occupancy levels. During 2012 the Maldives saw the most turbulent political times in Maldives. Yet, the occupancy levels remained within the expectations. This is an interesting observation because political risk premia is an important component of expected return calculations, especially when it comes to overseas investments.

To provide more insight into the occupancy data, the data has been analysed further to develop a simple model to forecast the occupancy levels into the future. More complex models may improve the

overall accuracy of the projections. The analysis was for the purpose of understanding the overall trend of occupancy levels and quantify the seasonal variations. To reduce the effect of outliers, the 2005 data is calibrated to account for Tsunami effect based on historical trend.

There are several methods used in forecasting using time-series data. I have used a simple regression model using Excel Slope and Intercept function. The outlier-adjusted data for the period from January 2001 to December 2019 has been used to develop the forecasting model.

The following statistics were derived using Excel for analytical purposes.

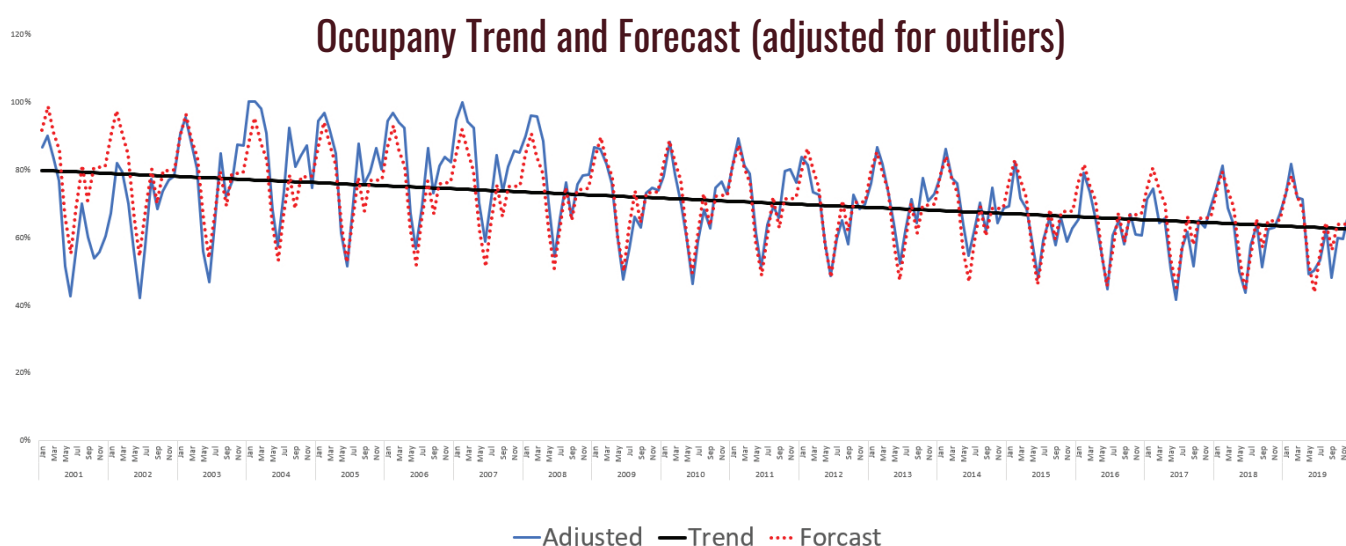
Intercept	0.79781923
Slope	- 0.0007611

Also, the following Seasonal Indices were computed.

Month	Seasonal Index	Month	Seasonal Index
Jan	1.15	Jul	0.87
Feb	1.24	Aug	1.03
Mar	1.14	Sep	0.90
Apr	1.08	Oct	1.02
May	0.84	Nov	1.02
Jun	0.69	Dec	1.03
MAPE	7.308%		
Accuracy %	92.692%		

The forecasting model using the above parameters, has been tested for its accuracy. Based on Mean Absolute Percentage Error (MAPE) of 7.3%, the model is expected to have over 92% accuracy.

As shown in the graph below, the model forecast mimics the actual occupancy levels. It also highlights a very pronounced declining occupancy trend in Maldives. This declining overall occupancy coupled with the fact that 4/12 months the actual occupancy is expected to be below the trend as shown in the seasonality index are important signals to consider in formulating tourism policy as well as firm-level decision making.



Risk Modelling

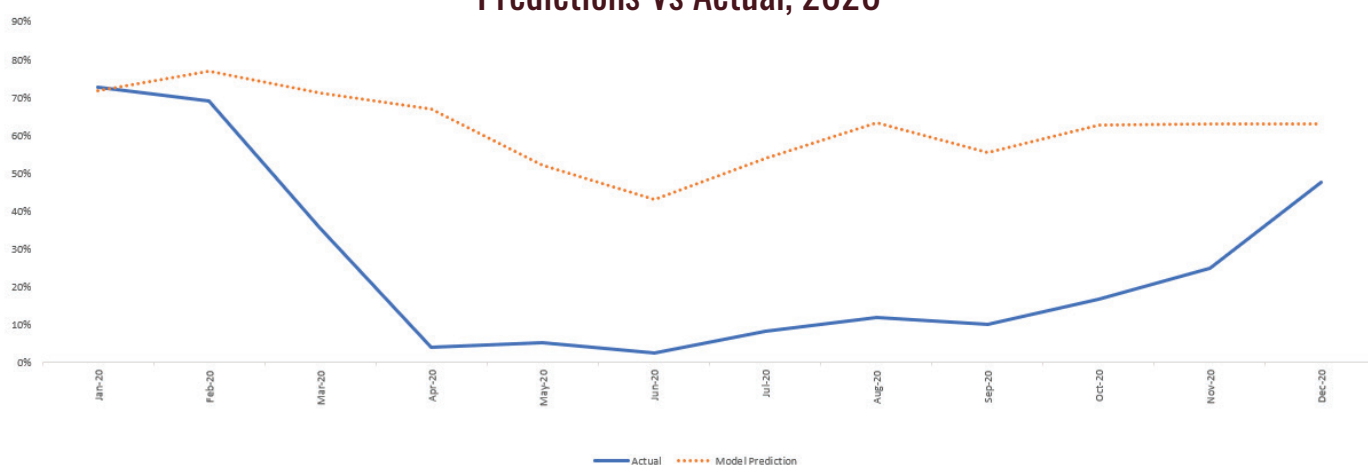
The model would have predicted the occupancy for 2020 to be on the trajectory shown in the dotted line. However, the actual fall in occupancy was far beyond anyone would have predicted. At an aggregate level the gap in occupancy is more than 37% on average for the year.

Assuming that, to break-even, resorts should maintain occupancy above 50%, except for the first two months of 2020, resorts would have made losses during the year. Resorts with high operating leverage would have suffered larger losses than those with low

During the period 2014 and 2020 over 3,500 beds have been added on average annually. At this point, one should ponder are we increasing capacity too fast which may comprise the long-term value of the industry under short-term fiscal pressure.

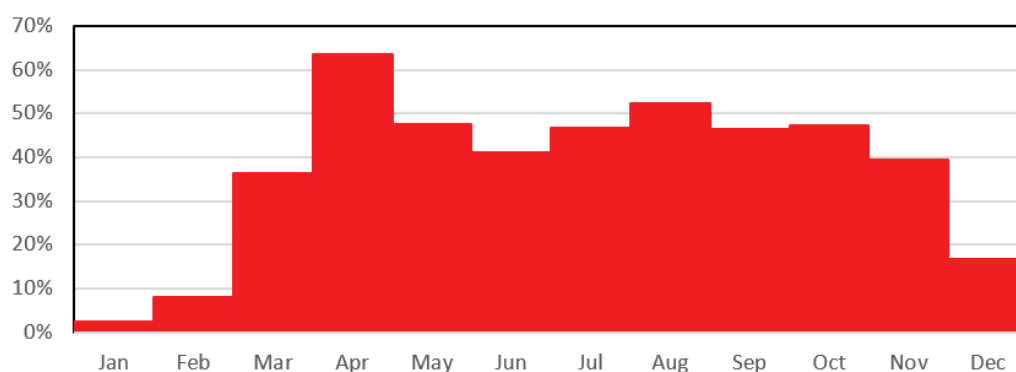
operating leverage. As occupancy is an important risk attribute in resort operations, occupancy related risk modelling become an essential technique for resorts because of its impact on the bottom line as well as managing liquidity.

Predictions Vs Actual, 2020



The graph visualises the unexpected occupancy gap during 2020 due to Covid-19. The unexpected occupancy related losses would have contributed to more than 40% of the loss suffered. Although occupancy related losses of this magnitude could not have been forecasted, this occupancy trend provides important information for future planning and reduce the impact of losses

Unexpected Shortfall in Occupancy



To measure the risk exposure, one of the techniques used is called VaR (Value at Risk), which estimates loss with some level of certainty for a given time interval.

To put into the context, let's look at the most extreme occupancy levels observed during the last 19 years. There are two such points in time; 2004 Tsunami and Covid-19. It is important to gauge the likelihood of such extreme occupancy levels occurring. The table below shows the most extreme occupancy levels observed during the last 19 years, ordered according to severity.

<i>Year</i>	<i>Month</i>	<i>Occupancy</i>	<i>Prob (mean =70%, STDEV =13%)</i>
2020	Jun	3%	0.0000002
2020	Apr	4%	0.0000003
2020	May	5%	0.0000004
2020	Jul	8%	0.0000013
2020	Sep	10%	0.0000026
2020	Aug	12%	0.0000053
2020	Oct	17%	0.0000267
2020	Nov	25%	0.0003030
2005	Jan	33%	0.0022035
2020	Mar	36%	0.0043714
2020	Dec	48%	0.0437343

Impact

Although the occupancy levels averaged over 67% on annual basis, decisions based on historical occupancy levels may prove costly. The declining occupancy trend and the increase in frequency of declining occupancy rates are causes for concern going forward. In addition to direct losses, the consequences negative impact on tourism revenue and profitability result in higher inflation as shortage of foreign currency lurks in the economy whenever there is tourism shock.

In addition to the impact of such extreme shocks on the general economy, such events affect the government revenue and create fiscal shocks as well. The largest segment of the tax revenue is TGST.

The following table shows the difference between what could have been forecasted for TGST for the year 2020 and what was realised. The TGST loss gap (potential revenue minus actual) accounted for over MVR 2.7 billion for the year 2020.

<i>Date</i>	<i>Actual</i>	<i>Forecasted (Trend +SV)</i>	<i>Gap</i>
<i>Jan-20</i>	<i>519,582,052</i>	<i>524,192,881</i>	<i>(4,610,829)</i>
<i>Feb-20</i>	<i>491,520,264</i>	<i>321,191,463</i>	<i>170,328,802</i>
<i>Mar-20</i>	<i>422,100,954</i>	<i>401,930,752</i>	<i>20,170,202</i>
<i>Apr-20</i>	<i>130,342,872</i>	<i>492,370,408</i>	<i>(362,027,536)</i>
<i>May-20</i>	<i>52,983,099</i>	<i>391,853,829</i>	<i>(338,870,731)</i>
<i>Jun-20</i>	<i>39,305,122</i>	<i>322,376,948</i>	<i>(283,071,826)</i>
<i>Jul-20</i>	<i>48,443,092</i>	<i>458,961,249</i>	<i>(410,518,157)</i>
<i>Aug-20</i>	<i>33,834,325</i>	<i>420,362,042</i>	<i>(386,527,717)</i>
<i>Sep-20</i>	<i>67,236,050</i>	<i>356,032,492</i>	<i>(288,796,441)</i>
<i>Oct-20</i>	<i>57,965,225</i>	<i>491,097,148</i>	<i>(433,131,923)</i>
<i>Nov-20</i>	<i>130,334,949</i>	<i>387,818,213</i>	<i>(257,483,264)</i>
<i>Dec-20</i>	<i>226,102,971</i>	<i>362,662,896</i>	<i>(136,559,925)</i>
Total	2,219,750,975	4,930,850,320	(2,711,099,345)

While what contributes to this decline in occupancy is to be studied further, one has to note the significant increase in bed capacity in tourism industry. During the period 2014 and 2020 over 3,500 beds have been added on average annually. At this point, one should ponder are we increasing capacity too fast which may comprise the long-term value of the industry under short-term fiscal pleasure.



ABOUT THE WRITER

Haleem is currently the Managing Director for Crowe Advisory Maldives, leading strategy & operations, valuations, investments, financial planning & analytics portfolio . started his career as an academic in 2000, Haleem worked for National Pension Fund as CFO, the Bank of Maldives as DCFO, MCB (Maldives) as Head of Corporate Banking and for Solarelle Insurance as DCEO.

Haleem sits on the Board of National Pension Fund and engages in teaching finance and conducting research on financial systems.

Haleem is a chartered management accountant with CIMA, UK and also a graduate of University of Wollongong, Australia.